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LIBERALIZATION OF THE ELECTRICITY SECTOR OF THE REPUBLIC OF CROATIA: COULD MISTAKES IN THE REFORM OF ELECTRICITY SECTOR OF GERMANY BE AVOIDED IN CROATIA?\(^1\)

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Abstract

The paper researches the reasons, assumptions, expectations and consequences of the electricity market liberalization. It compares the opening of electricity markets of the Federal Republic of Germany and the Republic of Croatia, presents short-term positive and long-term negative implications of this process in FR Germany, and provides suggestions and guidelines for successful opening of the electricity market in the Republic of Croatia.

Key words: liberalization of electricity sector, monopoly, regulation, competitiveness, Republic of Croatia, Federal Republic of Germany

1. INTRODUCTION

The problem of research in this paper is an inefficient operation of the electricity sector under conditions of monopoly and state regulation. In this sense, the subject of research of this paper is researching the impact of liberalization on the competitiveness of electricity sector. The object of research of this paper encloses producers, consumers and other participants enclosed by activities of the electricity sector, as well as processes through which the electricity sector is going on its way of developing into a competitive market.

From the problem, subject and object of research, result the purpose and objectives of research: to analyze the impact of liberalization on the electricity market of the Federal Republic of Germany and, from mentioned, propose guidelines for the opening of electricity market of the Republic of Croatia.

Finally is setting up the working hypothesis of this paper: By the basic knowledge on the reasons and consequences of liberalization, it is possible to research the impact of liberalization on the competitiveness of electricity sector of the Federal Republic of Germany and the Republic of Croatia.

Working hypothesis set on this way implies three auxiliary hypotheses (A.H.):

A.H.1.: By objective knowledge on the beneficial effect of competition on the electricity market, it is possible to determine the impact of reforms of Government of the Federal Republic of Germany and Government of the Republic of Croatia on the process of opening the electricity market.

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A.H.2.: By systematic research of the electricity sector of the Federal Republic of Germany and the Republic of Croatia, it is possible to point out the consequences of opening the electricity market for all participants involved in this process, and establish the reality of expectations of consumers, producers and the entire community from the liberalization of electricity sector.

A.H.3.: By understandings on consequences of the electricity sector reform of the Federal Republic of Germany, it is possible to propose effective steps in the process of opening the electricity market of the Republic of Croatia, by which mistakes of the liberalization of electricity sector of FR Germany could be avoided.

2. LIBERALIZATION OF ELECTRICITY SECTOR: REASONS, ASSUMPTIONS, EXPECTATIONS

In the continuation of this paper, the reasons are exhibited for the liberalization of electricity sector, assumptions and steps of its implementation, and expectations and perceptions of the outcome of this process.

2.1. Reasons for the liberalization of electricity sector: inefficiency of the organization model of electricity market

Electricity sectors were developing according to specific conditions of individual countries, which led to significant differences among them, for example, in the structure and construction of capacity, in structure and level of electricity prices, and in the organization and ownership. Especially they were big differences between electricity sectors of developed western countries and electricity sectors of eastern European countries or countries in transition.

Electricity sector had been for a long time organized as natural vertically integrated monopoly, owned by state. In fact, until the beginning of nineties of the last century, in most countries worldwide, vertically integrated electric utilities had a monopoly over all electricity supply industry: production, transmission, distribution and supply. Electricity sector was mostly controlled by a single four-phase vertically integrated company, and its operation was strictly regulated by state agencies which through the energy sector had been performed their social policy.

Monopoly, as the organization model of electricity market, proved ineffective, particularly in the area of ensuring the real price of electricity. Because of that lack, as well as technological progress in production and transmission of electricity, it became necessary to restructure the organization and operation of electricity sector, in other words to perform the reform in a direction of deregulation and liberalization of electricity market (Tominov, 2008; Osmanbegović and Kokorović, 2009).

The process of deregulation has led to the development of more sophisticated structural models of electricity market with different degrees of competition. These models represent phases in the liberalization of electricity market and are certain way that all countries must go through in the process of development of electricity market from monopoly to a competitive market. There are four basic models of organization of electricity sector (Jakovac, 2010; Osmanbegović and Kokorović, 2009):

- Model 1: a vertically integrated monopoly - monopoly on all levels
- Model 2: single buyer - is allowed or required the existence of one buyer/wholesaler (purchasing agency) who may purchase electricity from multiple manufacturers in order to encourage competition in the market
Model 3: wholesale competition - competition in the production and choice of distributors and large consumers

Model 4: retail competition - each customer is allowed to select his own supplier, which means full competition.

Given the current tendency of replacing state monopolies by private monopolies, and "conquering" the market through the partially permitted mergers or acquisitions, one can conclude that there are still no significant shifts in the organizational structure of electric industry from monopoly to a true competition.

2.2. Assumptions of the liberalization of electricity sector: steps in the implementation of reform

Since the beginning of nineties of the last century until present, the electricity sector worldwide has been subjected to major reforms, which result in restructuring of vertically integrated monopoly organization to competitive companies, opening of markets in the production and supply, and privatization of state property. The process described indicates the liberalization of electricity market.

Restructuring implies the preparation for the process of liberalization of electricity sector, and privatization i.e. the reorganization and rationalization aim at increasing of business efficiency. The opening of this market means deregulation and demonopolization, i.e. introducing competition in activities of production and supply of electricity.

To achieve competition in the electricity market, it is necessary to comply with so-called standard conditions (Kwoka and Madjarov, 2007):

- each market participant must be sufficiently small so that could not affect the market prices
- all market participants must have full information about prices, and current and future conditions
- it must be a free entry for new producers
- products and production factors have to be agreed freely and without any transaction costs
- and, as most important, every market participant has to be economically rational.

It is noteworthy that in the real world all conditions will never be satisfied, but in many cases a majority still will be (Wangensteen, 2006).

Furthermore, for competition to be created, it is necessary to deregulate market conditions, and ensure the conversion of state into private ownership. However, there are opinions (Sioshansi, 2006) that there is no electricity market, which already is or could be completely deregulated, because even well established competitive markets should have a regulator, or at least, an organized market monitoring, as well as administration for a fight against cartels, i.e. for prevention of monopoly and opportunity activity.

Privatization of state ownership is among the last and most rare steps in electricity reforms, because countries are trying to retain portion of a power, or portion of a share in ownership of electricity companies. This suggests that privatization is not necessarily associated with the process of liberalization, although the international financial institutions, mainly the World Bank and International Monetary Fund, in the nineties of the last century required from developing countries to privatize their electricity sector (Zhang et al., 2005). However, in those years it became clear that changes in ownership are not sufficient to improve the sector efficiency (Jakovac, 2010).
Technological progress in the production and transmission of electricity is affecting a lot on the liberalization of electricity market, in which a monopoly as a model of electricity market is abandoning, and it moves to a competitive market, in order to create a positive environment for all participants in market competition, not only for a single electricity supplier. Because of the progress of technology development, liberalization and development of electricity market become objective processes (Lewington and Weisheimer, 1998).

Liberalization of electricity sector requires the implementation of several interrelated steps (Osmanbegović and Kokorović, 2009):

1. sector restructuring  
2. introduction of competition in the wholesale and retail market  
3. regulation of transmission and distribution networks  
4. establishing an independent system regulator  
5. privatization.

The following are the basic steps of electricity sector reform (Table 1).

| Restructuring                          | - Vertical separation (unbundling) of production, transmission, distribution and supply  
|                                       | - Horizontal separation of production from supply  
| Competition and markets                | - Wholesale and retail competition  
|                                       | - Allowing entry for new producers and distributors  
| Regulation                            | - Establishing an independent regulator  
|                                       | - Allowing entry for a third party to the network  
|                                       | - Incentive for the regulation of transmission and distribution network  
| Property                               | - Allowing access for participants in private ownership  
|                                       | - The privatization of existing companies in state ownership  

Table 1: Basic steps of electricity sector reform  

It is indisputably that the basis of electricity sector reform, aimed at the liberalization of electricity market, is exactly the restructuring of electricity utilities and electricity sector as a whole.

2.3. Expectations from the liberalization of electricity sector: motivations and objectives

Motivation for the reform of electricity industry and related regulatory regime vary from country to country, but generally, it is supposed to improve the efficiency of electricity sector. In this context, it is important to emphasize that the main motive for the electricity industry reform, or the liberalization of electricity market, was and currently is the raising efficiency of electricity sector, in other words achieving technically reliable and economically efficient electricity industry with the market-based price of products and services (Tominov, 2008).
By the liberalization of electricity market was expected the decreasing of electricity prices, raising the quality of service, reducing price differences among countries, a possibility of selection of a supplier for each customer, increasing the sector efficiency through a reduced need for construction and maintenance of spare capacities, and other.

Based on estimates of the costs-benefits relation of the liberalization of electricity market, it can be argued that liberalization has not achieved the basic objective for which it was initiated, and that is lowering the electricity price. That happened only at the beginning of this process in some countries of the European Union and lasted until was a surplus of cheap electricity in the East European countries, and that was since 1998 until 2002. Since 2003, electricity prices in Europe have been ascending, and everyone becomes clear that lower electricity prices are an illusion.

These findings of research confirm that the basic objective of the liberalization of electricity market is not achieved, so can be concluded that the liberalization of electricity sector has not met expectations. On the contrary, according to the present state of reform and trends in these processes, these objectives, the way they were initially conceived and planned in the beginning of reform, are not even achievable (ibid).

3. COMPARISON OF THE ELECTRICITY SECTOR LIBERALIZATION IN THE FEDERAL REPUBLIC OF GERMANY AND THE REPUBLIC OF CROATIA

In the continuation of paper are presented the effects of electricity sector liberalization in FR Germany and the Republic of Croatia. Pointed out are consequences of opening the electricity market and the reasons for failure of electricity sector liberalization in FR Germany. Finally is described the situation and possible consequences which the liberalization of electricity sector could have for the Republic of Croatia.

3.1. Electricity sector liberalization in FR Germany

The following is a review on the consequences and reasons of failure of the electricity sector liberalization in FR Germany.

3.1.1. The consequences of the electricity sector liberalization in FR Germany

The electricity market of FR Germany was liberalized in 1998. Precisely, on 29th April 1998 the Federal Republic of Germany had opened its electricity market entirely, 100% (http://www.stromtip.de/rubrik2/15742/1/Stromanbieter-in-Deutschland.html). That the privatization in Germany was part of the liberalization process have shown tendencies of western and eastern power plants. Although only parts were largely privatized, the total potential had been significant. Two-thirds of electric utilities were in public ownership, and country, states or municipalities, depending on the public owner of the electric utility, had a 95% stake in capital (Lewington and Weisheimer, 1998).

The example of the FR Germany proves that the opening of electricity market had led to significant changes in behavior of, primarily, electricity producers. With liberalization, existing companies were forced to offer for its customers more competitive services in order to prevent or minimize their departure, and transition to competition. In addition to lowering of electricity prices, small electric suppliers were trying to tie up, and keep their customers through better post-sale services. Reacting to this process, strong and big producers were merging in even bigger companies in order to survive in a competitive contest. They profited through growing market shares and increased their impact in the
electricity market, which had reduced competition in the same market. For consumer, this meant more rising, than falling prices (Kemfert, 2003).

Although at first it seemed that the electricity market is "big" and that in it could establish and those electricity providers who do not have their own power plants, and although the electricity prices at first began to descend rapidly, unfortunately, the liberalization of electricity sector at the finish had a result of concentration of companies. These large concerns still rule the market. In support to this thesis is the fact that electric companies Eon, RWE, Vattenfall Europe and EnBW together produce even 80-85% of total electricity generation in FR Germany (http://www.stromtip.de/rubrik2/15742/1/Stromanbieter-in-Deutschland.html), and because of that, this market could be described primarily as an oligopoly, than as a competitive market. Consequently, electricity prices in recent years have been increasing steadily and are often beyond the level at which they were before liberalization.

In the German electricity market is currently "state from dreams", but only for big energy concerns. Through the lack of competition in the electricity market, it is possible to achieve a tremendous return on equity (ROE). Despite the crisis, German companies in the electricity sector are earning record profits, which are far from common in this branch. Three largest concerns Eon, RWE and EnBW record huge profits, with profit only in 2009 amounted to 23 billion Euros. High profits are primarily the result of selling the electricity at too high prices, especially during recent years. Since 2002, these companies have generated profit of more than 100 billion Euros, so it can be noticed that in the period from 2002-2009 their profit increased sevenfold. Return on equity (ROE) of each of these three concerns is approximately 25%. In markets where competition rule and by comparison with other DAX companies, it is recorded a profitability of 9%, and it can be concluded that high return on equity in comparison with the low risk of these companies is inappropriate (http://www.fr-online.de/wirtschaft/strom-oligopol-scheffelt-geld/~1472780/4757782/~index.html).

It is undisputed that consumers and companies which use industrial electricity bear the negative consequences of liberalization, paying too high prices of electricity (ibid), as shown in the following tables (Table 2 and Table 3).

<table>
<thead>
<tr>
<th>Year</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
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<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td>0.1277</td>
<td>0.1191</td>
<td>0.1220</td>
<td>0.1261</td>
<td>0.1259</td>
<td>0.1334</td>
<td>0.1374</td>
<td>0.1433</td>
<td>0.1299</td>
<td>0.1401</td>
<td>0.1381</td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Average price of electricity for households (€/kWh)

<table>
<thead>
<tr>
<th>Year</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td>0.0791</td>
<td>0.0675</td>
<td>0.0669</td>
<td>0.0685</td>
<td>0.0697</td>
<td>0.0740</td>
<td>0.0780</td>
<td>0.0871</td>
<td>0.0946</td>
<td>0.0929</td>
<td>0.975</td>
<td>0.0921</td>
</tr>
</tbody>
</table>

Table 3: Average price of electricity for industrial users (€/kWh)
If we observe the dynamics of prices since 1999 until 2010, there is no doubt that prices are rising. At the beginning, by liberalization is achieved desired effect, the lowering of electricity prices (http://www.kwh-preis.de/strom/ratgeber/strompreisentwicklung). Industrial consumers were able to get discounts up to 50%, while individual consumers through the free choice of electricity suppliers could achieve saving up to 20% (http://www.stromtip.de/rubrik2/15742/1/Stromanbieter-in-Deutschland.html). However, that only lasted for a year or two. Since 2001, electricity prices were increasing steadily again. Currently, electricity prices in FR Germany are at the level of upper third of European prices, both for household and industrial consumers. If we compare electricity prices for households and industrial consumers, it is possible to observe that households pay almost twice as much than industrial consumers.

Besides being a major reason for increasing of electricity price and unacceptable for consumers, exactly a lack of competition in the electricity, in consideration should be taken following objective factors influencing the raising of electricity price. These are the costs of producing electricity, costs of maintenance of distribution networks, and transport costs, which are mainly transferred to the final consumer (http://www.kwh-preis.de/strom/ratgeber/strompreisentwicklung). Furthermore, the cost of raw material directly affects the electricity price. Crude oil, as the most widely used source for electricity production, is mostly affecting the electricity price. Furthermore, the raw energy sources are available with limitations, which in a future will mean their lesser offer and, consequently, increase of oil price as well as electricity price. Exploitation costs also play an important role, because there is no use of raw materials, which getting is more expensive than the cost of a raw material by itself (ibid). Next factor that affects the electricity price is the EUR-USD exchange rate. Favorable EUR-USD exchange rate was significantly mitigated the rising of oil price 2008, which is also reinforced the value of Euro. However, because of large debts of Europe, the Euro has depreciated against the Dollar, so the expected further increase of the crude oil price in exporting countries will result in a progressive increase of crude oil prices in countries that import this energy source (http://www.strompreisvergleich-24.de/).

Unfortunately, it should be noted that the consumers themselves are partly guilty for the rising of electricity price. Although by opening of the electricity market they are enabled to change electricity supplier, only a small percentage actually decided for change. The consequence is that the four already mentioned concerns have become even stronger and more secure in their market shares (http://www.kwh-preis.de/strom/ratgeber/strompreisentwicklung).

Although the current situation in the electricity market of FR Germany is not the best, especially in determining the real market prices, the German government has at disposal several measures by which can affect the reduction of levels of electricity prices:

One way of reducing electricity prices is increasing competition in the electricity sector. In this sense, the current problem could be alleviated in a way that giants Eon, RWE, Vattenfall and EnBW are forced to sell portions of companies in order to create a greater number of strong companies. Such horizontal separation has been a need for years. Also should be vertically separated the production, transmission, distribution and supply of electricity (http://www.hausbautipps24.de/energie/energiesparen/zerschlagung-des-oligopols-der-stromerzeugung-senkt-strompreise.html).

Second way is that by taking control over distribution networks by the agency for networks monitoring, reduce prices of using networks for small companies. Thus, the isolation of new suppliers of electricity, which do not have their own distribution networks, would be solved or controlled, the prices of using distribution networks would be reduced, and finally electricity prices would be reduced.
Third way would be that consumers make use of already mentioned the newly acquired right to choose a supplier of electric energy which could, depending on individual consumption of electricity and alternative offers, result in annual savings of several hundred Euros at the household level (http://www.strompreisvergleich-24.de/).

So far, only 25% of users changed electricity supplier, i.e. only 15% of industry consumers, 6% of craft workshops and 4% of households have so far changed their electricity supplier http://www.zeit.de/2003/18/E-Strom). Mentioned followed when existing electricity suppliers reduced prices in order to prevent competition in obtaining new customers. With the accumulated capital from the period of their monopoly, some of big players were able to reduce electricity prices for some time, even below production cost, in order to have an advantage over new competitors. That finally was successful, and resulted in exit of competition from the branch.

New contracts with alternative suppliers of electricity provide more favorable electricity prices. The consequence is more considering about changing provider. Moreover, every second consumer is considering about changing provider (53%). Changing of electricity supplier is particularly prone user group from 18-30 years (http://www.stromtip.de/rubrik2/15742/1/Stromanbieter-in-Deutschland.html).

Fourth and the simplest way to reduce the monthly rate of electricity would be that consumers through a more efficient, more cautious and more aware use of electricity reduce, or rationalize its consumption (http://www.strompreisvergleich-24.de/).

Regarding further movement of prices, it must be observed, inter alia, how the disaster in Japan will affect the future progress of electricity prices. It could also be expected that in future, justifications for a possible reduction of prices will be less, but quickly will be found reasons for an increase. In any case, until the market is ruled by a small number of big participants, there is no large likelihood that in respect of lowering prices of electrical energy will change anything. If it is additionally considered that concerns since 2009 belong to EEX (European Energy Exchange), which as of 2009 operates without a controlling administration, then it can be said almost with certainty, that hopes directed towards lowering the prices of electricity are illusion (http://www.kwh-preis.de/strom/ratgeber/strompreisentwicklung).

### 3.1.2. The failure of liberalization of the electricity sector in FR Germany

Free competition in 1999 first led to strong competition in prices. Electricity suppliers have reduced their excess capacities, restructured and rationalized their companies. The consequence of this was a process of concentration of electricity in the German market. About 80 medium-sized companies merged or joined, depending on the strength of an individual company (http://www.stromtip.de/rubrik2/15742/1/Stromanbieter-in-Deutschland.html), which led to 20 major companies (http://www.zeit.de/2003/18/E-Strom), and of 900 small companies, even 500 merged in corporate or strategic alliances in order to ensure market shares. After liberalization, there was a yet another phenomenon: the strategy of a merging of big electric concerns based on the cost criteria of smaller companies which operated locally and which were able to compete even after the opening of electricity market (Kemfert, 2003). The number of large companies thus reduced from eight to four. Preussen-Elektro and Bayernwerken formed Eon. RWE merged with VIEW. By Bewag, HEW, Laubag and VEAG originated Vattenfall Europe (http://www.stromtip.de/rubrik2/15742/1/Stromanbieter-in-Deutschland.html). Mentioned giants have expanded their strategic shares in other smaller power plants.
Mentioned suggests the conclusion that the competition in the electricity market in FR Germany is in fact farce. Electricity concerns have more market power than before liberalization - ten years ago. RWE, Eon, Vattenfall Europe and EnBW hold the German electricity market firmly in its grip and make practically the oligopoly. Market events are especially ruled by giants RWE and Eon. Together with Vattenfall Europe and EnBW, these giants have a market share of even 80-85%. (http://www.stern.de/wirtschaft/news/unternehmen/energie-oligopol-vier-konzerne-teilen-sich-den-markt-562360.html). Mentioned four electricity concerns are working as regional companies (Jakovac, 2010). Specifically, each concern has its own regional focus that corresponds to one of the four zones. Therefore they are able, due to the lack of competition in certain zones, even additionally express their power. RWE concern has its focus in Nordrhein-Westfalen, Rheinland-Pfalz, Saarland and parts of Bavaria. Eon is the most active in Schleswig-Holstein, Niedersachsen, Hessen and Bavaria. EnBW has its power in Baden-Württemberg, and Vattenfall in new federal states. (http://www.stern.de/wirtschaft/news/unternehmen/energie-oligopol-vier-konzerne-teilen-sich-den-markt-562360.html). Geographically viewed, RWE is in the West, EnBW operates in the South and Southwest, Vattenfall is the strongest in the East, and Eon rules from the North to the South of Germany (http://www.strompreisvergleich-24.de/).

One of the reasons for a dominant position of these four concerns is that the same actors have most of the network for distribution of electricity, which has the result that small power plants, which do not have their own distribution networks, are exposed to their mercy. (http://www.stern.de/wirtschaft/news/unternehmen/energie-oligopol-vier-konzerne-teilen-sich-den-markt-562360.html). In other words, the electricity distribution network is almost entirely owned by the former monopolists, or oligopolists who would prefer that even after liberalization, flow only their electricity through their networks, but considering that "on paper" rules the competition, they are forced that without high prices of using networks, allow small power plants to use their electricity distribution networks. Now is the question, what is meant by low prices of using distribution networks? Specifically, smaller companies are still complaining on the too high prices of using the electricity distribution network. By 5 to 8 cents per kWh spent, these fees are too high and the highest expense in monthly installments of electricity for consumers, and a major obstacle to effective competition in the electricity market. Moreover, even 18 billion Euros former monopolists are earning just based on allowing the use of their electricity distribution networks. Under such circumstances, to the new or potentially new companies, profitable entry into the market is barely possible. The main culprit for this state is the German Government, which is due to its absence in the area of regulation of using the distribution network, helped "big four" to increase their already great power over small suppliers of electricity ( http://www.zeit.de/2003/18/E-Strom). Noticing the mistake of the German Government, the European Union requested that until the summer of 2004 induct the administration that will regulate market conditions, in order to achieve real competition in the electricity market. It should be noted that these efforts did not yield the expected success.

Besides the four mentioned concerns, there is number of smaller suppliers of electricity, but few of them possess power plants of higher capacity. Therefore, small companies have to buy electricity on the electricity exchange from the "big four" in order to be able to supply their customers with electricity (http://www.stromtip.de/rubrik2/15742/1/Stromanbieter-in-Deutschland.html). Five years after liberalization, it was clear that smaller electricity suppliers have not been able to survive in the electricity market. Lichtman, Nordstrom, Europower, Vossnet, Kawatt, Zeus, Riva, Die Deutsche Strom AG and Ares are just some of the companies that collapsed after liberalization (http://www.zeit.de/2003/18/E-Strom).
Although the liberalization of electricity sector clearly did not positive acted on increasing of electricity suppliers, numerous small electricity suppliers, which do not have their own distribution networks, still managed to establish themselves at the local level because they are legally allowed to use networks of ruling electricity concerns. Thus, consumers do not need to worry that by change of electricity supplier would be changed the quality of electricity supply, because the distribution remains the same. The only thing they can happen is benefit for paying lower electricity price. Small regional suppliers of electricity have and after the liberalization a duty to supply consumers with electricity within their region of operation. That way each household must be connected to the high-voltage electricity network and be constantly supplied with electricity. Consumers who have concluded contracts with alternative suppliers of electricity, or who after the liberalization changed the supplier, are ensured in the event of termination or absence of a selected supplier, because their regional supplier of electricity is required to ensure them electricity supply. That way there is no risk in changing electricity supplier.

Future events in the electricity market do not have positive signs. Demand for electricity per year on average is increasing by a modest 0.5%. Current reduction of demand is the result of economic crisis, but it will not last long, and then will begin to grow again. Possibility for organic growth of electricity companies is limited, because almost 100% of consumers have their electricity supplier. The consequence is that in the market rule the suppression of competitors, where some suppliers like GGEW, Stadtwerke Flensburg, UEWG or Yello are trying to recruit consumers from the competition (http://www.stromtip.de/rubrik2/15742/1/Stromanbieter-in-Deutschland.html). They are partly succeeding in that due to expensive marketing campaigns and lower electricity prices. Large suppliers of electricity will be focused on the acquisition of other market participants, while local and regional suppliers of electricity will try to maintain their market share and possibly achieve additional profit through additional services.

3.2. Liberalization of the electricity sector in the Republic of Croatia

The following is the review of the state, expectations and possible consequences of the liberalization of electricity sector in the Republic of Croatia.

3.2.1. State of the electricity sector in Croatia

In the Republic of Croatia, the transmission, distribution and supply of electricity in its entirety, and the majority of electricity production is organized and controlled within the HEP Group, which consists of HEP plc as leading company and several subsidiaries, and are wholly owned by the Republic of Croatia (Jakovac, 2010).

Regarding the future Croatian membership in the European Union, in parallel with the adjustment of Croatian energy legislation with European norms, as part of the general reform of electricity market, started the restructuring process of HEP. This process is enclosed, on the one hand, by legal and institutional requirements, which arise from the package of Croatian energy legislation and, on the other hand, specifics of the historical heritage and the current state of development of the electricity market in Croatia. Since 1st July 2002 HEP was formally reformed into HEP Group (Tominov, 2008).

Strategically observed, it was selected such a model of restructuring that should allow the optimization of economic flows, but also the interests of all stakeholders. It is satisfied the EU directive 2003/54/EC that requires a separation of activities, but not a separation of ownership.

With respect to given objective of increasing the business efficiency, with decentralization of decision making, as a logical solution imposed the need for an organization of HEP Group towards the model
of responsibility centers. The purpose of these centers is more effective control of costs, revenues and profits, developing market behavior at the lower levels of management, with the ultimate objective of increasing the economic efficiency of HEP Group. It means decentralization of right on decision-making, decentralization of informing and responsibilities. Responsibility centers thus are becoming both objects and subjects of the control process of management.

Organization of HEP Group towards the model of responsibility centers is based on establishing the economic relationship between responsibility centers. These relationships have certain characteristics of market behavior, but are coordinated and controlled by the governing joint-stock company (ibid). Responsibilities centers of electricity production in the Croatia make in the vast majority the HEP Proizvodnja Ltd. Despite the majority of production by the HEP Proizvodnja, yet two companies in the Croatia are licensed for electricity production, which are TE Plomin Ltd. and INA plc. The largest of them, HEP Proizvodnja Ltd. (a subsidiary within the HEP plc) has permission to perform two energy activities: the production of electricity for tariff consumers and electricity production for market (from eventually disengaged existing production and new capacities). However, under the Law on Electricity Market its key activity is electricity production for tariff customers and services provision of system. Furthermore, the transmission is under the jurisdiction of HEP - Operator prijenosnog sustava Ltd., the distribution is under the jurisdiction of HEP ODS Ltd., while the supply by beginning of opening on 1st July 2006 and with the full opening on 1st July 2008 has undergone certain changes. By the Croatian Energy Regulatory Agency (HERA), which gives a legal right to all customers to choose their electricity supplier, four companies are licensed to carry out energy activity of electricity supply: HEP Opskrba Ltd., KORLEA Ltd., HEP - Operator distribucijskog sustava Ltd. and HEP Toplinarstvo Ltd.

( link to Croatian Energy Regulatory Agency). That way are created the assumptions for the organizational structure of HEP to become adaptive on demands of environment, and design and innovation oriented (Tominov, 2008).

Despite the opening of electricity market, it can be said that HEP still has a monopoly position in the area of its business i.e. that is the privileged monopolist in the operating region. Consequently, in the Republic of Croatia customers mainly can be supplied with electricity only from the HEP group. It should be noted that due to relatively small electricity market in Croatia, there is little space for the so-called independent producers. Therefore, HEP group is a typical so-called natural monopolist whose average costs, due to the economy of scale, are strongly decreasing with the increasing of production and consequently, as the sole supplier of electricity can supply the entire demand, or the entire market at the lower cost than several smaller companies can together.

Unlike the competitive market, where there is a clear link between price and quantity supplied, in the monopoly market there is no such direct inter-connection. Decisions of a monopolist, in this case HEP, do not depend only on the marginal cost, but also on the form of demand curve. For consumers of electricity, such a state in the market results in a number of undesirable effects. Firstly, the monopoly provides a lower equilibrium quantity of output and higher electricity prices than would be the case in a competitive market. The next issue of this market condition is price discrimination, which implies different prices (tariffs) for the same electricity to different consumers (households, industrial customers) in the same market. As already mentioned, the HEP group completely controls the market events, because it essentially makes the entire market. Mentioned comes from the fact that HEP Group is the only vendor, offers a unique product without substitutes, prevents market entry of other suppliers of electricity, although by various regulations are tried to influence the mentioned, and fully controls the amount of electricity produced which offers for sale.
The following tables show the average price of electricity in the Republic of Croatia for households and for industrial users in the period since 2005 until 2010 (Tables 4 and 5).

<table>
<thead>
<tr>
<th>Year</th>
<th>Household Price</th>
<th>Industrial Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>0.0702</td>
<td>0.0556</td>
</tr>
<tr>
<td>2006</td>
<td>0.0759</td>
<td>0.0596</td>
</tr>
<tr>
<td>2007</td>
<td>0.0760</td>
<td>0.0597</td>
</tr>
<tr>
<td>2008</td>
<td>0.0798</td>
<td>0.0743</td>
</tr>
<tr>
<td>2009</td>
<td>0.0935</td>
<td>0.0853</td>
</tr>
<tr>
<td>2010</td>
<td>0.0934</td>
<td>0.0932</td>
</tr>
</tbody>
</table>

Table 4: Average price of electricity for households (€/kWh)

Table 5: Average price of electricity for industrial users (€/kWh)

From tables is apparent that electricity prices were until 2007/2008 almost constant. In 2008, HEP Group asked from the Government RH, which monitors the level of electricity prices, the permission to increase electricity prices for both household and industrial consumers. Upon approval of this request, prices were for both ones and other users, from 2008 to 2009 rapidly increased, which trend had continued into 2010 especially for the category of industrial consumers.

3.2.2. Expectations and possible consequences of the liberalization of electricity sector in Croatia

Based on the Energy Law and the Law on Electricity Market were created the fundamental conditions for the operation of electricity market in Croatia. By preparing and adopting Rules of Electricity Market Organization and other secondary legislative acts, were created conditions for the operation and gradual opening of the electricity market. Although in Croatia there is single electricity market, the law provides gradual dynamics of opening the electricity market. Thus, the market is formally fully opened on 1st July 2008.

(http://powerlab.fsb.hr/osnoveenergetike/wiki/index.php?title=ENERGETSKA_TR%C5%BDI%C5%A0A)

For perceiving the possible consequences of opening the electricity market in Croatia, should be taken into account all participants in this process: public and private suppliers of electricity, household, industrial and other users, fuel suppliers, investors, financial and regulatory institutions, and other participants of economy development of a country (Lewington and Weisheimer, 1998). In the table can be seen participants of liberalization and consequences that the same could have for them (Table 6).

The most important consequence of monopoly in the electricity sector is the forming of unrealistic prices of electricity. By replacing an inefficient monopoly and bad government regulations, can be established a competitive electricity market. Competition in the electricity sector could ensure real prices of electricity, and the choice to customer of his supplier (producer or distributor) of electricity...
(Osmanbegović and Kokorović, 2009). Moreover, liberalization should result in more efficient act of all participants in the electricity sector.

<table>
<thead>
<tr>
<th>Electricity suppliers and their internal consequences</th>
<th>Consumers and direct suppliers and their external consequences</th>
<th>Other participants enclosed of the liberalization process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Changing and adapting the philosophy of company</td>
<td>Changes in prices and other market conditions</td>
<td>Change of state regulations</td>
</tr>
<tr>
<td>Changes in costs, profit, technology, employment</td>
<td>Changes in services and security of supply</td>
<td>Economic consequences on growth of economy, employment and investments</td>
</tr>
<tr>
<td>Foreign investments</td>
<td>Impulses for changes in the structure of industries of other energy sources</td>
<td>Changes to the environment</td>
</tr>
<tr>
<td>Changes in the structure of branch and in the structure of company</td>
<td>Impulses for changes in investments</td>
<td></td>
</tr>
</tbody>
</table>

Table 6: Participants of liberalization

4. FUTURE OF THE ELECTRICITY SECTOR OF THE REPUBLIC OF CROATIA

Hereafter, paper describes the process of reform of electricity market of the Republic of Croatia marked by conditions of accession to the European Union, and specific characteristics of developing countries to which Croatia belongs. Finally, the question is could Croatia avoid mistakes and errors in the electricity sector reform of FR Germany? Could it derive lessons from negative experiences of opening the electricity market of FR Germany? Moreover, which are those steps and measures to avoid such errors?

4.1. The reform of electricity sector of the Republic of Croatia in conditions of accession to the EU

The need for the real price of electricity, then technological progress in production and transmission of electricity, and resulted need for liberalization, i.e. opening the electricity market, induced a series of reforms worldwide, including the RH. The Republic of Croatia on 10th June 2011 received "green light" to enter the European Union, and in such position have to align its legislation and market with the community acquis and the market structure of electricity sector of the Union (http://www.hrt.hr/index.php?id=48&tx_ttnews[tt_news]=119258&cHash=c8060cb9fa).

Change of the market structure of electricity sector encourages reforms of electric-power activity to create an efficient, cost-effective, open and competitive electricity sector, which, as previously mentioned, resulted in liberalization of electricity sector in the area of the European Union. Certainly that reform of electricity market cannot bypass the Republic of Croatia, which as a future member of the European Union, in that supranational creation, as the signatory of the Stabilisation and Association Agreement, required to align its legislation with the EU legislation, including the electricity market, taking primarily own interests and own development strategies (Udovičić, 2004). This implies a gradual adjustment of the state monopoly to conditions that match those on the common EU market.
For developing countries, according to a survey of the World Bank, electricity sector reform must be carried out through the following six steps, so-called standard recipe (Jamasb et. al., 2004):

1. corporatization or commercialization of core activity
2. enactment of the Energy Law
3. establishment of an independent regulatory body
4. restructuring of core activity
5. private Greenfield investments
6. privatization.

Reform of electricity market in Croatia formally started in late June 2000 when the Croatian Government adopted the Program of electricity sector reform. In consideration were taken the possible consequences of global processes, conditions and restrictions which may result from the EU energy policy, and specifics of the Croatian electricity market. By the Program of electricity sector reform were established the separation of core activities, separation of secondary activities, formation of energy sources market and privatization of energy companies, because the Croatian energy market is characterized by state ownership. A year later, in July 2001 was enacted a package of five energy acts in line with at that time valid European directives on the energy sources market (Udovičić, 2004; Tominov, 2008). Three of these five acts define the planned changes in the electricity sector; Energy Law, Law on electricity market and Law on regulation of energy activities. Law enforcement is divided in three groups of activities (Tominov, 2008):

1. restructuring of energy companies
2. enactment of sub-acts and other acts planned by law
3. building of necessary institutions for market opening.

Rounding up the first phase of defining standards, as assumptions of reform of electricity market, was completed in March 2002 by the adoption of the Law on privatization of HEP and INA (ibid). In April of the same year was adopted the Energy Development Strategy of the Republic of Croatia that in the area of electricity sector aims to create a competitive and sustainable electricity system with high security of electricity supply. In doing so, it starts from the fact that independent, regulated and open electricity market is the most efficient and cost-effective way to meet the placed objectives.

In recent years, electricity market reform, particularly the implementation of mentioned acts has progressed slowly, and knowledge about the reform and opening of energy market was limited. The reform has placed the energy entities, state administration and electricity consumers in a new situation for which majority were still not ready, and law enforcement had obstructed conceptual differences that emerged among energy entities, and are associated with the realization of market and positioning, and authorities of a regulatory body. The reform was therefore perceived as a burden and contrary to the interests of energy entities (ibid). The opening of the electricity market was also slowed due to disagreements about the concept of restructuring of HEP Group, in particular the organization of activities of system operator.

In Croatia since 2002 until 2004, a series of regulations were enacted for implement of law by which are regulated particular energy activities, while the European Union was adopted a series of new guidelines and documents, which regulate the energy sector and in which appear new requirements and guidelines (Jakovac, 2010). All enacted regulations jointly define the organization of electricity
sector, the position of certain parts of sector, the model and organization of electricity market, rules of operation and behavior, and relationships among actors. By new acts are harmonized legal solutions from 2001 with the Directive 2003/54/EC, removed certain shortcomings and inaccuracies, and is provided their reality and applicability in the context of restructuring of HEP Group and opening of the electricity market in Croatia (Tominov, 2008).

4.2. Could errors in the electricity sector reform of FR Germany be avoided in the Republic of Croatia?

Too fast deregulation and uncontrolled liberalization, with the lack of long-term development strategy, are returning like a boomerang with severe and long-term consequences (ibid), as it proved the case of the liberalization of electricity sector of the FR Germany. Croatia needs to access the reform process on its own individual way, taking into account the specific characteristics of the electricity sector of country, i.e. availability of resources, size, available technologies, historical development, which factors directly define the initial market structure and determine the starting points of the reform process and its results (Osmanbegović and Kokorović, 2009). By transparent business operation with the controlled liberalization and effective management, and based on acceptance of propositions from the European Union directives, it is possible to ensure the achievement of national strategy of development of electricity market of the Republic of Croatia, without the threat of hostile takeovers. Croatian electric-power industry in that way would remain a key player in the production and distribution, while in the transfer of electricity could be converted into a stronger regional player. By the construction of new production capacities for meeting the growing demand for electricity by consumers, replacing the existing wearied facilities, development of transmission network that facilitates the positioning of Croatia as a transit country for electricity, modernization of distribution network, taking advantage of the natural resource of country in renewable energy sources, encouraging of distributed production and encouraging the efficient use of electricity, the Republic of Croatia would create the effectively liberalized electricity market.

5. CONCLUSION

Liberalization of electricity market of analyzed countries the FR Germany and the Republic of Croatia implied numerous consequences for all parties involved in this process, for electricity suppliers and their customers, for governments of these countries and wider community.

Opening the electricity market to Germany had brought anything but a competitive market and real market prices. Four large concerns of electricity have become even stronger, and monopoly power has become even more pronounced than it was ten years ago. The current market structure is more like an oligopoly than a competitive market, to which hoped participants of the process of liberalization. Mentioned has caused the rise in electricity prices, and objective reasons suggest that this trend will continue in the future. It is undisputed that the liberalization of electricity sector of Germany has failed. Large companies now are earning more than ever and far more than would earn in a competitive market, which consequently results in dissatisfaction for the other participants on the supply side, as well as participants on the demand side whose expectations are not fulfilled.

In order to Croatia could avoid a similar failure of opening the electricity sector, it is necessary to adapt elements and steps of the liberalization process to specific characteristics and national solutions of the country, and take into consideration the size, availability of resources, available technologies, as well as the historical, legal and institutional framework of the country. Only then it can be expected...
that Croatia will successfully implement this very complex process of opening the electricity market, to the satisfaction of all participants in this process.

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EXTERNAL DEBT MANAGEMENT: AN IMPORTANT LESSON OF THE ECONOMIC CRISIS
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Abstract
Public debt is created when the necessary resources for the socio-economic development of a country are greater than the opportunities that exist at that time. The destination of the necessary resources acquired from foreign markets can be either consumption by raising the standard of living (on short term) or investments in order to reduce the discrepancies in relation to the European Union through investments in infrastructure, jobs, human and technical capital development. To continuously borrow resources and maintain a stable level for them requires a sustainable public debt, an important objective of any state’s tax policy. A sustainable public debt is the result of the market and of the fiscal and budgetary policy decisions. Although the sustainability of public finances and implicitly of public debt has been an issue extensively debated for over a century, they currently remain vague concepts. Although, intuitively, it is natural to consider that a fiscal policy is sustainable if it avoids financial collapse, there is no generally accepted definition in terms of sustainable public debt, respectively a sustainable level of public debt.

Key words: public debt, public debt service, economic crisis, degree of indebtedness, share of public debt in GDP, public debt sustainability

1. INTRODUCTION
Developed EU countries have started to face greater difficulties regarding the refund of the loan contracted from external markets signalling that the end of the economic crisis is not as close as expected.

A so-called external debt crisis is emerging. The current situation supports the idea that the end of the recession is not the way out of the crisis.

Statistical data show a duplication of the external debt in the euro zone over the past 10 years at 118% of GDP in 2010, according to the European Commission reports. The start of external debt was supported by the higher financing needs of governments in response to the financial crisis and by the high risk aversion of investors. In the years before the financial crisis the growth of external debt was catalysed by the innovation that rose at the level of indebtedness instruments and by the increase of the unification phenomenon of the global financial markets. However, the findings of recent economic studies show that despite the growth of external debt, the euro zone continues to be an economic union with sound fundaments. However some Member States have to ensure that the budgetary consolidation process they have begun will reach its target to stabilize the increase of net external debt.
The most recent concerns of researchers try to determine if external debt is a more relevant indicator than public debt in order to determine whether a country is in crisis. This comes after Portugal, which has a public debt below 100% of GDP faces great difficulties due to banks and companies indebtedness while Italy, a country where public debt was 120% of GDP seems to be out of the crisis.

2. THE NEED TO MONITOR DEBT IN TIMES OF ECONOMIC TURBULENCES

What is more important than the level of indebtedness is the structure of the debt. The factors that trigger public debt crises are various factors including political, economic or financial market innovations. Economic studies have shown that a fulminant growth of external debt on behalf of private indebtedness, followed by new accumulations at the budgetary level represents a preceding for a banking crisis. With the start of a banking crisis there is a significant increase of public debt in order to ensure guarantees to save the financial institutions that are in difficulty.

Under these conditions given the fact that the debt increase is inevitable under economic uncertainty, it is very important that the external debt is sustainable. States should conduct regular reviews within terms of maturity and currency in order to minimize the risks. In times of crisis it is recommended that the debt instruments are less sophisticated and that the creditors are investors with a solvable portfolio.

Also a large external debt troubles as it implies a liquidity risk associated with public debt service (both principal and interest). This happens in periods of turbulences, when both prices and interest rates are very volatile. Under these conditions, a large external debt may threaten the financial stability of an economy, especially in times when low interest debt are transformed in high interest debts. In extreme cases this can trigger a debt crisis followed by a long and painful process of adjustment and restructuring.

This process may have adverse effects on confidence in foreign investors, reducing the country's capacity to access external funds at reasonable prices.

3. DEBT CRISIS INDICATORS

Major imbalances in external debt and high interest payments on its behalf are warning signals for the increase of risks that a country is not able to cover its financial obligations particularly in the case of an external shock.

Economic studies have identified a number of indicators that can be used in order to identify a possible external debt crisis. The first is the evolution of external debt. Exceeding a certain threshold in GDP does not necessarily indicate impending problems. The probability of a crisis varies considerably between countries and depends heavily on the development of the financial system, on the currency structure of the debt and of maturity. A considerable external public debt as a percentage of GDP leads to a dependence on external funding which increases the risk of a debt crisis. This was the case of Hungary in 2008 when the share of over 50% of the external debt in the GDP had triggered the crisis.

The net external debt calculated as external debt minus foreign assets, also has a direct connection with the external debt crisis. In most of external debt crisis situations, the share of the net external debt was over 50% of the GDP.
A recent study of the European Commission states that another indicator that warns of the possibility of triggering a crisis are the payments of net interest as a percentage of GDP that could be a signal of the financial difficulties that country faces. Statistics has shown that the countries where this indicator had values greater than 3% had problems with payment obligations. This was the case of Hungary and Ukraine in 2008 and Greece in 2010. As long as interest rates remain low the interest payments do not represent a short-term concern.

In conclusion, a net external debt ratio above 50% combined with a rate of net interest payments over 3% of GDP could be a strong indicator that states the short and medium term difficulties with the refund of external debt.

4. ROMANIA’S EXTERNAL DEBT IS STILL VERY LOW

If with regard to the evolution of other macroeconomic indicators we have been warn against by the international institutions, in terms of external debt, the data favours us. In 2010 Romania's external debt was 75% of GDP well below the euro zone level. The benefits of the fact that for many years we were a socialist country in which debts were accumulated, are still being felt. At the same time in the years preceding the debt crisis we have not accumulated a lot of debt, favouring from the preference of foreign investors in regard to the emerging markets. However, in the last years, the situation has changed for the worse.

According to the most recent country report conducted by the International Monetary Fund, Romania's external debt rose to 75% in 2010 and is expected to increase up to 79% in 2011. Since 2012, the refunds to the IMF, the more manageable current account deficit and the increase of economic growth will gradually reduce the level of external debt on a medium term, according to the same report. IMF estimations indicate a level of external debt of 58-63% of the GDP in 2016.

But let us remember the time in which the Central Bank representatives and the Ministry of Public Finances representatives said that if a country from the European Union will experience economic growth that country will be Romania. After more than two years we have become one of the countries with the highest levels of economic downturn. We were also among the last countries that have emerged from recession.

In conclusion, we are not disconnect from the external situation and if we are not careful, sideslips may occur at an uncontrolled speed. In order to avoid such a slideslip, the evolution of external debt both public and private should be closely monitored.

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HOW FAR SOME INFLUENCE FACTORS MAY AFFECT NET ASSET VALUE OF COMPULSORY PRIVATE PENSION FUNDS? STATISTICAL ANALYSIS FOR ROMANIA

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Abstract

Considering that, the economic financial crisis manifested on international level has considerably reduced the asset value of pension funds, all over the world, in this study we measure the impact of certain factors over the net asset of privately administered pension funds in Romania. The research methodology consists in applying the multiple linear regression method and testing of five dependent variables: currency exchange rate, credit interest rate, bank deposit interest rate, reference interest rate and value of the stock exchange market index (BET-C index). The results is that only two of these factors, namely, the currency exchange rate and the reference interest rate, influence net asset value of privately managed pension funds. In order to counter-balance the effects determined by the diminution of the net asset value of privately administered pension funds, it should elaborate, on a short time horizon, a dynamic mix of their investments able to adapt to the fluctuations of their influence factors. Thus, new opportunities will be generated in order to achieve the efficiency of pension funds and to prevent the diminution of the value of insured individuals’ contributions to these pension funds.

Key words: privately managed pensions, net assets, variables, statistical correlations

how far some influence factors can affect the net asset value of compulsory private pension funds, the second pillar.

1. INTRODUCTION

Internationally, there are systems of diversified pensions, which, in general, present a combination of the public and the private component. To the European Union level, there is no mutual system of pensions available for all Member States, but the retirement systems applied within these States involve the following three components (CSSPP, 2009, page 3):

1. The component enforced by the law, which represents the financed pillar of the public system of pensions (completely financed from shares – social security contributions payable by the participants in the PAYG public pension system), is currently applied in countries, such as: Bulgaria, Estonia, Lithuania, Latvia, Hungary, Poland, Romania, Slovakia;

2. The component of pensions established via the working contract-based schemes (collective or individual provisions of working), defined as occupational pensions, available in the following countries: Bulgaria, Poland, and Slovenia;

3. The component of individual accounts; in this case there is no need for having a certain profession in order to become a member, though, the great majority of participants are employees, but there still
exists the possibility for collective accession (through syndicates or associations). The contribution to this component is optional and it is recorded in countries as: Czech Republic, Latvia, Romania, and Slovakia.

One may say that, most of the Member States of the European Union have approached the multi-pillar pension system proposed by the World Bank.

In Romania, the pension system is, as well, structured according the pattern proposed by the World Bank, thus:

- **The public pension system**, which represents the first pillar, monitored by the National House of Public Pensions – CNPP;

- **The private pension system**, under the observation of the Commission for Monitoring Private Pension System – CSSPP, including its two components:
  - the second pillar – privately managed compulsory component, introduced in May 2008. According to the law, the designation of the pension fund includes the collocation privately managed pension fund (article 7 of the Law no 411/2004 concerning privately administered pension funds, as amended and modified);

The compulsory component of private pensions, the second pillar, stirs up a series of discussions on international level, as, against the economic crisis background, certain States have no longer complied with the initial pension reform model, and we mention here countries in Central and Eastern Europe adopting certain adjustments of contributions to the pension second pillar.

Therefore, Hungary has adopted, at the end of 2010, a governmental plan for nationalization of compulsory private pension funds, the second pillar, meant to diminish the budgetary deficit.

In 2009, Lithuania and Estonia have decreased the contributions to compulsory private pensions, from 5.5% to 3%, respectively, from 6% to 2%, and Latvia intends a decrease from 8% to 2%. In Slovakia, the second Pillar is no longer compulsory, and the contributions register a decrease of tow thirds. In order to reduce the budgetary deficit, Poland has announced at the beginning of April 2011 the diminution of the level of contributions transferred towards the second Pillar from 7.3% to 2.3%.

Romania, as well, has not succeeded in following the legal provision stipulating an annual growth of 0.5 percentage points for contributions to the second pillar. This growth was achieved only for 2009, for 2010, the contribution remained to 2.5%, and for 2011, it has increased to 3%.

The representatives of the European Commission claim that, as the States have assumed the implementation of a certain pension reform model, they should maintain the adopted system, regardless the economic context. The EU intervention in the pension system structure adopted by Member States is limited, against a background of different cultures and economies, different characteristics and rules of administrating pension systems.

OECD experts in pension area consider that, against the global economic and financial crisis background, private pensions have never been more needed and any damage of the second Pillar of compulsory private pensions, in the sense of redirecting the funds towards pension public budget, may reduce the rate of replacing future pensioners, leading, thus, to low pensions, mainly, because of the demographical pressures.
Considering these current issues of the system of compulsory private pensions, numerous studies and analyses were elaborated taking into account the efficiency of investments performed, their guarantee and regulation schemes and other aspects.

2. THEORETICAL BASIS

The economic financial crisis manifested on international level has considerably reduced the asset value of pension funds, all over the world. A study undertaken in 2010, by Towers Watson, considering the evolution of pension fund assets on the greatest markets of pension funds in the world\(^2\), has revealed the fact that the main issues disturbing their activity, as a result of the financial crisis, remain: “liquidity; the management of credit/collateral risk; asset manager underperformance; and new challenges in strategic allocation” (Watson, 2010).

The role of private pensions has great importance, particularly “…in countries that have introduced a mandatory private pillar as part of a systemic pension reform” (Tapia, 2008). The management of private pension fund assets should consider their investments achieved “…in accordance with the prudential principles of security, profitability, and liquidity using risk management concepts such as diversification and asset-liability matching” (OECD, 2006). For preventing “market failure” and the diversification of fund asset investments in order to reduce their risks, for most of the pension systems, on international level, diverse alternatives are established according to Pension Benefit Guarantee Schemes, as “A pension guarantee fund cannot work properly without adequate funding rules.” (Stewart, 2007)

In Romania, the system of privately administered pensions, for each component of private pension funds, namely, the second pillar of compulsory private pensions and the third pillar of optional private pensions, there is a pension scheme enforced by the law which provides a broad series of “risk control instruments: active dissociation, actuarial reserves, verification through depository, guarantee fund, audit, minimum rate of profitability.” (Zavoianu, 2010).

The best practices for the management of pension fund investments reveals the fact that a strategic mix of asset investments, adjustable in time, considering the situational influence factors, offers opportunities for achieving the best results. Therefore, various studies on international level, concerned with diversified ways of allocating pension fund assets show that, on the main markets, “…pension funds continued to diversify into alternative assets” (Watson, 2009).

As well, the economic crisis effects have determined a reallocation of pension fund asset investments from the member countries OECD towards low risk investments mainly internally oriented (Antolin and Stewart, 2009). Other countries have indicated that the appreciation of the currency exchange has determined an increase of the value of private pension fund assets (Watson, 2010).

Consequently, the insight of the value of pension fund assets becomes crucial as the diminution of their value influences, on one hand, their solvability and, on the other hand, the values accumulated in the accounts of insured individuals.

Pension system in Romania, as part of the financial system, has submitted to influences determined by the real economic circumstances, on global level, by the economic financial crisis, as well as by the recent economic and political evolutions, on national level.

Considering numerous factors influencing private pension assets, as well as the unemployment rate, the evolution of the currency exchange rates and of the monetary policy interest rates (Mot, 2010), the
present paper attempts at selecting few of them in order to determine how far they influence the net asset value of compulsory private pension funds, the second pillar.

3. CONCEPTS AND METHODOLOGY

3.1. Characteristics of privately administered pensions in Romania

In Romania, the system of privately administered pensions becomes a compulsory system for the individuals newly entered in the work market, below 35 years of age, and remains optional for the rest of the individuals aged under 45, who are already insured and contribute to the public pension system.

The administrators of privately administered pension funds are represented by distinct companies, authorized by the supervisory body, the Commission for Monitoring Private Pension System. A pension fund should count minimum 50,000 participants, a number that should be accomplished in the first 3 years from the date of establishing the pension funds (article 5 Law no 411/2004 on privately administered pension funds).

The situation of authorized administrators of privately administered pension funds indicated 18 administrators at the initiation of the system (July 2007) and 14 at the end of the participant selection process (January 2008), presently, the system counts only 9 administrators (according to the last reports of CSSPP on January, 31st 2011).

The investments deriving from the assets of these funds are controlled, monitored and undertaken according to the risk range specific to each fund, in an efficient and prudential manner. Except for one single pension fund administered by Generali, registering a high level of risk, the other 8 pension funds indicate an average level of risk.

As it is recommended on international level, private pension fund assets should be invested in conformity with certain prudential regulations, enforced by the law.

In this way, in Romania, each administrator of private pension funds establishes his/her own investment policy of fund assets for investments enforced by the law, considering the uttermost legal limits (article 24 and 25 Law no 411/2004 on privately administered pension funds, republished in December 2010). Therefore, the management of privately administered pension fund assets includes the following types of investments (they are available for the second pillar, as well as for the third pillar of optional private pensions):

a) instruments of the monetary market, here including accounts and ROL deposits opened to a bank, Romanian legal person, or to the branch of a foreign credit institution authorized to operate on the Romanian territory, provided not to exceed 20% of the total value of pension fund assets;

b) State bonds issued by the Romanian Ministry of Public Finances, issued by European Union Member States or belonging to the European Economic Area, being worth up to 70% of the total value of pension fund assets;

c) bonds and other transferable securities issued by the authorities of the local public service in Romania or in European Union Member States or belonging to the European Economic Area, registering up to 30% of the total value of pension fund assets;

d) securities transacted on regulated and monitored markets from Romania, European Union Member States or belonging to the European Economic Area, registering up to 50% of the total value of pension fund assets;
e) State bonds and other transferable securities issued by third States being worth up to 15% of the total value of pension fund assets;
f) bonds and other transferable securities transacted on regulated and monitored markets, issued by the authorities of the local public service from third States, representing up to 10% of the total value of pension fund assets;
g) bonds and other transferable securities issued by non-governmental foreign bodies, provided that these instruments are rated on authorized stock markets and fulfill rating requirements of up to 5% of the total value of pension fund assets;
h) participation bonds issued by bodies charged with the collective investment in transferable securities, from Romania and from other countries, representing up to 5% of the total value of pension fund assets;
i) other types of investments approved by the law.

In addition, taking into account the nature of the bodies charged with the issue of instruments considered by the administrator for investments, the maximum percentages stipulated by the current Romanian legislation are:
a) 5% of the assets of a pension fund may be invested in one single business corporation or in each class of its assets;
b) 10% of the assets of a pension fund may be invested in the assets of one group of issuers and their affiliated persons.

A noticed and debated aspect concerning privately administered pension funds is represented by the level of pensions allocated to women. Due to the fact that, in Romania, women’s actuarial after retirement is, on the average, ten years greater than that of men’s, the value of contributions made by a woman to a pension fund is divided by a larger number of years than in the case of a man, therefore, under conditions of equity of the value of contributions, the monthly pension value for women will be more reduced than that allotted to men. Consequently, it is recommended the use of unisex biometric tables (these tables consider death, invalidity and longevity-related risks) for the calculation of the monthly pension, which apply the arithmetic mean between the women’s and men’s average actuarial. These tables should be imposed by the law in the case of compulsory private pension schemes, because these schemes have, in essence, public goals.

3.2. Specification of data applied for the analysis

In Romania, the main indices of privately administered pension funds, the second pillar, at the end of the year 2010, according to CSSPP reports, are as it follows (the indices are indicated by the Newsheet, CSSPP, 3rd year no 12/2010):

- the presence of 9 active pension funds, divided into two risk categories according to the investments performed: average risk funds (8 funds) and high risk funds (a single fund);
- the number of participants to privately administered pension funds is 5,186.37 thousand indicating an increase of 5.6% reported to the end of the year 2009 (December). From the total number of participants, 59% are aged under 35 (for this category, the adhesion is compulsory) and 41% are aged over 35 (for this group, the adhesion is optional). The coverage rate of number of participants in total employees of Romania reached 80% of the total number of employees (Newsheet, CSSPP, page 10);
the involvement level related to the number of participants reached 67% for the first three privately administered pension funds, which belong to the following pension administrators: ING, Allianz-Ţiriac şi Generali, and 81% for the first five pension funds;

the net assets estimated to 1,010.9 million euros (4,331.9 million lei) registered an increase of almost 82% as compared to December 2009 and of 4.3% compared to the previous month;

from the total of net assets of privately administered funds, 86.3% have been invested on national level, and the rest of 13.7%, abroad.

The evolution of net assets of privately administered pension funds during the entire period of their collection, since their settlement to the present, is illustrated in Annex no 1.

The investments of net assets of privately administered pension funds, in Romania, on investment categories agreed by the law, are presented in Table no 1 and Figure no 1.

Table 1. Evolution of net assets of privately administered pension funds in Romania, the second pillar, for the period June 2008 – December 2010

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bank deposits</strong></td>
<td>43,44</td>
<td>16,51</td>
<td>13,43</td>
<td>13,03</td>
<td>6,65</td>
<td>8,29</td>
<td>7,59</td>
<td>5,18</td>
<td>4,9</td>
<td>3,08</td>
<td>7,25</td>
<td>9,33</td>
<td>7,18</td>
</tr>
<tr>
<td><strong>Government securities</strong></td>
<td>44,19</td>
<td>60,00</td>
<td>59,23</td>
<td>62,18</td>
<td>54,44</td>
<td>53,39</td>
<td>54,79</td>
<td>63,67</td>
<td>64,70</td>
<td>65,40</td>
<td>65,29</td>
<td>64,27</td>
<td>66,30</td>
</tr>
<tr>
<td><strong>Municipal Bonds</strong></td>
<td>3,02</td>
<td>2,33</td>
<td>3,02</td>
<td>2,33</td>
<td>3,02</td>
<td>2,33</td>
<td>3,02</td>
<td>2,33</td>
<td>2,33</td>
<td>2,33</td>
<td>2,33</td>
<td>2,33</td>
<td>2,33</td>
</tr>
<tr>
<td><strong>Corporate Bonds</strong></td>
<td>6,74</td>
<td>16,91</td>
<td>21,12</td>
<td>21,65</td>
<td>27,23</td>
<td>24,21</td>
<td>26,62</td>
<td>17,39</td>
<td>13,23</td>
<td>16,01</td>
<td>14,27</td>
<td>12,77</td>
<td>11,00</td>
</tr>
<tr>
<td><strong>Supranational Bonds</strong></td>
<td>3,44</td>
<td>4,66</td>
<td>4,54</td>
<td>7,01</td>
<td>6,69</td>
<td>4,74</td>
<td>3,82</td>
<td>2,19</td>
<td>2,00</td>
<td>1,73</td>
<td>1,73</td>
<td>1,73</td>
<td>1,73</td>
</tr>
<tr>
<td><strong>Shares</strong></td>
<td>6,18</td>
<td>3,42</td>
<td>1,75</td>
<td>1,46</td>
<td>1,85</td>
<td>2,96</td>
<td>3,65</td>
<td>7,76</td>
<td>9,34</td>
<td>11,55</td>
<td>9,9</td>
<td>11,7</td>
<td>12,2</td>
</tr>
<tr>
<td><strong>Undertakings for Collective Investment in Transferable Securities – UCITS</strong></td>
<td>0,33</td>
<td>0,1</td>
<td>0,46</td>
<td>0,71</td>
<td>0,68</td>
<td>0,74</td>
<td>0,70</td>
<td>0,90</td>
<td>0,91</td>
<td>0,67</td>
<td>0,61</td>
<td>0,76</td>
<td>0,52</td>
</tr>
</tbody>
</table>

Fig. 1. Evolution of investments of privately administered pension funds, in Romania, the second pillar, for the period June 2008 – December 2010

As we may observe according to Table no 1 and Figure no 1, the investments of privately administered pension funds are mostly oriented towards State bonds, shares and corporate bonds, registering about 90% of their total.

We may notice a slightly gradual decrease of the active total value owned by bank deposits from the moment of the system settlement till present, namely, from 43.44% in June 2008, to 7.18% in December 2010.

Considering the structure of the privately administered pension fund investments, we will test the level to which certain factors influence the evolution of the assets managed by privately administered pension funds, the second pillar. Thus, we will mention certain factors of influence determining the evolution of privately administered pension fund assets:

- **the level of interests**, which may influence the transaction value of instruments with fixed income backward the evolution of interests. For the analysis, we consider the interest rates for credits and deposits, as well as the reference interest rate;

- **the exchange rate**, which influences the value of foreign currency denominated assets at the moment of their evaluation. Generally, a depreciation exchange rate of the national currency reported to the euro exchange rate determines a value increase of these assets;

- **the stock market** and its evolution influence, as well, the value of assets included by the pension funds. The value of investments in shares, for the second pillar, represented at the end of December 2010, 12.2% of the total of fund assets. The investments in shares rated on stock markets from the Member States of the European Union indicated 3.2% of the total of privately administered pension fund assets.

For the analysis, we use monthly data provided by the Commission for Monitoring Private Pension System, the Romanian National Bank and Stock Market Bucharest, for the period May 2008 - December 2010 (the research is applied for a number of 32 monthly observations).

According to these factors of influence, the following variables have been applied for testing statistical correlations:
3.2. Method specification

The analysis of the correlation between the dependent variable and the five independent variables already identified may be achieved either separately, using the correlation coefficient, analyzing the correlations between the dependent variable and one independent variable selected among the group of studied variables, or globally, applying the linear regression.

The intensity of the correlation between the studied variables is assessed by means of the Pearson correlation coefficient. It assumes theoretical values varying between -1 and 1; the positive values indicating direct correlations, while the negative ones, inverse correlations (a variable increases when the other decreases). The correlation coefficient (Pearson) shows a better reliance between data, as its value reaches 1 or -1 (1 suggests a perfect correlation achieved when a set of data is correlated to itself). Similarly, the significance threshold should be inferior to 0.05 (this aspect statistically corresponds to the assumption that from 100 measurements within maximum 5%, we may achieve random results due to the chance or the hazard).

The linear regression consists in the calculation of the correlation coefficient for the group of variables, practically, analyzing the correlation between a dependent variable and a series of independent variables. As in the case of the Pearson correlation coefficient, the calculated value assumes to reach the value of 1 in order to estimate that there exists a very strong correlation.

In order to acquire the correlation between the total value of the net asset of privately administered pension funds, the second pillar, (Y), on one hand, and the five independent variables (X₁, ..., Xₙ), on the other hand, we have applied a model of multiple linear regression:

\[ Y = \alpha + \beta_1 \cdot X_1 + \beta_2 \cdot X_2 + ... + \beta_n \cdot X_n \]

Where: \( \alpha, \beta_1, ..., \beta_n \) – regression coefficients.

In order to identify the best combination between the independent variables, meant to explain the variation of the dependent variable, we have used the option Forward from SPSS, by means of which the independent variables are introduced in the model, one by one, according to their importance, testing, step by step, whether the corresponding regression coefficient is zero.

4. RESULTS AND DISCUSSIONS

Concerning the analysis of the correlation between the dependent variable, the value of the net asset of privately administered pension funds, the second pillar, and independent variables: the currency exchange lei/euro, the credit interest rate, the deposit interest rate, the reference interest rate and the value of the BET-C index, the table no 2 illustrates for each regression model the value of the correlation coefficient (R), the value of the determination report (R Square) and the standard error.

As we may notice in table no 2, the first independent variable introduced in the model is “reference interest rate”, which exercises the greatest influence over the value of the net asset of the pension second pillar. The second stage introduces the second independent variable, namely “the currency
exchange lei/euro”. The value of the correlation coefficient “R” is significant, which implies the presence of a very strong correlation according to the model.

### Table 2. Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted Square</th>
<th>R Std. Error of the Estimate</th>
<th>Change Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>.950a</td>
<td>.903</td>
<td>.900</td>
<td>390.74947</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>.978b</td>
<td>.956</td>
<td>.953</td>
<td>266.85732</td>
</tr>
</tbody>
</table>

|       |        |          |                 |                              |                   |
|       | 1     | .950a    | .903            | .900                         | 390.74947         | .003         | 271.089 | 1      | 29     | .000 |
|       | 2     | .978b    | .956            | .953                         | 266.85732         | .053         | 34.178  | 1      | 28     | .000 |

- a. Predictors: (Constant), Reference interest rate
- b. Predictors: (Constant), Reference interest rate, Currency exchange rate lei/euro
- c. Dependent Variable: Net assets of privately administered pension funds

Model no 1 presents the reliance between “net assets of privately administered pension funds” and the “reference interest rate”, achieving a correlation coefficient of 0.950 and a determination report of 0.903, which suggests the existence of a correlation between the two variables, highly important due to the fact that 90.3% of the fluctuation of “net assets of privately administered pension funds” is determined by the modification of the “reference interest rate”.

Model no 2 introduces the second independent variable “the currency exchange lei/euro”, resulting a correlation coefficient of 0.978 and a determination report of 0.956. This implies the fact that 95.6% of the fluctuation of “net assets of privately administered pension funds” is explained by the fluctuation of the “reference interest rate”, respectively, of “the currency exchange lei/euro”. Moreover, by introducing the second independent variable into the regression model, the standard error of the estimate significantly decreases from 390.75 to 266.86.

According to table no 3, it becomes obvious that the other three independent variables studied, namely, the credit interest rate, the deposit interest rate and the BET-C index, are not considered in the model, because of their insignificant level of influence over the value of the net asset of privately administered pension funds.

The test t and the value Sig. serve for testing the regression coefficients, meaning the hypothesis according to which there is no significant correlation between the dependent variable and the independent variable. One may notice that, for the resulting model no 2, considered as the final alternative for the analysis, the significance threshold, Sig., takes higher values than those allowed, namely, the value of 0.05, which rejects the hypothesis according to which there is a significant correlation between analyzed variables, they being excluded from the model.

The regression coefficients calculated for each of the two models of the variables included here are illustrated in table no 4.
Table 3. Excluded Variables

<table>
<thead>
<tr>
<th>Model</th>
<th>Beta In</th>
<th>t</th>
<th>Sig.</th>
<th>Partial Correlation</th>
<th>Tolerance</th>
<th>VIF</th>
<th>Minimum Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong> Currency exchange rate lei/euro</td>
<td>.268*</td>
<td>5.846</td>
<td>.000</td>
<td>.741</td>
<td>.739</td>
<td>1.354</td>
<td>.739</td>
</tr>
<tr>
<td>Credit interest rate</td>
<td>.285*</td>
<td>3.502</td>
<td>.002</td>
<td>.552</td>
<td>.363</td>
<td>2.756</td>
<td>.363</td>
</tr>
<tr>
<td>Deposit interest rate</td>
<td>.491*</td>
<td>5.420</td>
<td>.000</td>
<td>.716</td>
<td>.205</td>
<td>4.869</td>
<td>.205</td>
</tr>
<tr>
<td>BET-C Index</td>
<td>-.239*</td>
<td>-5.456</td>
<td>.000</td>
<td>-.718</td>
<td>.875</td>
<td>1.143</td>
<td>.875</td>
</tr>
<tr>
<td><strong>2</strong> Credit interest rate</td>
<td>-.091*</td>
<td>-.784</td>
<td>.440</td>
<td>-.149</td>
<td>.118</td>
<td>8.473</td>
<td>.087</td>
</tr>
<tr>
<td>Deposit interest rate</td>
<td>.185*</td>
<td>.973</td>
<td>.339</td>
<td>.184</td>
<td>.043</td>
<td>23.175</td>
<td>.032</td>
</tr>
<tr>
<td>BET-C Index</td>
<td>-.109*</td>
<td>-1.465</td>
<td>.155</td>
<td>-.271</td>
<td>.269</td>
<td>3.712</td>
<td>.227</td>
</tr>
</tbody>
</table>

a. Predictors in the Model: (Constant), Reference interest rate
b. Predictors in the Model: (Constant), Reference interest rate, Currency exchange rate lei/euro
c. Dependent Variable: Net assets of privately administered pension funds

Table 4. Regression coefficients for the dependent variable, net assets of privately administered pension funds

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>Collinearity Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong> (Constant)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reference interest rate</td>
<td>8193.433</td>
<td>379.023</td>
<td>21.617</td>
</tr>
<tr>
<td><strong>2</strong> (Constant)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reference interest rate</td>
<td>-724.315</td>
<td>43.992</td>
<td>-16.465</td>
</tr>
<tr>
<td>Currency exchange rate lei/euro</td>
<td>1659.258</td>
<td>1147.263</td>
<td>1.446</td>
</tr>
<tr>
<td><strong>1</strong> (Constant)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reference interest rate</td>
<td>-619.850</td>
<td>34.956</td>
<td>-17.732</td>
</tr>
<tr>
<td><strong>2</strong> (Constant)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Currency exchange rate lei/euro</td>
<td>1376.999</td>
<td>235.538</td>
<td>5.846</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Net assets of privately administered pension funds

According to this study, the test t assumes high values for each variable, and the significance threshold, Sig., takes very low values (inferior to 0.05), which allows us to reject the hypothesis
indicating a significant correlation between the analyzed variables, meaning slight errors determined by certain random measurements.

We observe that, the influence of the two selected variables over the net asset of privately administered pension funds, the second pillar, is optimum (Sig. <0.05), and the tolerance is higher than $1 - \text{Adjusted } R^2 = 0.953 - 0.047$ for each dependent variable which eliminates the risk of non-collinearity. VIF (Variance Inflation Factor = $1/Tolerance$) supports the collinearity analysis, being able to express a non-collinearity if it exceeds the value of 10.

In our case, for the two variables included in the model, the value of VIF is lower than 10, which confirms the lack of non-collinearity for these variables.

Considering the calculated coefficients expressed in the column B of the table no 4, the equation no 1 presents the linear model of multiple regression identified for the studied variable:

$$Y = 1659,258 - 619,85 \cdot X_1 + 1376,999 \cdot X_2$$ (1)

where: 
- $Y$ – net asset of privately administered pension funds, the second pillar;
- $X_1$ – reference interest rate;
- $X_2$ – currency exchange lei/euro;

For validating the resulting equation of linear regression, we will generate the histogram for the dependent variable presented in Figure no 2. The histogram presents the frequency of values assumed by the dependent variable, on a number of 10 equal gaps.

In addition, we superpose the chart of standard distribution over the chart achieved by distributing the number of values on equal gaps. For concluding whether the achieved equation of linear regression may be validated, we will also generate the chart $P-P$ regression standardized residuals (Figure no 3).

The resulting histogram points out the fact that, between the gaps -0.5/0 and 0/0.5, central gaps, the distribution of data presents a reverse situation as compared to that complying the conditions needed for completing the law of standard distribution. Considering the fact that data are represented in terms of frequencies, we may notice that most data concerning the net assets are present between the gaps -0.5/1 and 0.5/1, so two symmetrical gaps. This aspect indicates that the chart includes two sub-zones, which are similar considering data frequency evolution, on both sides of 0.

Figure no 3 reveals the chart of residuals by reporting to the law of standard repartition. Residuals represent noticeable and measurable valuators of statistical errors hard to detect. Generally, residuals respect the law of standard distribution (empirical observation, based on the comparison of marked points reported to the line drawn according to the evolution of these points), so the regression equation may be applied. We should mention that, for the gap 0.55/0.65 (10%) of analyzed cumulated probabilities, the law of standard distribution is not respected, which amplifies the error existing in the linear regression equation. For the rest of the gap of probabilities (90%), the law of standard distribution is well accomplished.
Fig. 2. Histogram for the dependent variable, net assets of privately administered pension funds

Fig. 3. Chart P-P of regression standardized residuals
5. CONCLUSIONS

The present paper aims at providing an evaluation of the impact generated by certain factors of influence on the value of compulsory private pension fund assets, based on statistical methods and a series of data on a gap of 32 months.

This goal is achieved by means of the multiple linear regression equation which allows the estimate of the value of total net asset of privately administered pension funds according to two variables selected in the model.

The interpretation of the coefficients achieved from the equation (equation no 1) reveals that, according to data analyzed for the period of May 2008 – December 2010, on a short time horizon, the following correlations are manifested:

- if the value of the currency exchange lei/euro increases with one point, the value of the net asset increases with 1,376 million lei;
- if the reference interest rate increases with one percentage, the value of the total net asset decreases with 0.619 million lei.

The experience of the value fluctuation of privately administered pension fund net assets is highly important, firstly because of its effects on the increase and the decrease of invested values for the insured persons’ accounts, under the circumstances of constantly maintaining their contributions and, implicitly, the results achieved through these investments.

Thus, the evolution of the currency exchange rate and of the monetary policy interest rate (reference interest rate) highly influences the assets of privately administered pension funds.

According to the achieved analysis, we should consider that, on a short time horizon, an increase of the reference interest rate will determine a slight decrease of the net asset of privately administered pension funds, an effect which has to be counter-balanced by a potential reallocation of pension funds towards investments providing better results. The analysis reveals the fact that, the evolution of the credit interest rate and of the deposit interest rate does not affect privately administered pension fund assets, while we have already pointed out, in a previous study, that it influences the optional pension fund assets, the third pillar. As well, the stock market index BET-C does not influence privately administered pension fund assets, although, shares register a significant value, of 12% of the total investments of privately administered pension fund assets.

Therefore, in order to counter-balance the effects determined by the diminution of the net asset value of privately administered pension funds, we should elaborate, on a short time horizon, a dynamic mix of their investments able to adapt to the fluctuations of their influence factors. Thus, new opportunities will be generated in order to achieve the efficiency of pension funds and to prevent the diminution of the value of insured individuals’ contributions to these pension funds.

1 For the first year of collection, May 2008, the contribution to privately administered pension funds was of 2% of the individual contribution to the public system of pensions. According to the law it should register an annual increase of 0.5 percentage points till it reaches 6%, within 8 years (year 2016).

2 Markets submitted to the study: Great Britain, Switzerland, Holland, Germany, France, United States of America, Canada, Brazil, Australia, Hong Kong, South Africa, Ireland, Japan.
Annex no 1.

Evolution of net assets of compulsory private pension funds in Romania, during May 2008 - December 2010 (mil. lei)

Fig. 1. Evolution of currency exchange rate RON/Euro in Romania, during May 2008 - December 2010
Fig. 2. Evolution of credit interest rate in Romania, during May 2008 - December 2010 (%)

Fig. 3. Evolution of deposit interest rate in Romania, during May 2008 - December 2010 (%)
Fig. 4. Evolution of reference interest rate in Romania, during May 2008 - December 2010 (%)

Fig. 5. Evolution of BET-C index in Romania, during May 2008 - December 2010
ACKNOWLEDGMENTS

This paper is supported by the Sectorial Operational Programme Human Resources Development (SOP HRD), financed from the European Social Fund and by the Romanian Government under the contract number SOP HRD/89/1.5/S/62988.

NOTE

This paper represents an extended research of a study which was partly published before as a synthesis into another publication.

REFERENCES


DEVELOPMENT OF OUTBOUND TOURISM IN THE CZECH REPUBLIC
MODELLING FOR THE BALKAN REGION

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Abstract

Czech Republic is a mountains country. Therefore is development of outbound tourism very important. The outbound tourism of the residents of the Czech Republic is analysed in this paper from many factors: of country of destination, of main purposes of traveling, according to the months of travelling, according to kinds of transport and state frontiers. Foreign expenditures of outgoing tourism are mentioned in the end of this paper.

Key words: Development, outbound tourism, Czech Republic

1. INTRODUCTION

The outbound tourism presents the tourism of the residents of the Czech Republic abroad. It can reflex the economic situation in the country; to spend holiday abroad is usually more expensive than staying in the homeland, it can show, what people can venture.

The figure 1 presents the number of outgoing people. It is evident that some people travel many times per a year, the number of outgoing people is exceeding the number of the Czech residents. We can see of the figure that there are not very important differences among years; the highest value is in the year 1998, the lowest one in the year 2002. This drop can be an effect of the terrorist attack in September 2001 in New York.

Fig. 1 Citizens of the Czech Republic travelling abroad

Source: own processing on Data of Czech Statistical Office
2. RESULTS AND DISCUSSION

The table 2 shows that the most favourite countries for Czech residents are Croatia and Slovakia. We can consider some main reasons of this reality. These countries are traditionally very popular; some people are long time used to spend their holiday at these places. Croatia and Slovakia are cost-effective for the people. Very important reason is that Czech people can understand languages at these countries. The significant part of these departures are business travels, especially Slovakia is very popular and frequent business partner. The list of the favourite countries continues with Italy, Greece and Austria. The summer resorts in the first two mentioned countries are the usual destination of the summer holiday of many Czech families, they are financially manageable. These countries provide great number of the antique sights and they are going to be the final destination of many visitors. If we consider the average number of overnight stays on one trip, we see the highest values at Ukraine and U.S.A. In case of Ukraine the business trips create great part of travels. U.S.A. are very distant from the Czech Republic and the way is expensive, so it is not surprising that the visitors spend there long time. Moreover this statistics include au-pairs stays, students’ mobility, voluntary works and so on. The column “the average expenditures on 1 trip” illustrates how expensive is a stay in individual countries.

<table>
<thead>
<tr>
<th>Territory</th>
<th>Number of trips (thous.)</th>
<th>Total Number of overnight stays (thous.)</th>
<th>Average number of overnight stays on 1 trip</th>
<th>Average expenditure on 1 trip (CZK)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Croatia</td>
<td>870,7</td>
<td>7 703,9</td>
<td>8,8</td>
<td>11 590</td>
</tr>
<tr>
<td>2. Slovakia</td>
<td>794,1</td>
<td>5 340,3</td>
<td>6,7</td>
<td>5 058</td>
</tr>
<tr>
<td>3. Italy</td>
<td>562,2</td>
<td>4 431,0</td>
<td>7,9</td>
<td>11 225</td>
</tr>
<tr>
<td>4. Greece</td>
<td>287,1</td>
<td>3 145,0</td>
<td>11,0</td>
<td>18 243</td>
</tr>
<tr>
<td>5. Austria</td>
<td>257,7</td>
<td>1 367,4</td>
<td>5,3</td>
<td>7 947</td>
</tr>
<tr>
<td>6. Germany</td>
<td>195,3</td>
<td>2 030,2</td>
<td>10,4</td>
<td>6 912</td>
</tr>
<tr>
<td>7. Spain</td>
<td>174,7</td>
<td>1 640,5</td>
<td>9,4</td>
<td>19 097</td>
</tr>
<tr>
<td>8. France</td>
<td>164,5</td>
<td>1 231,2</td>
<td>7,5</td>
<td>11 231</td>
</tr>
<tr>
<td>9. Egypt</td>
<td>151,0</td>
<td>1 452,6</td>
<td>9,6</td>
<td>20 718</td>
</tr>
<tr>
<td></td>
<td>Country</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>10.</td>
<td>Tunisia</td>
<td>146.0</td>
<td>1 320.5</td>
<td>9.0</td>
</tr>
<tr>
<td>11.</td>
<td>Bulgaria</td>
<td>115.9</td>
<td>1 197.9</td>
<td>10.3</td>
</tr>
<tr>
<td>12.</td>
<td>United Kingdom</td>
<td>81.4</td>
<td>1 102.6</td>
<td>13.5</td>
</tr>
<tr>
<td>13.</td>
<td>Hungary</td>
<td>58.5</td>
<td>415.4</td>
<td>7.1</td>
</tr>
<tr>
<td>14.</td>
<td>Poland</td>
<td>57.1</td>
<td>364.0</td>
<td>6.4</td>
</tr>
<tr>
<td>15.</td>
<td>Norway</td>
<td>50.3</td>
<td>662.9</td>
<td>13.2</td>
</tr>
<tr>
<td>16.</td>
<td>Ukraine</td>
<td>41.6</td>
<td>881.1</td>
<td>21.2</td>
</tr>
<tr>
<td>17.</td>
<td>Turkey</td>
<td>37.2</td>
<td>343.8</td>
<td>9.2</td>
</tr>
<tr>
<td>18.</td>
<td>U.S.A</td>
<td>36.0</td>
<td>752.2</td>
<td>20.9</td>
</tr>
<tr>
<td>19.</td>
<td>Switzerland and Lichtenstein</td>
<td>35.0</td>
<td>305.8</td>
<td>8.7</td>
</tr>
<tr>
<td>20.</td>
<td>China</td>
<td>26.9</td>
<td>382.7</td>
<td>14.2</td>
</tr>
<tr>
<td></td>
<td>thereof:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Europe</td>
<td>3917.8</td>
<td>15 327.3</td>
<td>3.9</td>
</tr>
<tr>
<td></td>
<td>America</td>
<td>69.7</td>
<td>1 226.3</td>
<td>17.6</td>
</tr>
<tr>
<td></td>
<td>Asia</td>
<td>68.7</td>
<td>790.7</td>
<td>11.5</td>
</tr>
<tr>
<td></td>
<td>Africa</td>
<td>308.5</td>
<td>2 907.2</td>
<td>9.4</td>
</tr>
<tr>
<td></td>
<td>Total number of outbound trips</td>
<td>4374.3</td>
<td>38 286.0</td>
<td>8.8</td>
</tr>
</tbody>
</table>

Source: Data of Czech Statistical Office

**Fig. 2** Long trips of the Czech residents abroad by country of destination

Source: own processing on data of Czech Statistical Office
We can see in the figure 3 that the main purposes of travelling are leisure time activities and sports activities. More of one half of residents spend this time abroad. Other purposes rank not very important position; we can mention only the reason “visit of relatives or friends”, 1528,7 thousands people indicates this purpose of travelling.

**Fig. 3** Long trips of Czech residents by main purpose of trip in 2005

Source: own processing on data of Czech National Bank

**Fig. 4** Citizens of the Czech Republic travelling abroad according to months

Source: own processing on data of Czech National Bank
The following question is what the most frequent time of travelling is. The picture 4 shows data from the years 2001-2005. We cannot see important differences in one month during all five years long period. From this reason we need not to distinguish the individual years. It is possible to say, that the highest frequency of travelling is during the summer month, when majority of people spend their holiday. It is of course not surprising. The similar level, but lower, of the number of travelling people is during June, September and October. On the other hand, the lowest values are presented in January.

Very important question is the way of travelling. Majority of the Czech residents travel by car or bus (almost 89.86 %). Only 2.87 % of residents travel by train, probably because of the standard of this transport (the train tickets are usually more expensive than bus tickets and the train connection is not perfect). 7.27 % of the residents travel by plane, it is possible to assume, that the long distance ways are accomplished by these means of transport.

**Fig. 5** Citizens of the Czech Republic travelling abroad in 2005 according to kinds of transport

![Citizens of the Czech Republic travelling abroad in 2005 according to kinds of transport (%)](image)

Source: own processing on data of Ministry for Regional Development of the Czech Republic

**Table 3** Citizens of the Czech Republic travelling abroad in 2004 and 2005 according to sections of the state frontier

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>with Germany</td>
<td>9.89</td>
<td>99.5</td>
<td>10.30</td>
<td>104.1</td>
</tr>
<tr>
<td>with Austria</td>
<td>7.18</td>
<td>97.1</td>
<td>7.15</td>
<td>99.6</td>
</tr>
<tr>
<td>with Poland</td>
<td>8.47</td>
<td>107.4</td>
<td>7.09</td>
<td>83.6</td>
</tr>
</tbody>
</table>
We can state the question which part of our frontier is busier. The data from the last two years illustrate that the most of the people cross the frontier with Germany.

Very important indicator for the national economy is the foreign currency expenditures. Figure 6 presents data from the years 1998-2005. We can see the lowest value in the year 2000 (1279,4 mil. USD) and the highest value in the year 2005 (2412,7 mil. USD). The trend of expenditures is increasing from the year 2000 till 2005. The regression function, that express this relation in the period 2001-2005 is \( y = 247,77x - 494353 \). It is possible to determine two important reasons of this phenomenon; the first one is dropping of the exchange rate of USD, the second one can be the rising exigency of travelling public and higher process of the service, that are connected with it.

**Fig. 6** Foreign currency expenditures of outgoing tourism in 1998-2005

![Foreign currency expenditures of outgoing tourism in 1998-2005](image)

Source: own processing on data of Ministry for Regional Development of the Czech Republic

**ACKNOWLEDGEMENTS:**

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   http://www.cnb.cz/cs/vyzkum/vyzkum_publikace/


NON-MATERIAL METHODS OF MOTIVATION AS A TOOL OF ENTERPRISE MANAGEMENT

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Abstract
At the present time intellectual capital is a basic resource of any sphere enterprise. High level of productivity is characterized by motivation level of workers. During the crisis application of methods of non-material worker’s motivation is the most actual method. Developed system will be effective if complex of actions is used separately for different categories of employees. The estimation of employee’s motives gets special value in view of limitation of financial resources of the business. In connection with absence of the quantity indicators reflecting a level of motivation, using of the methods based on knowledge of experts acquires the special actuality, namely - methods of support of making decisions.

Key words: motivation, experts, an estimation, enterprise management

1. INTRODUCTION

The challenges of proving the Russian industry with personnel potential of high quality are among the core issues characterizing the current stage of the Russian economy development. In general, personnel’s professional level quite is low, so the formation of effective human resources is one of the most important ways of supporting the development of national economy. Human resources marks their ability and opportunity to solve the problem of personnel stability, security and business prosperity. It occurs on the basis of the available personnel, indicates the reserves, and also guarantees that the company won’t loose its professional staff and return money invested in them at a profit.

Nowadays the search of the effective ways to control labor, providing high efficiency of the human factor has become one of the major challenges for businesses within a sharp decline of the production level. Massive personnel reduction has reduced business activity and staff creative autonomy. Professional and creative human resources’ development within the country's transfer to an innovative way of development, the implementation of its capacity to provide stable and sustainable country’s development, employees represent the foundation of the competitiveness’ maintenance in the organization.

Motivation is the main factor for the human resources’ effectiveness. Efficient management of brain capital depends directly on the company’s systems of motivation and incentives. Motivation is a major force in the effective work of the staff; it has a variety of human needs at its core and is regulated by the means of incentives.

For their successful management small businesses need the specialists with a modern way of thinking, the ability to combine creativity and high productivity, flexibility to feel the market innovative needs, leaders who can successfully manage the high-tech companies, who can easily adapt to the abnormal
situations. This problem relates to two main reasons, first of all, the lack of academic disciplines, which develop necessary skills. Secondly, it relates to the motivation lack among the employees to develop innovative processes. In these circumstances, enterprises and especially small businesses have an objective necessity to develop an effective policy in order to motivate the employees in all activities, as their staff is their key strategic resource.

Staff development plays an important role in achieving company’s strategic objectives, as the organization changes its activity and structure; it requires staff permanent changes in behavior. These changes relate directly to changes in motivational mechanisms of the employees and the organization in general.

As the financial crisis has limited the opportunities to increase wages and thus the possibility to motivate people financially, a need to develop HR strategy, which allows to retain staff, maintain the quality and productivity at pre-crisis level without increasing the finance charges has appeared.

In this situation, the application of staff non-financial ways of motivation are quite relevant, these ways are seldom used in the domestic practice. The system of non-financial motivation should be developed individually for each enterprise, taking into account business peculiarities. The developed system will be effective if the measures are applied differentially for various categories of employees. To do this, the managers need to estimate their employees in terms of their usefulness to the enterprise and they also need to stress on the employees who are of the highest need for the enterprise.

Since the activities of the worker is determined by the system of motivation within which they are interrelated with each other in terms of impact on the individual; so a flexible way of managing the behavior pattern overcomes a system of motivation and incentives that affect the employees’ motivational structures. In order to adapt the personnel behavior patterns to the rapidly changing environmental conditions it’s necessary to create a motivational structure of the enterprise.

2. MOTIVATIONAL STRUCTURE

A motivational structure of the enterprise reflects the major causes of the employees’ actions in accordance with their agreement with the company’s main objectives and serve as the basis for the systems to motivational systems’ development.

The motivational structure is set after the development and approval of the company’s hierarchy of goals. In order to create the company’s’ motivational structure it’s necessary to identify the motivational structure of each employee. Many of the selected motives are structured by the frequency of choice, that is, the more common motif appears in the motivational structures of employees, the more valuable it is. The motivational structure has several levels, the first level represents the most important motives. The second level is less important: secondary motives, which are structured by their significance, the third and subsequent levels represent secondary motives with a low level of significance both for the employees and for the company.

3. EVALUATION METHODS OF MOTIVATION EMPLOYEES

The main problem when creating the motivational structure of the enterprise is the identification and structuring of the employees’ motives. This is due to several reasons, first of all the distinctive feature of the motivational process is the changeability, as the motives interact with each other in a complex dynamic way: one motive can reinforce the other, which determines the high level of the assessment
process uncertainty. Secondly, the company’s staff has a different motivational structure that is characterized by various degrees of importance, which have a different impact of incentives on different employees. Third, as the motivational system is set individually for each company there is the need to evaluate the objectivity of methods’ selection, their effectiveness and efficiency of the system as a whole.

Structure non-materials methods of motivation and needs
Motivational structure of the enterprise

The most popular method of motivation evaluation is interviewing. Questionnaires are analyzed, and the incentive system is developed on basis of that data. The difficulty is that small and medium-sized business is a major factor in the development of human capacity, as the number of employees is limited, so the heads of such enterprises do not have time for the long-term research. Every company operates its own activities and has its own specific features, therefore, the questionnaire should be tailored to specific businesses. Only a specialist or a group of professionals can make such profile: psychologists, sociologists, managers and economists. Data processing also requires the participation of highly specialized experts; the company's head will hardly have time and opportunity to carry out these procedures. It also requires additional funding, small and medium-sized business does not always have spare cash. In addition to these complexities, there is a problem of data reliability obtained from the employees. The employees are often afraid of losing their jobs and give such answers to the questions that would satisfy their manager.

As the motivational processes are characterized by a high degree of uncertainty connected with the inability to estimate the staff feedback to the motivating actions coming from the management, it’s impossible to reduce the problem with this kind of uncertainty. The most common way to reduce the level of uncertainty is a subjective assessment of experts that determines his preferences.
Thus, the expert, based on his own subjective opinion, makes a decision concerning the effectiveness of the certain alternatives and the importance of different criteria. In this regard, methods, which provide support to decision-making are of the particular importance for the motivational assessment. Since the motivational structure requires the employees’ highest priority motives and matching them with the basic objectives of the enterprise, the most productive method to support decision-making is the method of fuzzy preference relations.

The main advantage of this method is the possibility of using a rating scale developed by experts, which greatly simplifies the evaluation process by using conventional qualitative categories. For example, when determining the significance of such motive as "striving for a higher skill level" it’s possible to use evaluation categories "strongly inclined", "in_ inclined", "not inclined". The experts independently choose language evaluations, and then develop a scale of common mistakes, in which each linguistic evaluation gets its scores.

Evaluation of motivational mechanisms begins with the motives’ determination and the formation from these motivational alternatives. Further we define the principles for the preference of a particular motive. The criteria are the factors reflecting the consistency of the motives of employees with the objectives of the company and their level of significance for the employee and the company, for
example, "the level of the quality of decision-making personnel or "concerted of the employees’ actions".

Each criterion, as well as an alternative, gets an appropriate linguistic evaluation, according to the scale developed by the experts. In assessing the criteria presented in the form of the vector, as an alternative in the form of a matrix of linguistic assessments, which are further turn from the linguistic ones into the scores. Reliability of the expert data is estimated on a coordination by means of a special matrix.

\[
\begin{array}{cccccccc}
\hat{E}_1 & K_1 & K_2 & K_3 & K_4 & K_5 & K_6 & K_7 & K_8 \\
K_1 & 1 & v_1 / v_2 & v_1 / v_3 & v_1 / v_4 & v_1 / v_5 & v_1 / v_6 & v_1 / v_7 & v_1 / v_8 \\
K_2 & v_2 / v_1 & 1 & v_2 / v_3 & v_2 / v_4 & v_2 / v_5 & v_2 / v_6 & v_2 / v_7 & v_2 / v_8 \\
K_4 & v_4 / v_1 & v_4 / v_2 & v_4 / v_3 & 1 & v_4 / v_5 & v_4 / v_6 & v_4 / v_7 & v_4 / v_8 \\
K_5 & v_5 / v_1 & v_5 / v_2 & v_5 / v_3 & v_5 / v_4 & 1 & v_5 / v_6 & v_5 / v_7 & v_5 / v_8 \\
K_7 & v_7 / v_1 & v_7 / v_2 & v_7 / v_3 & v_7 / v_4 & v_7 / v_5 & v_7 / v_6 & 1 & v_7 / v_8 \\
K_8 & v_8 / v_1 & v_8 / v_2 & v_8 / v_3 & v_8 / v_4 & v_8 / v_5 & v_8 / v_6 & v_8 / v_7 & 1 \\
\end{array}
\]

Matrix of an estimation of reliability of the information on criteria and alternatives

K - criteria of an estimation;

V - Estimation of reliability;

Also reliability by alternatives is estimated.

After determining the input parameters and their transformations, it comes to the ranking of alternatives on the criteria in accordance to the following algorithm.

1. determined by the ratio of preference for each criterion for a pair of alternatives

\[
P_{ij} = \sum_{j=1}^{J} h_{ij} \cdot P_{ij}^k (k, l) = \sum_{j=1}^{J} k \left[ \frac{m_{ij} - m_{ij}}{n - m_{ij}} \right]
\]

2. is the valuation criteria and values of the vector is determined by the ratio of preferences on the pair of alternatives, taking into account the normalized values.
$$P(k,l) = \sum_{j=1}^{j} h_j P_j(k,l) = \sum_{j=1}^{j} k \left\{ \frac{m_u - m_v}{n_j} \right\}$$

$$k_j = \frac{k_j}{\sum_{j=1}^{j} k_j}$$

3. determined by the fuzzy relation of dominance of one motive over another (determined by the intensity of dominance).

$$\mu(k,l) = \begin{cases} P(k,l) - P(l,k), \text{ if } P(k,l) > P(l,k) \\ 0, \text{ otherwise} \end{cases}$$

4. determined by the ratio of non-dominance to increase the objectivity of assessment.

$$\mu_{ND}(k,l) = 1 - \mu_{ND}(k,l)$$

5. calculation of the intensity of the dominance of each alternative

$$\mu^\star(M, \epsilon) = \min_{\epsilon = 1,...,n} \mu_{ND}(l,k) = \min_{\epsilon = 1,...,n} [1 - \mu(l,k)]$$

$$1 - \max_{\epsilon = 1,...,n} \mu^\star(l,k) - 1 - \max_{\epsilon = 1,...,n} [P(l,k) - P(k,l)]$$

6. determined by the number of motives ranked according to their importance

$$\mu^\star(M, \epsilon) = \max_{\epsilon = 1,...,n} \mu^\star(M, \epsilon) = 1 - \min_{\epsilon = 1,...,n} \left\{ \max_{\epsilon = 1,...,n} [P(l,k) - P(k,l)] \right\}$$
Thus, after evaluation of motivational experts are ranked number agreed on the importance to workers and businesses in the complex, on the basis of which the structure is built from motifs in descending order of importance, ie if $M_1 > M_2 > M_3$, etc., most preferred and most important is the motive of the $M_1$, $M_2$ preferred, less preferred $M_3$, etc. depending on the given rating scale. Perhaps the coincidence of several ratings of motives, it defines them as equivalent.

Advantage of this method is that experts do not produce their own account, their competence is to identify the motives of workers and the factors that determine their preference for the enterprise, development of scales and the definition of linguistic evaluations of alternatives and criteria. Transformation of linguistic data, valuation and ranking of alternatives is performed by using computer technology.

The main problem of using methods based on the knowledge of experts is to select the experts themselves, as the expert should have the necessary level of competence in the issues at stake. But as a motivational model is constructed within the enterprise, as experts expedient to involve the senior, middle and lower levels of the hierarchy, as competent leader always knows the needs and aspirations of their subordinates. The level of professionalism of management staff is determined by conducting appraisals and performance appraisal activities significantly increases the use of methods for expert evaluation.

On basis of the motivational structure of developing a system of motivation and incentives for staff, negotiated major methods of influencing people.

The system of non-motivation should be composed of subsystems operating on different categories of workers. Since some methods require non-motivation of the enterprise financial costs, they should be ranked in terms of cost. The most expensive methods are used individually for the most important employees, low-cost methods can be a group character.

To achieve optimum results from the introduction of non-motivation, it is necessary to assess the level of staff motivation and apply the system in the event that the employee really needs the additional stimulus.

Effective in terms of saving financial resources is the application of self-motivation. Self-motivation is applied to a group of employees whose main motivation is self-actualization.

Further, an assessment of the effectiveness of the impact of motivation and incentive motivational structure of the enterprise. Evaluation of effectiveness of motivating and encouraging carried out by an administrative board of the enterprise, which assesses the level of achievement of goals. Applying the model for evaluating the motivational structure and incentive system based on the method of fuzzy preference relations and the method of analytical hierarchy, managers can continuously monitor and flexibly manage not only the human potential, but the production as a whole.

The introduction of non-motivation will reduce labor costs, which correspondingly reduces the overall cost of the enterprise and creates a certain reserve to maintain stability amid the economic crisis, along with the company will retain a competitive high-performance team. It is through effective and productive human resource capacity of small business enterprises can reduce the negative impact of the financial crisis.

In large enterprises to build a better motivational structure, taking into account the organizational structure, ie, the structure will have a total for the enterprise hierarchy of motives and special for each of the divisions or departments. Evaluate the effectiveness of the system as it is useful to the
departments or divisions, so you can further examine the effect of motivation and incentive systems on the overall result. The evaluation determined whether a further adjustment of motivational structure and, accordingly, the system of motivation and incentive companies, taking into account the peculiarities of the divisions.

Ultimately, well-aligned system of motivation and incentives for staff are a tool that enhances the value of the company - through strengthening the effectiveness of the whole team in general, and a significant reduction in the cost of selection, adaptation, and the remuneration of staff. It is through effective and productive human resources, small business forms can reduce the negative impact of the financial crisis. But the development of small business will provide steady growth and development of science and technology base in the future, and with it the growth of key sectors of the economy.

REFERENCES
PERFORMANCE OF MANAGEMENT FUNCTIONS IN NGOs
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Abstract

The actions made by any manager, according to the content of the stages of the management cycle, define the management functions and, also, the sum of these functions constitutes the content of the management content. The realization of the management process presumes the accomplishment of some specific actions, which may be grouped in some defining functions for the role of each manager, indifferently of his hierarchical position in the organisation. The management process may be shared, having in view the nature of the tasks, which are implied in its development, but, also, the mood of its accomplishment, in five functions: prevision, organizing, coordination, leadership, control-evaluation.

Because the content of the management processes and management relations are concretized in management functions, I consider that it is necessary to analyse these functions under the aspect of the mood how are they realized and, also, their implication on the management system.

Key words: management functions, management process, managers, organization structure, adaptation

1. INTRODUCTION

Management processes were analyzed and identified for the first time by Henry Fayol, who defined its five main functions: planning, organizing, command, directing and controlling. Other researchers have partially established a different set of management functions. Ovidiu Nicolescu and Ion Verboncu believe that process management can be divided given the nature of the tasks involved and the manner of their accomplishment in five functions:

- foresight;
- organizing;
- coordination;
- directing and motivating
- monitoring - evaluation.

2. THE MANAGEMENT FUNCTIONS IN NGO'S

2.1. Forecast in non-profit organizations

The forecast function, according to Henry Fayol is to anticipate the future and draw up an action plan considering the forecast as a major part of management. The forecast function means all activities through which the main objectives of the company, its components and the necessary resources and means of achieving them are established. (Rusu, P., Stan A.S., 2000).
The forecasting activity is based on knowledge of the available resources, of the results of past activity, of the current situation and of the pursued objectives. This function means to foresee the evolution of the future status of the organization but also its functioning and the consequences of specific actions achievable in the future, leading performance and standards.

The basic tools of forecasting are:

- diagnosis;
- forecast;
- planning;
- programming.

The diagnosis includes all the diagnostic operations of the situation of the organization in order to know the status of the system at a certain time. In this sense statistical and informational data are used from the accountancy.

The forecast means all the operations which investigate the activities of the organization during a certain period of time in order to foresee the future developments of the system and the reasons of strategic decisions. The forecast contributes to assess the likely ambient states for each year of the period for which the forecast is made, relying on the assumptions taken into account, but also on the restrictions that may arise.

The forecasts drawing up have to observe the following requirements:

- realistic development assumptions;
- analysis of those phenomena and processes in order to establish correlations in the past and factors which generate change;
- highlighting the contribution of technical progress to the future evolution of the phenomena and processes covered;
- ensuring permanent dynamic balance between the envisaged development objectives and the material and human resources involved in achieving them;
- making projections of future evolution of the phenomena and processes, emphasizing the determination and the economic, social, technological, organizational, ecological influences and approaches at different levels - national, regional, local.

The planning is the forecast version that helps to situate the current activity of the organization in the development trends of the economy in general. The planning is a basic activity for management, because it lies at the basis of the other managerial functions. Thus, a manager needs a plan before he organizes, coordinates and controls or otherwise all other subsequent activities have no purpose or direction.

The planning function answers to questions why, how, and when something is achieved and who is responsible for what.

The planning, as the central attribute of leadership consists in making the forecast of the path the organization will take in future and has the following main goals:

- establishing the conditions under which the organization will conduct its work,
- determining the main objectives of the organization and the necessary means to achieve them;
- defining the procedures to be followed to achieving the established objectives.

More dynamic and uncertain is the environment in which the non-profit organization operates, more necessary is the planning.

In this context, the need for planning arises from taking into account the following factors:

a. the non-profit organizations complexity;
b. the external environment changes;
c. the duration of turning the decisions in results.

In a dynamic and uncertain external environment, the objectives are more extensive if the planning is done for a longer period of time. It is necessary to make clear that within the management planning process, all components, namely the objectives, policies, resources and assessment strategies are interdependent.

The planning process has some advantages that worth mentioning:

- it contributes to clarify the direction of the non-profit organization;
- it can have a bigger impact on the motivation of individuals working in that organization;
- it helps to make a better use of all the resources available to non-profit organization;
- it provides a useful tool for assessing the progress of the non-profit organization.

There are four main tasks of planning (Boboc, I., 2004):

- the mission statement;
- the strategic orientation (objectified in strategic planning and conducted by top managers);
- the development and monitoring of a tactical plan, called Operational Plan (in departments, sectors, the responsible managers);
- the observation environment (relations with technology, with the socio-cultural and political and other organizations).

The programming is the part of forecast which consists in how the activities of an economic system alternate and condition each other within short time. The programs are very detailed and the contained elements have a high level of certainty and time horizon is reduced, namely one month, one week, several days, a day or per hour, shift, etc.

The achievement of the other management functions depend on the way this function is performed, namely on the ability of managers to focus primarily on issues of future trends in business. (Nica, P., Iftimescu, A., 2004)

2.2. The organizing of non-profit organizations

The organizing as a function of management differentiates from others by its expressiveness, being the most "visible" function of management, because it is felt by every man who works in communities. The organizing shall establish the tasks to be fulfilled, their rational grouping, the authority
relationships, the links of cooperation and information which unite people together, creating bodies to enable those responsible to carry out an effective work. (Cornescu V., Mihaiescu I., S. Stanciu, 2003).

To organize activities of a firm means above all to achieve a division of labor, both vertically and horizontally. (Nica, P., Iftimescu, A., 2004).

Therefore the organization includes:

- a. designation of the types of activities required to achieve various goals;
- b. achieving a logical structure, operational activities by grouping the activities (create an algorithm of activities by establishing an optimal operational chain);
- c. allocation of specific action tasks to the organization's members in accordance with their skills and capacities to meet them effectively;
- d. the communication channels determination and networks of relationships between the organization members, to ensure convergent action, uniform for achieving goals;
- e. setting the framework for the work, working conditions

A key issue for the organizing is the structure of authority, power, responsibility and accountability relationships.

Finally, based on the analysis so far and given that the organizing as a function of leadership aims to develop a formal structure that is designed to use all the available resources to achieve the organizational purposes, organizational principles can be mentioned.

They are:

- a. the coordination principle, (integrative role of the organizing) - each organizational unit or subunit has to clearly understand both their own position in relation to other components of the organization
- b. the authority delegation principle is:
  - streamlining management and labor to obtain a higher efficiency due to the focus on the important issues of society;
  - reducing time for resolving problems;
  - increasing the autonomy in management and excluding the excessive centralization of decision making;
  - capitalizing on the initiative, responsibility and desire to assert.
- c. principle of balance between authority, power, responsibility and accountability;
- d. the command unity principle refers to the need that each subordinate must be responsible towards only a head otherwise confusion may occur, involving cases of indiscipline and low or non-involvement of subordinates in carrying out tasks.

Any organization must have a viable organization and management structure, well defined, ranked according to the decision-making power.

Running a non-profit organization is carried out under statutory provisions, generally by means of two main bodies such as the organization's supreme body, and an executive body with the right of decision in the current problems.
For non-profit associations the working mode and decision making by the governing bodies are among the most important activities. For some non-profit associations such meetings, elections, and discussions on this occasion can be even some of the aims of the association, why they were established.

In this context, for non-profit associations, the governing body is the General Assembly and the implementing body is the Board.

1. The General Assembly is the governing body of the association, composed of all members.

The General Assembly shall meet at least once a year. Decisions taken by the General Assembly are compulsory even for members who did not take part in it or voted against.

2. The Board

The Board decisions ensure the enforcement of the General Assembly decisions.

The general rules on the organizing and functioning of the Managing Board are set by statute, but the Council can develop an internal regulations code.

The Board may authorize one or more persons with executive functions, including persons who are not associates to sign the legal acts on behalf of the association.

According to Government Ordinance 26/2000, the Board members may be both association members and individuals who are not members of the association.

In the case of foundation, management and supervisory bodies are the Governing Board and the auditor. The actual regulation keeps the current rule that the foundation is never run by the General Assembly.

1. The Board consists of at least three members appointed by the founder or, as appropriate, the founders, at the moment of the foundation establishment.

The Board members (who can also have another name: the steering committee, management committee etc.) are appointed by the very foundation statutes.

The foundation Board ensures the achievement of goals and objectives.

2. Auditor-Audit Committee

The Audit Commission - usually consists of three persons, of which one is chosen as a representative of the Commission and aims to coordinate activity.

At least two of the three members of the Commission, must have accounting knowledge.

A good training is required in all areas of their organization activities. Legal knowledge is also important to review the concluded contracts.

2.3. Coordination of non-profit organizations

The coordination is the management function which links the organizational structure, technology, objectives and organizational resources to achieve goals.

At the same time, coordination can be defined as an internal management of all aspects of the organization, because of timing of actions and decisions by adapting them to the environmental conditions in which they operate.

The exercise of this function is explained by
- the dynamism of the organization's activities and of the environment in which it operates
- the complexity and diversity of the organization's staff reactions to the changes that occur within its sub-units or components.

Typically, coordination is presented in two forms:

- **bilateral**, when exerted between a head and a subordinate, or between a department (sector) and another department (sector), the purpose of coordination is to build and maintain links between departments (sectors);
- **multilateral**, which takes place between a head and several subordinates, between a department (branch, sector) and other departments (other branches, sectors), aiming to generate the participatory management.

In relation to the structural organization of the company there may be distinguished:

- the **vertical** coordination, which consists in binding activities of the top of the pyramid to those at the middle and lower;
- the **horizontal** coordination that involves binding of activities between departments located at the same levels.

Coordination is the less formalized managerial function, which is closely related to the human side of potential managers, and whose effects are difficult to assess.

To achieve an effective coordination, a proper communication at all levels of management is needed, the meaning of communication being the transmission of information and full perception of their messages.

Communication is a fundamental characteristic of existence. All management functions are done using communication as a process of understanding among people through information transfer.

The management communication involves two partners: the manager and his subordinate or employee. Both can be transmitters or receivers and also seek through communication to facilitate the achieving of targets. Manager's personality often inhibits communication between the two partners. It is important to determine what role each plays in the process of communication.

The middle managers should be able to transmit upward, downward or horizontally, the important data because their task is to give advice to some employees and to direct others. In this hierarchical stage the information and communication need is particularly strong. To meet this need the top management must include in the information and communication process the middle managers. Such communication provides a sense of security and trust, and middle managers see it as a proof of recognition of their achievements.

Regardless of the social system, communication in an organization performs the following functions: information, socialization, motivation, dialogue, education, advocacy of organizational culture and integration.

The basic function of managerial communication is to inform.

Management heads receive and select the information received from numerous sources, which interpret and translate them into guidance or decision and forward them.
Managers need to control the quality of communication channels and check the answers and responses to the messages they sent.

The communication process is a managerial decision-making process presented schematically in the table 1.

**Table 1. Decision-Communication Process**

<table>
<thead>
<tr>
<th>Decision making process</th>
<th>Communication</th>
<th>Comunication</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stages</strong></td>
<td><strong>Features</strong></td>
<td><strong>Stages</strong></td>
</tr>
</tbody>
</table>
| Decision preparing | - Situation analysis  
- Goals setting  
- Information collection | Communication preparation | - The selection of communication form  
- Establishing the communication purpose  
- Deciding the place and communication time  
- Knowledge of receptors |
| Decision making | - Developing choice decision  
- Analysis of advantages and disadvantages  
- Optimal variant choosing | Message communication | - concise and focused message stating  
- Tracking indices to see whether the messages are understood  
- Using carefully the non-verbal language and a properly voice using |
| Implementation and enforcement | - Decision implementing  
- Enforcement  
- Necessary correction | Message understanding control | - Output feedback |

Peter Drucker believes that for an NGO coordination, especially a transnational or national NGO, standards are important and they must be observed by all the heads, along with all the branches, "clear standards are particularly important for NGOs as they have local branches, autonomous (Catholic Diocese, the American Heart Association, Red Cross, Scouts, etc.); each local organization must be autonomous and take its own decisions, for controlling all the conflicting demands for autonomy, but also for compliance, we need high standards."

According to some experts, coordination should aim at not only the internal management joining forces, but also the external managerial forces from the territory or community or regional area. Continuing the previous idea, Markham, Bonjean Johnson & Bonjean state that NGOs access to resources and their legitimacy depends largely on maintaining good relations with other organizations, associations and agencies with similar goals and priorities and which together may be defined as a community network where everyone has his role."
At present it is necessary the correlation and complex interweaving of factors in the context in which organizations are becoming increasingly complex, with subsidiaries and branches on a national and even international level have multiple bodies forms, with a great diversity of tasks, the effect of frequent changes of their activities.

Coordination requires a focus on convergent actions, which is possible if the organization actors participate in the priority objectives of the organization. It makes efforts to mitigate technological impact on structures, tasks and people, and ensure the unity of action and requirements of organizational subsystems.

2.4. The non-profit organizations involvement

Involvement function incorporates all work processes which determine the organization's staff to contribute to the in establishment and achievement of the expected objectives, based on consideration of the factors that motivates them. (Nicolescu, O., Verboncu, I., 2007).

Involvement seeks the effective and powerful involvement of both management personnel and of execution staff in the tasks and objectives they are responsible for. These objectives derive from the strategic objectives of the organization. In this context one can say that the involvement function answers the question: WHY does the organization staff participate in the setting and achieving of its objectives?

The involvement consists in two distinct moments: the control and motivation.

Command is the action of the manager which affects the employees and takes the form of democratic management decision.

Control occurs when three factors are identified:

- the manager with his authority;
- the doer with his education and qualifications;
- the tasks and goals to be achieved.

Orders are effective if:

- they are simple and straightforward, clear and timely;
- they do not exceed the competence of employees or their executive capacity;
- they do not contradict the principles of management.

The main features of the command are:

- it answers the question "What should be done", so what tasks are assigned to each individual in a certain stage in order to achieve the objectives and "When something should be done ?", namely the dateline fulfill the tasks assigned;
- the control is exercised by managers and their key partners, it is characterized by team spirit, introducing lasting relations between employees and company;
- it has no special techniques;
- through it the organizational structure becomes an operating mechanism and the control function becomes an action aiming a defined purpose.
The motivation is the action which leads to the creative energy of individuals to achieve objectives with maximum efficiency.

The motivation is the individual's inner state, which provides energy, changes their selves and directs them in meeting the business objectives, including the desires, needs, ideals, beliefs, interests, and generally similar conceptual categories, whether innate or acquired, acknowledged or unconscious.

The link between theory motivation and managerial practice is vital for a successful management, for the success of a business, a management team coordinating and directing it toward a common goal. (Burciu, A., 2008)

So motivation in a management perspective is the ability of heads to create that organizational environment where employees can and want to generate the desired responses by the organization.

The motivation is a factor conditioning the performance of each individual, the impulse that leads him to act in a certain way, it is an internal state that stimulates and determines his behavior.

Motivation is the process by which the manager gives impulse to their subordinates to achieve the best possible performance by giving them opportunities to do so, especially if we consider that the activities of all organizations, the non-profit organizations and profit organization are conducted in a competitive environment.

Motivation includes the need or desire that a person experience to take certain actions. (Avram, E., Cooper, C., 2008)

The most motivational theories that seek to explain human behavior based on human needs. In this context, the need is a psychological or social requirement or a need that can be satisfied by achieving a desired result.

If the need is not satisfied then it leads to an inner state of tension (physical, psychological or social) of the individual, which trigger a certain behavior, and certain facts that aims to reduce tension and to restore the inner balance. The lack of work motivation leads to a disinterested behavior, an avoidance of responsibility, alienation of individuals of the working process.

There are numerous studies on motivation theory, but the point of departure is always the ordering of needs according to A. Maslow's logic, in the following sequence:

- physiological needs;
- security needs;
- need for human contact and group affiliation;
- need for esteem and respect;
- need for self-actualization.

It is difficult to explain/understand in a single motivation theory on whom or what motivates individuals in his daily work. Comprehensive, various theories suggest the direction in which managers should act to induce a certain behavior of their staff. They also refer to the manager's attitude towards employees, his understanding and willingness to employees’ problems/goals, and finally using the various tools of the team contribute to a stronger motivation essential to non-profit organizations.
In general, those people involved and integrated in the organizational structure have a clear motivation. This may be the desire to solve a society problem, to satisfy a passion, to be involved in the management process, to have certain material or financial advantages.

The volunteer’s motivation - volunteer staff consists of those who participate in certain activities, provide certain services without seeking a material or financial reward. Volunteers join to organizations or participate in their activities to achieve the common goals that motivate them to join. But there are people that seek more their personal interest, which generates from the association process. They do not state their real motivation and these people must be found and eliminated from the ONG. Generally people who involve in an unremunerated activity are well reasoned. Their motivation may be enhanced the opportunities offered by the organization: an environment where they can take initiative, they can find colleagues better and a pleasant company, the chance of getting promotion and prestige.

The employee’s motivation - The staff - which consists of those people in return for payment, provides an activity covered by specific rules of each country. Those organizations that have achieved a high degree of institutional development need employees. Activities are complex, requiring an effective problem solving and it can not be done only during the volunteers’ free time.

Usually the most valuable volunteers are persons employed by the organization. They are motivated primarily by the work they perform and secondly by the financial aspect. But sometimes the organization has to hire someone from outside, due to his specialized training. This person will be motivated by money, good heads, a secure job, working hours, good conditions, the chance of promotion, obtaining benefits.

The involvement function is effective only if the motivating process has the following characteristics:

- it is complex, it uses both material incentives and psycho-social incentives;
- it is differentiated, it follows the correlation between the motivation it uses and the features each group has or more, each individual has;
- it is gradual, the motivating process gradually meets the needs of staff in relation to their contribution to the achievement of objectives.

We conclude that staff motivation (Boboc, I., 2004) is a key link in the coordination because it allows one to achieve organizational objectives and personal objectives through various formulas. There are many people who emphasize the key role that income plays, especially money, salaries and other forms of financial reasons, I have already noted, as a type of indirect and extrinsic reward for all kinds of organizations. In NGOs cases this reality is more relevant. There are many cases in which (even in Romania), many researchers, for example, do not give up their prestigious status, despite the miserable wages. Why? One of the most frequent responses shows the need for prestige, esteem, recognition of the value of their work, "token payment".

NGO management specialist David E. Mason designs that function as "guidance" (Guiding function) of volunteers. He says that money, directly related to the coordination function constitutes a relative motivator, but only insofar as expressing appreciation and symbolic status value. In most cases, continues the same author, the esteem and recognition are strong reasons. Money for NGOs plays a vital role here, but completely different it plays in business. It plays a supporting role in NGOs, not a superstar like in business.
2.5. The control-evaluation in non-profit organizations

As a function of management, control consists in all activities which compares the performances of an organization or of its various components with its projected goals and then the results are correlated with the pursued aims.

A control is effective when:

- is based on a flow of accurate, precise and clear information;
- uses simple methods of investigation;
- is appropriate and has low costs.

In case the verification of results confirms the goals achievement, then the management process is restarted and if there is a conflict between them, then we need to act in one of the following cases:

- if the results exceed the established goals, the objectives are reassessed;
- if the results are inferior to the goals, the performances are improved.

Expressed synthetically, the exercise of control – evaluation function involves the following steps:

- measuring the outputs;
- comparing achievements with predetermined objectives and highlighting the deviations;
- determining the causes of the constant violations;
- doing necessary corrections.

Control fulfills five basic functions:

- function of results evaluation- the control activity has the starting point the examination of the organization’s concrete situation and performances (quantitative and qualitative);
- recovering function – it provides the opportunity to eliminate the disturbances from the activities of the organization once the flaws were discovered;
- preventive function – it helps to prevent imbalances if it occurs before the occurrence of events;
- informative function emphasizes the role of control in subsequent decisions;
- stimulating function of the human factor – strives to improve the employees’ activity and results in order to obtain favorable conclusions after the control.

The managerial control function includes the following requirements:

- existence of an information system to allow rapid circulation of information related to performance standards;
- opportunity to be done directly to the scene inspection;
- analysis of the causes of deviations and their differential treatment according to their importance;
- avoid duplication of control activities and record activities. (Nica, P., Iftimescu, A., 2004).
Professor Mihaela Vlăsceanu that "the first major problem faced by a non-profit refers to identifying and defining a clear and precise mission and it involves not only the statement of the purposes for which the organization was created, but also their expression in such a way as to make possible a permanent evaluation of performance."

The high standards and ambitious goals must be achieved at least by at least the best people from an NGO, and the assessment should always begin with positive comments. An evaluation should always begin with what the person did well. You can not build performance with what people do not have. And it is up to each organization to turn the strong parts of its members in actual performance and neutralize human weaknesses. This is the final test.

Concerning the methodology, Zelijko Sevic (2004) examines five indicators of monitoring performance of an organization or of a program of social service delivery or policy: effectiveness (response to needs) and efficiency - the degree to which a process produces an effect with the lowest cost, quality - a producer's best response at customer service expectations, opportunity – delivering/fabricating a product or a service in accordance with standard procedures and exactly when it is needed; productivity - value added by the process divided by the value of labor and capital consumption, and protection - health care for those who produce and consume a good or service being delivered or delivery.

The monitoring-evaluation function is effective only if it has the following characteristics:

- it takes place continuously throughout the course of activities that are conducted, ie it is not carried out from time to time;
- it is preventative, it aims to prevent the occurrence of negative deviations;
- it is fair, it aims the decisions taken that lead to eliminating the causes triggering negative deviations.

3. CONCLUSIONS

Management process is cyclical, beginning with defining the purpose, continues with an indication of certain term objectives, establishes the tasks for the organization members and ending with analysis of their performance. During the performance of each management cycle, certain operations are done in a logical progression, which are systematic and phased and represent the contents of the five functions of management.

All managers, in one way or other deal with planning. In the context of modern social development, planning, namely the thinking that precedes the action, is becoming increasingly important and at the same time very necessary. Through planning, the entire non-profit organization and each of its department of it, is competent to define the objectives, the actions and the conditions for achieving them.

A non-profit organization is different to another, from one managerial level to another, the way it deals with planning, the manner of reaching plans, the complexity and the content of plans, and the efficiency of management activities are common features for this kind of organizations.

Thus for any non-profit organization at any level, the existence of effective and efficient management involves formalized actions of planning.
The organizing processes means grouping the necessary activities for achieving the company objectives and assigning to each group a manager who has the necessary authority to direct, train and coordinate the people who perform those activities.

In essence, the organizing is a process of division of labor, specifying the responsibilities and the authority. The rationale underlying the organizing derives from the need to establish hierarchies and authority necessary to achieve the objectives. A clear defining of communication channels contributes to a more efficient communication within and between groups.

The main role of coordination is to maintain, preserve and improve the status of ordering of the organization system and the links between its components. A good exercise of this function brings peace, security and self-confidence, the convergence of all efforts, precision and firmness.

A proper coordination requires that all the non-profit organization activities are flexible and creative — suppleness, flexibility, adaptability and creativity, essential qualities to survive in a competitive market economy.

The basis of involvement is motivation which consists in satisfying the employees’ needs and interests and the achievement of the assigned objectives and tasks. The involvement assures the convergence of individual and group efforts of staff to achieve their objectives and the application of motivational techniques.

The task of managers in carrying out involvement function is to persuade the organization's members that using the best their own potential they can meet their own objectives while helping to achieve the organizational objectives.

Monitoring-evaluation function, is characterized by a relatively high intensity throughout the period of a cycle of activity which is normal, if we consider the significance of the control act in initiating actions, in correcting certain violations when they occur.

The management process has a complex character manifested by multiple intertwining of economics with the social area, judiciary, media, etc.

In other words, any management process takes place according to certain common rules, but they differ from one organization to another, being more or less efficient. This diversity is explained on the one hand, by objective factors that influence the organization (available resources, known information, the quality of the human factor, etc.), and on the other hand, by the manager’s ability to cope with the changes occurring in the operating environment.

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UTILISING PORTFOLIO METHODS IN THE STRATEGIC PLANNING OF PRODUCT QUALITY

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Abstract

Planning generally means a systematic, information-based and aim-oriented process. Strategic planning implies long-term corporate goals oriented on assessing the chances and risks of defining the product or market-oriented goals and global ways of achieving them. Strategic planning is an essential part of strategic management focused on the following two areas:

- Quality of products,
- Quality of production processes.

Portfolio methods are considered the most important tools of strategic planning. The aim of this contribution is to highlight the basic elements of modelling by means of portfolio methods and to characterize the application principles of the selected well-known and lesser-known portfolio methods in practice.

Key words: Planning, portfolio methods, product quality, production process quality

1. INTRODUCTION

The importance of quality for survival, success and development of an economy organisation is undisputable. Quality management consists of the following four important components: quality planning, quality control/management, quality improvement and quality audits. As the first component of quality management, quality planning is of major importance for the top management of the organisations interested in introducing and improving the quality management system. The higher the position of a management system in the organisation hierarchy, the more time should be devoted to planning and less to operative management. In his trilogy on quality, Juran compares quality planning with financial one and budgetary accounting. Pointing at the possibilities of achieving better results in a given field, financial planning is a fundament of budgeting accounting, just like quality planning suggests the possibilities of achieving the goals in the field of quality management.

Quality planning can be defined as a logical sequence of activities aimed at determining the goals in the fields of quality management and quality assurance, selecting and evaluating the alternatives and the steps inevitable to achieve the goals.

The success of planning depends primarily on the following factors:

- anticipating the trends of social, scientific and technical and political development in the world,
- involving the widest layers of staff into the plan development,
- making planned reserves in an optimum amount, time and places,
- designing the standards justified by technology, material, labour and capacity data,
- motivating the management staff to accept progressive tasks in the plan and to immediately utilise and identify the problems in the plan’s implementation by using suitable management tools.

ISO 9000.2000 standards deal with quality planning from the aspect of detailed identification of terminology and allocation of responsibilities in the field of quality planning.

Part 3.7.5 of the standard defines quality plans as the outcome of the planning process in particular field: quality plan is a document specifying the procedures and sources to be used, as well as who and when should use them in particular planning, product, process or contract.

The objective of this contribution is to familiarise the reader with the information available either in standards or in other resources and to provide an introduction into the topic that is not widely-known and used in practice, i.e. the portfolio of methods in strategic quality planning.

It is worth to mention that strategic quality planning should be regarded as the basis of strategic quality management. Given the nature of quality assurance, strategic quality planning focuses on the following two areas: quality of product and quality of production processes. Besides determining the potentials of success, strategic quality planning deals with the global distribution of resources with the aim to achieve the goals; quality strategy focused on products and processes can be then understood as a general concept of strategic planning. The criteria or identifiers to be reached by a product which should succeed on the market are denoted as "Order Winner" in the English literature. Meeting these criteria in a way more efficient than that of the competition is the main task of the production process.

The above mentioned suggests that the concepts of quality management must regard product quality as the basic “Order Winner”. In the process of strategic quality planning, product quality decomposes to a number of "Order Winners". It is, however, necessary to emphasize that, in addition to product and process quality integration strategies, strategic quality planning in organization is a part of the strategic planning of individual corporate functions. As a result, quality strategies must comply with other strategies in the organisation, both horizontally and vertically, based on the possibilities and requirements of corporate planning. The criteria to be taken into account within the vertical and horizontal harmonisation include e.g. the need for resources, the ability to sustain the requirements associated with the strategies, consideration of supreme corporate goals, etc.

Global long-term strategies are gradually being specified while forming a sequence of steps involving the transition to the short-term and detailed plans. This transition to the short-term planning can be performed via portfolio methods, since these methods allow taking into account the strategic objectives of short-term planning. Portfolio methods are therefore an essential tool for the quality-oriented analysis and for searching the most suitable strategies. The related literature sources provide information about a variety of portfolio methods used in practice in various degrees, not, however, in the field of strategic quality planning.

2. BASIC ELEMENTS OF MODELLING BY USING THE PORTFOLIO METHODS

Strategic character of determining the goals and programmes in the field of quality of product and production processes requires finding a strategic planning method able to reduce complexity of a problem, heterogeneity of the data used in particular field and simultaneously to provide basic recommendations for further activities. Representing a model approach to problem-solving, portfolio methods provide a suitable tool for generating various versions of portfolio analyses. Originally,
portfolio methods were applied in the field of financial management while seeking the optimum structure of securities portfolio under the original name of portfolio selection. Over time, the concept of the portfolio methods have expanded into other areas, e.g. industrial management for planning the products. The most common application of the methods is in the market portfolio analyses.

In order to model by means of the portfolio methods, the following aspects should be regarded:

a) Demonstration aspect – displaying means that model represents a natural or man-made original which may be the subject of modeling. Commonly displayed are strategic planning objects in two-dimensional space. While enabling comprehensive assessment of a company and simultaneously substantial reduction in the complexity of strategic planning, such approach is the most commonly used subject of criticism regarding the application of the portfolio methods;

b) Simplification aspect – none of the models can express all the properties of the displayed original, except for those relevant for the application of particular model;

c) Pragmatic aspect – is of prime importance regarding the application of the model approach. It is based on answering four basic questions:

1. What is the object of modelling? If considering the use of portfolio methods in strategic planning, specific object of such a model is product quality as an output of certain corporate system. Multilateral relations in the monitoring of such a problem as well as high complexity and dynamics of changes have also to be taken into account.

2. What time interval will be the model used for? This, again, concerns the application of portfolio analysis in the field of quality assurance. The related time interval must comply with the general planning interval. Simultaneously, a product’s life-cycle or market-cycle should be also considered.

3. What is the purpose of the model application? In case of the model application in the field of quality management systems, the aim should be measuring and evaluating the quality of products and their production with regard to the criteria of the process efficiency.

4. Who is the subject of modelling? When using portfolio methods in strategic quality planning, the subject of modelling can be an individual entity or an enterprise as a system manufacturing the products.

Several methods of portfolio analysis have been mentioned in literature and are frequently used in practice. The following table briefly illustrates strengths and weaknesses of the above-mentioned methods as well as the areas of their application.
Table 1. The most widely-used portfolio methods in practice

<table>
<thead>
<tr>
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<th>BCG</th>
<th>ADL</th>
<th>McKinsey</th>
<th>Dőgl</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strengths</strong></td>
<td>Simplicity, data availability</td>
<td>Dynamic approach, differentiation of competitors</td>
<td>Synthetic approach, flexibility criteria of</td>
<td>Product technology analysis and</td>
</tr>
<tr>
<td><strong>Weaknesses</strong></td>
<td>Estimate of costs</td>
<td>Subjective assessment, limitation of applications</td>
<td>Subjective assessment</td>
<td>Aggregation of indicators</td>
</tr>
<tr>
<td><strong>Application</strong></td>
<td>Estimate of production volume</td>
<td>Diversification of companies</td>
<td>Selection activity in integrated companies</td>
<td>Strategic quality planning</td>
</tr>
</tbody>
</table>

Except for Dőgl’s method, the abovementioned portfolio methods are not imminently applicable in the field of strategic quality planning. Their common fault is that they are strongly oriented merely on the products in the market at a given moment, regardless the trends of technology development and the influence of time factor; their assessment is therefore restricted to the current market situation.

Dőgl’s method is based on the concept of technology portfolio analysis focusing rather on technology than product, while regarding also the integrated life-cycle of products and technologies and time factor. Technological concept of portfolio methods thus takes into account also newly developed products including production processes and technologies.

As for the use of identifiers, y axis demonstrates the indicators of technological attractiveness (i.e. the possibilities of further development, possibilities of applications, the degree of complexity and side effects), while x axis shows the indicators of power of sources (e.g. technology, quality, rate of adaptation, legal security etc.).

This approach leads to the formation of two matrices, namely a **matrix for product and a matrix for production processes**, which essentially use the same indicators. To be employed for the purposes of quality management systems, the concept of portfolio methods should be adjusted to the above-mentioned principles and subsequently to the criteria of the object of analysis (quality of products and their production), target variables (objectives in the field of quality), time variables (planning interval) and the subject (management of particular organisation).

3.PORTFOLIO MATRIX OF A PRODUCT QUALITY

To assess the attractiveness of quality in relation to partial qualities of product as an object of analysis, the following structure of indicators should be established.
The fact that the essential features of the product quality are rather related to the market cycle than the period in which the product is situated on the market suggests that the determination of positions in the portfolio matrix must take into account the integrated life cycle. It is necessary then to determine the emerging substitution technologies that may affect the output of the model. Position of the product in integrated life cycle can be then characterized by the sequence of the following phases:

a) preparatory cycle - technical and scientific preparation
b) development cycle
   - selection of an alternative solution to the given problem,
   - development, construction and production of a prototype,
   - technical preparation and production,
c) market cycle
   - implementation phase,
   - development phase,
   - maturity phase,
   - retreat phase.

It should be emphasised that the procedure of phases does not depend on the subjective aspect of certain organisation, but on objective assessment of the technology development and market situation. If organization is in the stage of prototype production, competition may inhere in the ascending phase of the market. In such case, the objective position of the product is determined by the position of competitors. The acquisition of the necessary information leading to the right sequence of the above-mentioned phases markedly depends on the quality of analytical and prognostic activities of the technical development department in the organization. The following rules determine the position of the products that are strongly influenced by technical components:

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**Figure 1.** Indicators of attractiveness of product quality
- if competitive technologies, with regard to their efficiency and performance at the moment or in the near future, are to overcome those currently used for assessing a product, the product must be placed in a phase of retreat;

- the signals of competitive technologies not currently used yet emerging on the horizon, should be incorporated into the development phase;

- the position can be determined without any restrictions if no alternative technological solutions have emerged so far.

On the other hand, the development of products which quality very slightly depends on technological development must be subject to the changes in the product area. It is therefore very important to track the dynamics of changes. When aggregating the indicators in order to determine the future expected market potential, we should compare both indicators in one matrix so that each phase of an integrated life-cycle could be related to each step of the dynamics of change, while enabling individual assessment. These steps will then lead to the formation of so-called assessment matrix.

4. PORTFOLIO MATRIX OF QUALITY OF PRODUCTION PROCESS

When defining the quality indicators of the manufacturing process’ attractiveness, the following facts should be taken into account:

- quality of production process does not consist barely of equal qualities on the same level, but comprises also sub-qualities arranged in certain order,

- potential future area of certain technological level is not equal to the market potential of product, but depends on the options for further development of sub-processes, which may lead to greater efficiency in the production process. It is necessary to include there also technical and economic aspects, for example in the personnel and organizational fields.

- Quality assessment of manufacturing processes, unlike product quality assessment, does not depend on user’s requirements, but on the objectives set by the manufacturer.

The structure of indicators of quality attractiveness of manufacturing process can be then expressed as shown in Figure 2:
Figure 2. Structure of indicators of quality attractiveness of manufacturing process

Principles of technological solution to the problems if sub-processes provide there the basis for internal quality policy determined by the setup of cost or other performance ratio processes. Options for improving sub-processes on certain technological level depend on the technology development.

Potential of competitive technologies within certain class can be expressed by taking into account the following facts:

- If competitive technologies are achieving or are about to achieve more favourable cost or power ratios than the technologies used so far, the evaluation of current technology should be low.
- If, in comparison with the currently used technology, the development of costs or performance indicators of competitive technologies appear to be favourable only in the medium or long-term horizon, the current technology can be assessed by the curve with increased sensibility.
- If no favourable alternatives are expected either in the medium or in the long-term horizons, the current technology can be evaluated using so-called S-curve, taking into account so called dynamics of change.

5. CONCLUSION

In conclusion I would like to restate that the utilization of portfolio methods in strategic quality planning in practice is quite unknown. Besides identifying the indicators and designing the portfolio matrix, an important area is the interpretation of the portfolio matrices. The objectives of quality can be expressed by interpreting the portfolio quality matrices in the following two ways, via:

a) omnibus interpretation of the matrix positions based on the idea that, on a certain technological level, a higher level of quality, unlike the lower one, means higher costs for the company;
b) general recommendations for the product quality management/control and production process
management/control, depending on the attractiveness of quality, while taking into account whether,
regarding the current orientation of resources, the investment into quality of products or production
processes should be adopted or rejected, and whether product or manufacturing process should remain
in the production programme or should be excluded from it.

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PROCESS ORIENTATION IN MARKETING

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Abstract

Currently, a great importance is ascribed to the process orientation in quality management. A part of Juran’s Quality Spiral involves also marketing, which represents the course of the main activities and supportive processes in the organization. Specific feature of marketing processes is that they focus on market analysis, marketing planning and development of marketing strategy within the organization, with the aim to promote sales of product and establish communication with customers. This paper intends to emphasize the importance of positive and negative aspects of process orientation in marketing and better performance of the company in competitive environment.

Key words: Quality management, marketing, process orientation, Juran’s Quality Spiral

1. INTRODUCTION

The application of process approach is considered an efficient form of improving the management of economic organizations and building effective quality management systems. Process approach represents a form of the management of economic organization, which is much older than ISO standards for quality management systems, which appeared in the first decade of the previous century.

Regardless the formal approach predominating in most of the economic organizations, one of the reasons of insufficient application of the process approach in Slovakia is the fact that there are not enough publications available in Slovak language, which results in considerable simplification of the process approach application in the organisations’ management.

Even worse is the situation in the process approach application in quality management systems. The systems were built in compliance with the standards of quality management systems and on the basis of functional approach, where groups of integrated actions were allotted to particular organizational structures of economic organisations, while the output of the sequence of actions was not unambiguously defined, or the outcome was the bare implementation of those actions regardless the final outcome. A purely formal approach to the application of process management is therefore quite frequent in the quality management systems in Slovakia. Such formal approach has been driven by the fact that though ISO quality management systems innovated in 2000 mention the necessity of introducing the process approach to quality management, yet the necessity is accentuated only verbally in the parts of the standards which are not actually binding. This was reflected in the fact that individual documents prepared for quality management systems according to the standards of 1994 based on a functional approach and quality management activities and describing the activities of quality management in the individual elements of this system, were only renamed as written procedures documenting the processes, while the elements of quality management were identified as
processes. Practical transition to such a “process approach” thus affected neither organizational structure of, nor the way of quality management.

2. PROCESS-ORIENTED MANAGEMENT

Process-oriented management, usually identified with the concept of “process approach” in ISO standards, evokes a lot of loose ideas. The sources devoted to process management generally indicate three stages of the abovementioned process development:

- Stage 1 emerged in the first third of the previous century and is connected with Taylor’s theory of management. This approach was implemented in practice. Characteristic feature of that period of process management was the fact that no automation form of process management was used in the process of application;

- Stage 2 introduced a concept of “process management” denoted as the approach of “business process reengineering”, while processes being manually “reengineered”. The approach was also characterised by focusing mainly on the management of micro-processes, which is simultaneously a limitation of this approach;

- Stage 3 of process management is associated with the last decade and is characterised by its orientation rather on the complex economic organisation than on particular processes. Characteristic feature of the period is “change”. In this approach, the organisation capable of change is more valued than that being a market leader in the field, since change represents a perspective element in managing an organisation. If an organisation becomes a market leader, yet is not capable of change, it is supposed to lose its position in future. The period is simultaneously characterised by thorough automation of process management, however oriented on new or newly designed processes.

The abovementioned division of process management illustrates that so called process approach as a prerequisite of ISO standards for quality management systems practically concerns only Stage 1 of process management. In the application of process approach in quality management systems, neither implementation of automation in process management, nor changes of processes and organisational structures are common. In his publication Management Challenges for the 21st Century, Drucker defines two important requirements or aims:

- Development of a systematic and well-organised method for collecting the information on corporate activity in the field of market economy and competition;

- Integration of various procedures applied separately before, e.g. value analysis, process analysis, quality management and cost management in one general procedure.

3. HIERARCHY AND STRUCTURE OF PROCESSES

Since process management has been in existence for nearly a century, there are numerous definitions of the process itself as well as process management and process approach. In order to deal with the process hierarchy and structure, it is therefore necessary to explain the key concept, i.e. process itself.

ISO standards 2000 define process as a “sequence of procedures which uses resources to convert inputs into outputs”. The output of process may be a product, service, information, etc. The ISO definition is not precise however, as it lacks a substantial aspect, i.e. meeting the customer’s expectations or requirements regarding the output. Only those process outputs bring profit to economic
organisations, which satisfy the demands of a target customer. Output of a process must have certain value gained in the process of implementation. If customer appreciates the value, the process is effective; if not, the process represents a waste of effort.

Process is frequently associated with wasting material, energy or human labour. This, however, cannot be a process objective; process objective must always be meeting the customer requirements.

Regarding the above-mentioned, process represents a sequence of interconnected and usually integrated activities converting inputs to outputs and bringing some value to customers, both internal and external. A closer definition is that of W. Robson and P. Ullah who defined process as a workflow routing from one person to another, and, in case of complex processes, from one worktray to another.

Processes can be defined on any level, yet always with exact determination of the beginning, certain number of steps and clear determination of the end. This definition points at the fact that the activities involved in the process are interconnected, while the limits of activities, i.e. exact determination of the process’ beginning and end should be clearly determined.

Following is the definition of M. Hammer (7), where process is “set of activities requiring one or more input and output forms that are of a certain value to the customer”. The advantage of this definition is the emphasis on the necessity of satisfying the customer needs via the activities forming the process. In practice, managers of individual organisational structures frequently focus on performing individual process activities, while ignoring the main aim of these activities, i.e. producing an output which will satisfy a customer, both internal and external. This is typical for functional approach.

As shown above, processes are workflows with determined beginnings and endings, i.e. limits. The limits are determined by the process inputs (tangible or information ones) and outputs. When defining the process, it is necessary to consider also the subjects entering the workflow. General definition of the process subjects is shown in Figure 1.

It obviously depends on the fact whether it concerns either internal relations i.e. meeting the needs of internal customer, or external relations.

Limits of each process are formed by primary inputs starting the whole process. As their name shows, primary inputs are delivered by primary suppliers, and they should satisfy a primary customer in the process end. As a certain process starts running, its course requires a sequence of secondary inputs necessary for the implementation of the given process (e.g. information, standards, drawings etc.). There are also secondary outputs, occurring as a by-product of given process (e.g. information again). It is worth to emphasise, however, that the only process aim in economic organisations is customer satisfaction. Generally, there are five kinds of customers, yet not all of them occur in the each process, as shown in Figure 1.

When assessing processes, it is necessary to consider their hierarchy and structure. While process hierarchy concerns the management level, process structure expresses the role of process and its function in the process of meeting the customer’s needs.

When dealing with process hierarchy, I focus on the following kinds of processes:

3. macro-process,
4. process,
5. mini-process,
6. micro-process.

1. Primary customer
2. Secondary customer
3. Indirect customer
4. External customer
5. Consumer
6. Primary supplier
7. Secondary supplier

**Figure 1. Subjects of processes**

This hierarchy differs from the commonly used one using the concepts of process and sub-process. Process hierarchy is important from the aspect of defining the level of management, where the process takes place as well as responsibility for the process implementation.

Macro-process is located on the top management level and represents a complex sequence of all processes running in the organisation, starting from acquiring the inputs from suppliers up to the providing outputs to buyers. Macro-process thus represents a whole organisation, and top management, in fact CEO, is therefore responsible for the implementation of a macro-process. Universal macro-process is shown in Figure 2.

As expressed in the title, model of macro-process is universal and applies to all economic organisations. In case of a production organisation, it buys supplies, material and energy from various suppliers, which is followed by a sequence of processes resulting in the outputs delivered to customers. The total of all these activities forms the macro-process of organisation. A universal model for service companies and even for the bodies of governmental and local administration can be similarly expressed.

Quality of output, either a product or service, means the compliance with customer requirements. In order to meet customer demands, the organisation must design and manage its macro-process so that
the macro-process’ outputs meet the customer requirements. Thus, in order to succeed in the market, manufacturers have to produce the products with the properties required by customers. That requires the implementation of sequence of processes described and structured by Juran in his **quality spiral**.

![Figure 2. Universal model of macro-process.](image)

![Figure 3. Juran’s quality spiral](image)
4. PROCESS ORIENTATION IN MARKETING

Marketing processes are inseparable components of organisation processes. Typical for marketing are mainly the following ones:

- Decision-making on the basis of facts,
- Customer orientation,
- Beneficial relationships with suppliers.

I can state that marketing processes in organisation are generally focused on market analysis, marketing planning and development of marketing strategy within organisation, sales promotion and communication with customers.

The abovementioned processes also manage marketing research and survey, planning of marketing activities, management of marketing sources and utilisation of related communication tools. Marketing activities thus involve communication with customers in the stage of both, input (communication on requirements) and output (within sales promotion and communication with customers, monitoring customer satisfaction and feedback, i.e. the information flow into the processes connected with the improvement of marketing activities).

The organisations classified as medium-sized and large split marketing activities into mini-processes and micro-processes.

Each process, including marketing, must be documented and described, comprising the following items:

Name of process
Identification of previous processes
Identification of subsequent processes
Determination of inputs
Sequence of actions
Resources (human, financial, information, material)
Facilities and infrastructure
Process monitoring and measurement
Data analysis
Process documentation, including input documentation
Records on process improvement.

5. CONCLUSION

Combination of process orientation in the field of marketing with the principles of quality management may represent a solid basis for business success. There is a big difference in the way the organisations apply modern marketing ideas; some actively implement marketing procedures and processes, while the others just start realising what marketing can offer within competitive environment. The differences also depend on which aspect of marketing is being preferred under given conditions. The above-mentioned factors generally define certain development phases which may lay the logical foundations for the development of marketing system in an organisation. Quality management is based on the effort to improve. Only intelligently managed marketing processes may bring benefit for organisation.
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THE ASPECTS OF INNOVATIVE-MARKETING MOBILITY OF UNIVERSITY

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Abstract

In the article the author considers problems connected with definition of parameters of high school innovative-marketing mobility estimation. Also the classification of the given parameters is presented here. The author discovers the meaning of concept «innovative-marketing mobility» and proves importance of realization of its principles for the development policy of higher educational institution. However, we cannot consider the issue of the innovation and marketing mobility parameters finished, because this concept is rather complicated as any other structural phenomenon, it’s not easy to analyze and evaluate it. With new views on this concept and in the course of further research we may find out new parameters which can show its essence more fully and which are effective in controlling it.

Key words: innovative mobility, marketing mobility, parameters, innovations.

1. INTRODUCTION

The modern period can be characterized as a specific period of intense competition, accelerating innovation processes, reduce of the innovation cycles’ time, use and intensive development of various innovations within different spheres of activity. The aforementioned phenomena are valid for both large enterprises, small and medium businesses and for higher professional education institutions.

The overall condition of the environment puts much pressure on modern higher educational institutions. They have faced the problems of survival within the market environment: the economic crisis, the competition for the goods’ final consumer, dynamic economic and industrial relations, establishing a new system of education in Russia. To all those conditions we can easily add the demographic collapse occurred within recent decades, which caused a wave of significant shortfalls of the freshmen in 2009-2010. Unfortunately, this trend will continue during several years. However, the recent birth rates from 2005 let us suggest a positive change in this situation.

In 2010 the number of Russian population increased for the first time since 1994.

In 2008 the population decreased by 104.9 thousand that is 0.07%.

This growth formed through the substantial natural decline and also to the increased migration. For the 6 months of 2010 Russia's population decreased by 52.3 thousand of people that is 0.04% (In January-June 2009 the reduction of the population number in Russia was about 50.6 thousand people or 0.04%) [1].

Moreover, state universities that were not previously realizing the necessity of promoting their own educational services for the market are now acknowledging this need in view of the competition, announced by the private for-profit higher education institutions. A modern university has to show
high rates of marketing mobility in order to maintain its status, the influx of students, and, at the same time it has to try to create the level of prestige allowing it to form the best staff and student composition.

2. MARKETING AND INNOVATIVE MOBILITY

Scientific research is carried out along with the curriculum in all major universities in our country. Guided by the general trend of our economy, announced by the government, as well as the need and demand for market research at the researches in universities have become more innovative, and the

Increase (decrease) population, on materials of a site www.gks.ru [1]
innovation itself is paid special attention. Numerous articles devoted to the theoretical and practical parts of innovation, management innovation, their nature, characteristics and methods of intensification, applied research, creating new designs, working models, technologies, innovative systems of management development and organization form the general sphere of the innovational life and development of the university, causing the so-called innovative mobility.

However, by 2011 the need of market positioning and the importance of innovations’ implementation is understood practically by all Russian universities. What policy should the modern university possess now in order to bring it to the forefront in future? When answering this question we face the concept of higher education institutions’ innovation and marketing mobility for the 1st time.

Marketing mobility of the institution represents its ability to adopt quickly the marketing complex to form a strong market position of their own educational services, to form the brand and a positive reputation, to increase educational services consumed by the population, as well as to improve the quality of the service. These are the educational services, adequate for the market demand rendered in a fastest and the most efficient way. The keyword in this definition is "promptly". Since mobility implies rapid response to changing external conditions, to the market demand on specific customer requirements, to qualitative and quantitative changes of resources available for the university. Innovative mobility of a higher education institution is considered to be its ability to a prompt creation, development, testing, deployment, adoption and commercialization of innovations in various activities within the institution.

Table 1. Population size shift components, on materials of a site www.gks.ru [1]

<table>
<thead>
<tr>
<th></th>
<th>Total increase</th>
<th>Natural increase</th>
<th>Migratory increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Russian Federation</td>
<td>-10.5</td>
<td>-50.6</td>
<td>-52.6</td>
</tr>
<tr>
<td>Federal district</td>
<td>-3.8</td>
<td>-25.0</td>
<td>-14.6</td>
</tr>
<tr>
<td>Metropolitan area</td>
<td>-25.2</td>
<td>-17.2</td>
<td>-14.9</td>
</tr>
<tr>
<td>Northwestern</td>
<td>-1.1</td>
<td>-7.8</td>
<td>-6.5</td>
</tr>
<tr>
<td>Southern</td>
<td>68.0</td>
<td>28.2</td>
<td>30.9</td>
</tr>
<tr>
<td>North Caucasus</td>
<td>-48.5</td>
<td>-34.2</td>
<td>-40.8</td>
</tr>
<tr>
<td>District of the Volga</td>
<td>25.2</td>
<td>9.4</td>
<td>11.0</td>
</tr>
<tr>
<td>Ural</td>
<td>15.6</td>
<td>5.8</td>
<td>5.2</td>
</tr>
<tr>
<td>Siberian</td>
<td>-19.7</td>
<td>-9.8</td>
<td>-12.5</td>
</tr>
</tbody>
</table>

Innovation and marketing mobility is a combination of innovative marketing and mobility of the higher education institution, its methods, parameters and their cross-interaction is the use of innovative methods and tools in the marketing of educational services and qualitative innovation marketing. In addition to it, innovative marketing mobility of an institution is the creation of a unified vision of the university, where it represents a completely new institution which possesses the ability to find the
application field of the brain capital in the form of the teaching staff and its research; the institute which will attract students by upgrading their education and developing the measures of implementing this policy.

However, knowledge of the general development vector is not enough for managing any process. It’s necessary to take into account the parameters of its occurrence. Innovation and marketing mobility of higher education institutions is both a phenomenon and a process. So, like any other phenomenon or a process it should have some certain parameters. These parameters have never been described and classified up to now. It is explained by the relative novelty of the innovation and marketing mobility concept and also by the lack of research in this field.

2. SYSTEM OF PARAMETERS OF EVALUATION OF INNOVATION-MARKETING MOBILITY

A system of the assessment parameters of an innovation and marketing mobility is made up of sub-options of the institution’s marketing innovative mobility parameters, as well as of some specific parameters of the innovating and marketing mobility itself. Its parameters can be classified as follows:

1) by an accurate assessment:
   - quantitative (strongly measurable) and qualitative (relatively measurable);

2) by possible effects:
   - modifiable and non-modifiable;

3) by the place of formation:
   - internal and external.

2.1 Qualitative parameters

Qualitative parameters of the institution’s innovative mobility include:

- The latitude of institution’s innovative mobility;
- The depth of the innovative research;
- The degree of the innovative process’ completion;
- The innovative mobility intensity of the institution.

The latitude of institution’s innovative mobility is understood as not only the number of research trends, but also the essence of these trends. For example, the innovative mobility latitude is different in two universities, if one of them researches the alternative energy, and the other one researches the manufacture of new ink (ink only and nothing else). It is clear that university which researchers a larger range of interrelated or free-standing problems will possess a higher mobility of innovation.

The depth of an innovative research is reflected in the basic research developed by this institution in the subject area of applied, theoretical and surfactant system researches. Unfortunately in Russia the researchers tend to call any new interpretation of the pre-existing framework an innovative research. For example, can we talk about innovative research at the Faculty of Economics, if the result of scientific work is not the innovative methods of organizing the production or creation of new qualitative instruments of management in the organization, but merely a different interpretation of the previously known definitions or putting the existing materials into a single chart? Anyway, such work will possess some scientific value and interest, but we can hardly call it innovational.
The degree of the innovation process’ completeness is a reflection of the final stage of the innovation process, implemented in the university: the theoretical innovations, specific business models’ creation, preparation and testing for the massive launch, commercialization and full implementation of innovations to the market.

The institution’s innovative mobility intensity represents the total time spent on realization of a specific innovation project, as well as the development frequency of new, innovative projects.

a. Quantitative parameter

Quantitative parameters of the institution’s innovative mobility:
- annual number of registered patents for new technologies and inventions;
- percentage of the teaching staff engaged in the innovative research;
- overall percentage of students engaged in the innovative research;
- amount of annual allowances for innovative research allocated from the budget of the university;
- volume of the investments attracted by the university for research development;
- the university income derived from the sale and the commercialization of university innovation projects.

Quantitative parameters of the institution’s marketing mobility are classified as:
- total annual contributions to marketing;
- Cash receipts proceeded from the CPDs’ sale within the university;
- number of the research centers operating at the university;
- volume of the additional services rendered by the university to the market (not educational);
- University’s market share of the basic educational services.

Qualitative parameters of the institution’s marketing mobility are classified as:
- University’s marketing level;
- brand recognition and reputation of the university in the city, region, country;
- University’s supplementary educational services’ conformance to the current market current
- market requirements;
- updatable educational programs.

b. The level of use of marketing at the university

The level of marketing at the university refers to a quality parameter, which has three main dimensions: low, intermediate and advanced.

If the marketing in a university possesses only a function of monitoring pre-defined purposes, such as profit indicator or overall profitability of educational programs, the marketing level is low.

The average marketing level defines the position at which marketing investments are minimal, there is no assessment of marketing activities and marketing events are of the non-systemic character.

An advanced marketing level implies the existence of an adequate and prompt assessment of marketing activities and the marketing activity itself is rather complex, the university has a specific marketing strategy for the statements’ implementation a wide range of marketing tools is applied. Marketing activities are carried out on several directions: educational programs’ promotion, university’s brand creation, high qualitative teaching staff and students’ engagement.

Specific evaluation parameters of the innovation marketing mobility comes from a synergistic effect from the cross combination and integrated usage of the university’s management and marketing innovative mobility tools and techniques.
These parameters are:
- innovative methods and tools of marketing application and development within a particular university;
- the full marketing complex application in order to introduce university’s innovations (industrial, educational, managerial) to the market.

All of the above mentioned options refer to a large group of internal parameters. Anyway, all of them depend on the state of marketing development and innovative research within the university and are considered to be relatively variable, as the university’s management has the opportunity to influence their change through the specific marketing and innovation policy.

The external parameters of the university’s innovation marketing mobility represent a state of the market environment in which the university has to operate. That is why the external parameters generally are not changed, because it does not depend on the internal activities of the university, but they are accepted an objective reality.

These parameters may include:
- level of competition of the basic educational services in the market;
- level of competition of additional professional education (counted as within the university there and implements programs DPO) in the market;
- number of graduates (overall birth rate statistics as a factor of market capacity and demand for basic and supplementary educational services formation);
- investment appeal of the university.

The last parameter can refer to the university’s innovation marketing mobility parameters only partially and indirectly, but it is very important for general understanding of the development patterns. If the investment attractiveness of the region is high, there enough necessary financial resources in such region, some of the resources represent mobile and risky capital required for the implementation of innovations that cover the cost of the demand for innovation. In the region rich in investments the market is active, market conditions are favorable, the production develops rapidly, living standards and population’s purchasing power improve to some extent, and as a result of it all there is a high demand of educational services. university’s innovation marketing mobility in those regions is potentially higher than in the regions with a backward, underdeveloped economy.

However, we cannot consider the issue of the innovation and marketing mobility parameters finished, because this concept is rather complicated as any other structural phenomenon, it's not easy to analyze and evaluate it. With new views on this concept and in the course of further research we may find out new parameters which can show its essence more fully and which are effective in controlling it.
Parameters of innovation and marketing mobility of universities

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THE EFFICIENCY FUNCTIONING OF HOUSING AND COMMUNAL COMPLEX: THE "COMPROMISE" APPROACH TO ESTIMATION AND MODELING

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Abstract

Necessity of a complex estimation of efficiency of functioning of the housing and communal complex which components are indicators of economic, budgetary, social, ecological and political efficiency is proved. The technique and a set of indicators for their quantitative estimation are offered. The concept of "compromise" efficiency of subjects of economic relations in sphere of rendering of housing and communal services is formulated. Examples of models of the analysis of influence of functioning of a housing and communal complex on achievement of the purposes of social and economic development of region are resulted.

Key words: efficiency, housing and communal complex, housing and communal services

Relationships of agents in housing and communal complex (HCC) are specific and multifaceted due to the fact that it belongs to the life support system of people.

Subjects of economic relations (SERs) in HCC are service providing housing and communal complex companies, resources suppliers and utilities consumers, as well as federal government and local authorities with functions of rate regulation, service provision supervision and quality control for utilities, HCC objects financing, social protection of population, tax regulation of economy, etc.

In short, in economic relations in HCC without exception every household, commercial company, non-profit organization, federal government bodies and local authorities.

Every SER in HCC has its own goals and aims at maximum efficiency in its own functioning. Federal government and local authorities by means of state regulation should provide optimal and achievable efficiency criteria for every subject, i.e. to provide achieving of “compromise” efficiency of some kind for HCC functioning as a whole.

It is necessary to mention that the notion of efficiency is in itself a complex, multifaceted and relative concept.

As for commercial companies or businesses regardless their role of utilities suppliers or consumers the concept of efficiency is the most established and is defined as the drive for maximum profit acquisition and market share maximization. Though, not everything is clear in this definition. For example, for a social-economic system the efficiency concept, on the one hand, includes concept of economic, financial, managerial, ecological, social, technical, technological, political, and
informational efficiency\(^2\), but on the other hand, the acquired effect can be attributed not to a single period of time but be shared (and not always equally) among several time periods (so called postponed effect), i.e. can reflect static (current) and dynamic (prolonged) efficiency.

Economic efficiency of a commercial organization is always connected to expenditure minimization, including utility expenses; the former can be achieved by adopting energy saving technologies and endeavors to minimize utility rates and supplied resources prices. That is why the compromise efficient behaviour of commercial organizations – utility services consumers in HCC – can be defined as readiness for resources-saving, provided opportunity to minimize their costs and for the expenses increase when the company consumes more and/or the quality of the consumed services increases.

On the other hand, understanding HCC companies’ efficiency using terms of profitability and stable functioning providing high-quality services compromise efficient functioning can be described as compliance with service quality requirements and service delivery regularity (uninterruptedness), introduction of resource-saving technologies and environmental protection measures for normative profit acquisition at given rates and proving availability of services to majority of possible customers, readiness to expand the range of goods/services and to improve quality and/or quantity of services provided when there is possibility to expand the business and receive extra profit.

The concept of individual (household) efficiency comes in close connection with the notion of customer’s rational behaviour.

On the assumption of absolute rationality of human behaviour concept given in the work by O.S. Sukharev (Sukharev O.S., 2009), household efficient behaviour is considered to be the endeavor to maximize duration of the household’s members’ lives and improve their quality and level of life. Obviously, the quality of accommodations and utilities consumed (their quality and quantity) influence considerably on each above-mentioned element. Thus, efficient behaviour of household – utility service consumer – can be defined as providing maximum comfort living conditions for minimum payment, that is why its compromise efficient behaviour can be assumed as consumption of minimum necessary utilities (resource-saving) at economically affordable prices relevant to the quality of the services provided and its readiness to increase expenses when consuming more utilities and/or consumed services quality increases.

The main conflict of USP services providers and consumers lies in the estimation of service rates (tariffs), quantity and quality ratio.

If we exclude from our analysis the interests of federal government bodies and local authorities and methods of utility service government control, the search for compromise rates for USP and “compromise” efficiency\(^3\) will come to the key idea of basic market model design, described by V.A. Kardash (Kardash V.A., 2006). In compliance with this concept we define as “…compromise-balanced market deal that meets the requirements of producer-supplier’s competitiveness and customer-consumer’s ability to pay. In this particular point of many possible deals the agreement between suppliers’ and customers´ confronting interests can be achieved on the basis of recognition of

\(^2\) There exist many efficiency theories, and different scholars offer different definitions, components, markers and indicators of efficiency (Petukhov R.M., 1990; Serbinovsky B.Yu., Tsvetkova S.N., Vodolazsky A.A. and Bartosh L.S., 2002; etc.).

\(^3\) Concept of “compromise” efficiency of SERs is thoroughly described by the author in (Krakashova O.A., 2011).
reciprocal acceptable losses as a result of mutual concessions… Thereupon the system of compromise-balanced rates is formed, differently from the prices set on the basis of average costs or on the bases of marginal costs and effects…” (Kardash V.A., 2006, p.14).

Efficient activities of federal government bodies and local authorities concerning budget means allocation must provide financial aims acquisition and maximum aggregate effect (economic, ecological, social, political) for municipality, region and the county as a whole provided maximum cover of expenditure. At estimation of federal government and local authorities’ activities efficiency purely economic element of budget efficiency defined as “… budget revenue must surplus budget expenditure needed to achieve particular goals…” (Sukharev O.S., 2009) becomes virtually negligible, yielding its importance to socials, ecological and/or political efficiency when the decision is being made.

In our opinion, defining prospective usefulness of HHC investment projects budget financing it is necessary to use aggregate index for totally all or at least some efficiency components. Methods of complex efficiency estimation for management decisions made by federal government and local authorities is based on function-costs analysis of the offered projects and method of pairwise comparisons to define weight coefficients for efficiency markers taken into consideration, and is thoroughly described by the author in her previous work (Krakashova O.A., 2008c).

Obviously, absolute efficiency of federal government bodies’ and local authorities’ activities in MUS management is practically impossible. So, in our point of view, the concept and notion of “compromise” efficiency of their activities must be introduced taking into consideration both budget means allocation for MUS needs and their readiness to lower some specific components of cumulative effect in favour of some others and / or budget expenditure growth in case of substantial growth of cumulative effect at relatively low expenditure growth.

That’s why to get an integrated assessment of the USC state control efficiency it’s necessary to solve quite serious problems connected with the substantiation of the choice of indices and criteria determination of different efficiency components. Not least important task is negative phenomena risk assessment for the utility service complex as well as external impacts for the municipal units, region and the whole country (for their social and economic development, ecology, political background).

To estimate total efficiency of non-government organizations turns to be impossible due to their extreme variety, absence of economic goals in their activities and variety of finance resources for their activities including different level budgets, extra budget funds, private funding, etc.

If we assume that regardless the type of SER that is estimated its efficiency is always defined by the level of its functioning goals achievement, it is possible to allocate 4 groups of efficiency markers:

1) Absolute markers of goals achievement;
2) Relative markers reflecting the ratio of acquired results and expenses aroused due to their acquisition;
3) Relative markers depicting increase of above-mentioned markers in dynamics;
4) Relative (comparable) markers describing the ratio of the above-mentioned markers to the average ones in the group of similar or quasi-similar businesses or, in case of absence of such information, to the average markers of the industry.

Questions of efficient budget means allocation (budget efficiency) were in detail described by O.S. Sukharev (Sukharev O.S., 2009).
The markers comprising the 4th group are non-dimensional and allow coefficient compression, combining the ones that estimate different efficiency components in one integral marker.

Let us consider the methods of 4th group efficiency markers acquisition at the example of business economic efficiency assuming that HHC is a business as well. There are three stages to it:

1. Selection of economic efficiency markers for the business and their value definition. Economic efficiency of a business is characterized by five components:

   1.1. Rational resource consumption. To estimate the resource consumption efficiency based on new resource-saving technologies’ adoption, in our opinion, it is reasonable to use production resource-intensiveness indicators such as amortization, materials, remuneration of labour and overall coefficient of resource-intensiveness;

   1.2. Sold product production profitability;

   1.3. Own capital use profitability;

   1.4. Products competitiveness;

   1.5. Market Share and its Dynamics.

2. Calculation of society-acceptable (normal or typical) values for corresponding parameters is done using one of the following methods depending on the information available:

   2.1. Information on general universal set of enterprises in the given industry is available. Using the method of cluster analysis allowing enterprise differentiation within the industry depending on the size, type of production, form of property and other factors, groups of similar enterprises are formed according to similar examined factors and average group parameters are calculated for each factor selected at stage 1. Acquired set of group efficiency parameters can be assumed as characteristic features of an average enterprise in the given industry.

   2.2. Industry indicators necessary for calculations are available. Average parameters for the industry are calculated for the parameters selected at stage 1. Acquired set of group efficiency parameters can be assumed as characteristic features of an average enterprise in the given industry.

   2.3. Information on necessary indicators dynamics for the industry is available. In the equation acquired when solving multiple regression problem on the basis of the data on industry indicators dynamics instead of factors-markers we use company’s parameters respectively. As a result we receive society-acceptable (normal, typical) values for the parameters selected at stage 1.

---

5 Product competitiveness is defined as positive dynamics (growth) of its market share.
2.4. Information on industry dynamics is unavailable. In this case it is possible to comply with the similarity requirement by “correcting” parameter values for enterprise’s economic efficiency selected at stage 1. To correct them you need to use average industry parameters instead of factor-markers when solving the multiple regression problem on the basis of the given enterprise parameters’ dynamics.

Thus, we compare “two enterprises”: the examined enterprise and the average enterprise for the group or the industry.

3. Determination of relative parameters for business efficiency estimation. To define them we need to divide parameters by appropriate socially-accepted normal values for maximized parameters and vice versa for minimized parameter.

There are three possible options for the relative parameters of efficiency ratio: <1, =1 and >1.

At that, the describe method of efficiency parameters estimation allows to receive quantitative assessment of efficiency for such intangible factor as organizational culture of the business (OCB)\(^6\) when needed. In fact, taking into consideration heterogeneity of a business it is possible to conclude that relative parameters’ values variations are conditioned by OCB influence. In the first case OCB is an obstacle to efficient functioning and enterprise development, in the second case it is neutral, neither an obstacle, nor a facilitator; in the third case it is a facilitator.

The given method provides comparability of organizations in question considering their sphere of activity and scale of business operations. As for HHC companies, when needed, objective factors that influence the parameters of their operation can be taken into consideration. For example, when we compare HHC companies working in different regions it is important to consider climatic regimes of the regions that sufficiently influence the expenditure level for the company; and business culture of the region formed under the influence of different factors including national culture of the region can influence utility payments collectability in the region.

When we analyze household behaviour efficiency using microdata the results should also be corrected considering the size and structure of the households in question, their income and expenses including utility payments.

Analyzing federal government and local authorities’ activities efficiency it is necessary to provide comparability of managed subjects (municipalities, regions) in population, age structure, industry development level and other factors that influence the structure of budget expenses and revenue.

Basic mechanism for SERs compromise efficiency achievement in HHC in our opinion is federal price regulation for utility rates and for premiums to the prices of HCC companies’ products and services implying budget financing of HHC needs. This is the reason for urgent economic-mathematical models development to reconcile the interests of main SERs in HHC and to get so called “compromise” or “justified” utility rates. In our opinion they can be calculated using inequation system consisting of estimates of utility rates changes economic effects on SERs’ budgets in HCC (Krakashova O.A., 2008; Krakashova O.A., 2008a; Krakashova O.A., 2009; Krakashova O.A., 2007) taking into consideration social and ecological effects estimations for the region and a set of border terms and conditions including legislation.

\(^6\) Methods of quantitative assessment and simulation model of OCB influence on business functioning efficiency is thoroughly described in author’s monograph (Krakashova O.A., 2008d).
It is the rate regulation in HHC that must take account of not only the balance of suppliers’ and consumer’s interests at establishing the utility rates, but consider their influence on social-economic development goals achievement for the development of municipality, region and country as a whole. As an example, let us consider the influence of HHC rates policy on the achievement of UN major goal that is the fight against poverty and social inequality.

In our opinion, one of the HCC governmental control most important indices acting as a citizen right guarantor to have an affordable housing is cost distribution of a standard one-roomed flat expanses in terms of an average salary value of an employee according to the decile groups and the proportion of these shares in the first and the tenth groups. For example, in 2007 the poorest inhabitants of Russia who belong to the first decile group according to their salary level had to spend for utility service payment 22 times more than the richest citizens that belongs to the tenth decile group.

Analytical influence of rate policy at the terms and conditions of households’ budgets and as a result the people’s level and quality of life is possible to estimate calculating aggregate effect of utility services rates changes on a household (HH)’s budget (ΔEB<sub>HH</sub>) using the following formula (Krakashova O.A., 2008b):

\[
\Delta EB_{HH} = \Delta BI_{HH} - \Delta CB_{HH} = \Delta SHI_{util} + \Delta T_{LB}^{HH} - \sum_{i=1}^{m} V^\text{util}_i \cdot \Delta R^P_i - \sum_{j=1}^{n} V^G_j \cdot \gamma_j \cdot \Delta P_j .
\]

Where ΔBI<sub>HH</sub> is the income change in household’s budget; ΔCB<sub>HH</sub> is the change in expenses of household’s budget due to the utility service rates increase; ΔSHI<sub>util</sub> is the increment of utility payments subsidy granted to a household; ΔT<sub>LB</sub><sup>HH</sup> is the tax benefit for a household granted due to subsidation of utility payments; V<sub>i</sub><sup>util</sup> is the volume (quantity) of <i>i</i>-utility consumption of a household \((i = 1, m)\); \(\Delta R^P_i\) is utility service rates change for population for \(i\)-utility consumption of a household; \(V^G_j\) is volume (quantity) of \(j\)-goods (product or service) consumption of a household \((j = 1, n)\); \(\gamma_j\) – is the goods price change portion for the \(j\)-goods \((P_j)\) due to the utility rate changes for businesses and households; \(\Delta P_j\) is the price change for \(j\)-goods (product or service).

The USC economic availability even now influences a household decision to change quarters. It determines amount of available cash of a household that is available after the utilities having been paid and, consequently, influences the quantity and quality of the goods to be used (including foodstuff) and other services (including paid medical and educational services). The above mentioned facts in their turn influence birth, infection and mortality rates. And then the utility rates are also one of the factors determining the inflation rate in the country.

Utility rates influence at the inflation rate in the region can be described by the following system of simultaneous econometric equations:
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\[
Q_{jt}^D = \alpha_0 + \sum_{j=1}^{m} \alpha_j \cdot P_{jt} + \alpha_{n+1} \cdot C_t + \varepsilon_t,
\]

\[
Q_{jt}^S = \beta_0 + \beta_1 \cdot P_{jt} + \sum_{j=1}^{m} \beta_{j+1} \cdot R_{jt}^g + \sum_{k=g+1}^{n} \beta_{k+1} \cdot P_{kt}^{res} + \beta_{n+2} \cdot T_{jt}^g + u_t,
\]

\[
C_t = Y_{jt}^{free} - I_t,
\]

\[
Y_t^{GRC} = Y_{t-1}^{HH} - C_t^{util},
\]

\[
Q_{jt}^D = Q_{jt}^S.
\] (1)

Where \( Q_{jt}^D \) is the demand volume for the \( j \)-goods in the current period of time \( t \) (\( j = 1, n \), \( t = 1, T \), in the given case \( t = 1 \) month); \( Q_{jt}^S \) is the supply volume for the \( j \)-goods within the \( t \) time frame; \( P_{jt} \) is the price for the \( j \)-goods within the \( t \) time frame; \( C_t \) is the share of household’s free money designated for goods consumption in the given period of time; \( R_{jt}^g \) is the utility rates for businesses for the \( s \) service(resource); \( P_{kt}^{res} \) is the price for \( k \) resource of the business in the given period of time (\( k = g + 1, w \)); \( Y_{jt}^{free} \) is the quantity of household’s free money, i.e. part of household’s aggregate income created in the previous period of time (\( Y_{t-1} \)) left after tax, utilities and other obligatory payments; \( I_t \) is the part of household’s free money directed for investments (savings) within the \( t \) time frame; \( Y_{t-1} \) is the household’s aggregate nominal income received in the previous \((t-1)\) period of time; \( T_{jt}^g \) is the volume of tax and obligatory payments paid by a business during \( t \) period of time; \( T_{jt}^{HH} \) is the volume of tax and utility payments that the household pays within current time period using the aggregate income raised within the previous \((t-1)\) period of time; \( C_t^{util} \) is the household expenses created by the utility payments for the services consumed within the previous period of time\(^7\); \( w \) is the quantity of a business’s resources types needed for production of a \( j \)-goods (without limiting the whole we assume that the first \( g \) types of business’s resources are utility services consumed); \( \alpha_{\xi} (\xi = 0, n + 1) \), \( \beta_{\xi} (\xi = 0, w + 2) \) are the coefficients of the simultaneous econometric equations system; \( \varepsilon_t \), \( u_t \) are free members of econometric equations that reflect unrecorded factors influence on demand and supply respectively.

Considering increments in the system (1) we acquire the equation for price change portion calculation for \( j \)-goods (resource) aroused due to the utility service rates changes for businesses and for households:

\[
\gamma_j = \frac{1}{\Delta P_j} \cdot \frac{\sum_{j=1}^{m} \beta_j \cdot \Delta R_{jt}^g + \alpha_{n+1} \cdot \Delta C_t^{util}}{\alpha_j - \beta_j},
\]

where \( \Delta P_j = P_{jt} - P_{jt-1} \) is the \( j \)-goods price change defined as the difference between the prices for the

\(^7\) According to (On the Order of Utility Services Provision for Citizens, 2006) utility payments for the services consumed in the previous month are to be paid no later than on the 15\textsuperscript{th} of the current month.
given goods in current and previous periods of time; \( \Delta R_s^B = R_s^B - R_{s-1}^B \) is the utility rates change for businesses for \( s \) service (resource) consumed; \( \Delta C_{util}^{mil} \) is the change in household’s expenses for utility service payments within current and previous periods of time; \( \beta_s, \alpha_{s+1}, \gamma_j, \beta_l \) – are coefficients of the simultaneous econometric equations system (1).

When making the system of simultaneous equations (1) we assumed that every household is a rational consumer, an honest and prompt payer, i.e. it pays taxes, obligatory payments and for the utilities consumed in full and in time. Thus, we think the demand function lies in the amount of free money left, to be exact, in a part of this money directed at consumption.

Everything mentioned above is the reason for development of HHC functioning efficiency complex assessment methods and affordability of utility services for citizens, as well as creation of econometric models for studies and research of HHC influence on the strategic goals of social-economic development of the region and the country as a whole including rate policy development.

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THE ANALYSIS OF ISSUES IN USING DISTANCE LEARNING IN MANAGEMENT OF HUMAN CAPITAL IN RUSSIA

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Abstracts

The information society, progressive technologies make essentially new demands to quality of labor which becomes the real factor of innovative development, and workers of intellectual work turn to the major actives of the enterprise. In connection with acceleration of rates of development of technologies availability of knowledge became one of important requirements for participation in global economy. Thanks to new information and communication technologies process of creation, use and spread of knowledge was considerably accelerated. Besides, effectively working information and communication technologies are capable to expand population access to formation and to improve quality of teaching and material mastering on all educational levels, to provide access to the information and the data. Within last three decades remote training became the global phenomenon of educational and information culture, having changed shape of formation in many countries of the world. Unfortunately, in Russia application of new possibilities in an education sphere is extremely limited. To the analysis of the basic problems influencing given process, also research is devoted.

Key words: information society, process of intellectualization of economy, self-education,

The major prospect of world economy in 21 century is transition of the countries to a new stage of development of productive forces, that is from an industrial stage where the large mechanized mechanical production dominates, to postindustrial where will prevail sphere of services, knowledge, the information, innovations. In a number of the countries, such as the USA, Sweden, Japan, South Korea, transition to an information society has been made by 90th years of 20 centuries when the basic attention began to be given to the person, its qualification, professionalism and creative abilities, as to the most valuable resource predetermining rates of economic development and scientific and technical progress of these countries.

The information society, progressive technologies make essentially new demands to quality of labor which becomes the real factor of innovative development, and workers of intellectual work turn to the major actives of the enterprise. Already to the beginning of 21 centuries, by calculations of the World bank the human capital in the USA made 76 % of national wealth, and in countries of Western Europe – 74 % [1, s.3-13].

In this connection, one of the most significant modern economic laws is process of intellectualization of economy and other spheres of social life. This process doubly is shown: on the one hand, the role of such branches of social sphere as science and education, with another – amplifies value of intellectual activity in other branches of a national economy increases. Both these tendencies promote formation
The formation of human capital can be represented as a scheme (see figure below).

In the conditions of an information society requirements to an education system, the organizations caused by change and character of work constantly increase. It does necessary preparation of experts...
of the new type possessing besides high professional qualities, such properties, as ability to
administrative and enterprise activity, to the analysis and an estimation of business relations, an
establishment of business contacts, competence, innovative activity, readiness for constant increase of
the qualification. The given process has caused of carrying out of reform of formation in Great Britain
and Japan, in the USA, in France.

Analyzing processes of formation of the information society, known Japanese scientist I.Masuda
allocates directions of radical changes which have occurred in an education system of the developed
countries. First, under the influence of information technology formation ceases to be limited to
frameworks of formal formation, that is as marks I.Masuda, it is replaced with "the open educational
environment consisting of a network of knowledge». Secondly, individualization process has allowed
to take into consideration possibilities of each concrete person that promotes formation of a manpower
of the innovative type capable to active reformatory activity, creative thinking and the initiative.
Besides, as I.Masuda's immediate prospects marks the statement self-education as the leading form of
formation which «becomes possible as a result of development and distribution of systems of
computer training of students» [2, s.40-45].

In connection with acceleration of rates of development of technologies availability of knowledge
became one of important requirements for participation in global economy. Thanks to new information
and communication technologies process of creation, use and spread of knowledge was considerably
accelerated. Besides, effectively working information and communication technologies are capable to
expand population access to formation and to improve quality of teaching and material mastering on
all educational levels, to provide access to the information and the data.

Computerization and internatization of education, being a powerful tool of increase of its
competitiveness, promoted that enough great popularity has abroad received now remote training. As a
result, the continuity of education realized in model "long life learning" became the integral line of
modern process of training.

At level of standard state documents the concept of "distance learning" in Russia has been defined in
1995. Distance learning (further - DL) in the present concept is understood as a complex of the
educational services given to various strata of society in the country and abroad by means of the
specialized information-educational environment on any distance from educational institutions [3].

Within last three decades remote training became the global phenomenon of educational and
information culture, having changed shape of formation in many countries of the world. Development
of distance learning is recognized by one of key directions of the basic educational programs of
UNESCO "Education for all", "Long life learning ", "Education without borders" and intermediate
term strategy of UNESCO.

By results of research Ambient Insight the world market of DL in 2009 has reached the size in 27.1
billion US dollars. It is supposed that the volume of the market of remote training in 2014 will make
49,6 billion US dollars [4].

Each twelfth student in the USA gets education «without leaving the house», using the largest
databanks, electronic libraries, audio - video lectures. In the global market of remote training of the
USA are in the lead as on scales of its use in traditional educational institutions, and by quantity
completely virtual universities.

Since 1997 in Russia experiment on development of distance learning is officially made. Unfortunately, in Russia application of new possibilities in an education sphere is extremely limited in
the absence of high technical equipment of educational process and possibility of application of the newest Internet technologies, in connection with high cost of this kind of information resources. Technological rupture between the rich and poor countries finds the reflection in an indicator of quantity of personal computers on one thousand inhabitants: Burkina Faso – less than 1, Southern Africa-27, Singapore – 172, Switzerland – 348, in the North America – 1 user on 6 inhabitants. According to I.V. Bushmarin, in Russia for today in 19 times is less than personal computers, than in the USA, and - in 144 times it is less than Internet users, than in the USA and in 250 times it is less, than in Sweden. And, according to experts if the situation doesn't change, by 2050 access to the Internet 20 % of our population, while in the western countries – practically will have only everyone.

However, despite similar forecasts, users of the personal computers now is almost half – 47 % - the population of the country [5].

Similar backlog in a computerization and internatization is rather negative, as leads to decrease in innovative possibility, general efficiency and labor productivity in all spheres of economy and to delay of economic growth.

Intensive growth of the IT Market and fast introduction of information technology in many spheres along with readiness of the enterprises for changes, shortage of highly-skilled personnel and high enough requirements of Russians for formation allow to assume high rates of increase in the market of remote training. Under Academy "IT" forecasts, the effective combination of traditional kinds of formation and the newest workings out in sphere IT will allow the market of remote training to occupy not less than 30 % from training total amount, and in some branches — even to 75 % [6].

A number of distance learning systems (custom or proprietary) are also beginning to use some of the largest Russian companies. For example, in a similar way train the employees «Russian aluminum», "Sibneft", "Vympecom", "Yukos". However, Russian corporate e-learning while functions on the intranet, without an exit in a global Network.

By company-developer "Hypermethod" estimations, the volume of the market of control systems of training in corporate sector makes now an order $9,13 million a year. In the sphere of education this indicator - about $500 thousand [7].

Methodology of remote formation, eliminating passive methods of training and, making active personal and business experience of the student, essentially accelerates and deepens development of necessary knowledge and abilities. The system of remote formation by the nature is focused on various strata of society, as in social, and the territorial plan.

The basis of educational process at distance learning is made by purposeful and controllable intensive independent work of the trainee which can independently define sequence of development of subjects, study in a place convenient for, with individual speed, and in some cases — and during time convenient for. Therefore e-learning it is necessary to consider as the basic advantage certain freedom in respect of a site, time of training and its rates that does remote training attractive to those users who for any of several reasons have no possibility to be trained internally, but wish to raise the educational level.

Thus, the human capital is one of making productive forces of a society - is the major resource of any state. The technics creating riches, comes to life through technological knowledge and organizational improvements, and only skilled, qualified and innovatively active labor can operate highly technological process, promote long-term economic growth, augmentation of national wealth and increase of competitiveness of economic systems in a modern society.
On purposeful formation of the manpower having a high educational level, well prepared for work in the conditions of the intensive scientific and technical changes capable to adequate reformatory activity, creative thinking and the initiative, it is necessary to use a wide experience of the postindustrial countries and in our country with a view of stimulation of preparation of highly skilled labor. Thus, formation and development of a manpower, as well as in the developed countries, necessarily should be spent not only at considerable financial, organizational participation of the state, but also businessmen, and also other social institutes.

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CARBON FINANCE THROUGH CARBON MARKETS AND EVIDENCE FROM TURKEY

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Abstract

Many steps have been taken in fight against climate change and even though it is compulsory, efforts are made to combat against global warming. Many countries establish new energy policies and aim to minimize greenhouse gas emissions, especially carbon dioxide, through the achievement of low/zero carbon emission plans.

One of the leading problems in fighting against climate change is how to finance the solution. To reach the specified aim, new tools for the capital market are being created through the use of various mechanisms. Products that are traded at such exchanges called carbon exchange are constructed under the agreements based especially on the amount of carbon dioxide (CO2) among all greenhouse gases generally corresponding one tone weight.

After touching upon the climate change and carbon emission mechanisms, this study will give information about main carbon exchanges and investment funds regarding the low carbon economy or finance of carbon reduction, will mention the existing situation in Turkey and give predictions about the future carbon exchange and its functions.

Key words: Carbon finance, Carbon Finance Instrument, Carbon fund, Greenhouse gas, Carbon Exchange

1. INTRODUCTION

Today, carbon trade is reckoned to be the most effective way of controlling and reducing the greenhouse gases which are generally called carbon as well as financing the development. Carbon trade emerged as a result of the Kyoto Protocol which was adopted by 169 countries in 1997 and prescribed that the industrialized countries would reduce their greenhouse gas emissions, by the year 2012, by 5.2% in relation to the emissions in 1990. The protocol set quotas for the maximum greenhouse gases developing and developed countries could emit; organized sanctions to ensure compliance with the quotas that were set; and identified binding objectives for the developed countries to reduce their greenhouse gas emissions by incurring reasonably lower costs (Birgili, Çelik, 2010, pp. 69-70). Although carbon trade is a term which was started to be uttered in 2000s, this system is essentially based on a model put forward by J. H. Dales (economist) in 1968. This model foresaw the mechanism of purchasing and selling of natural resources (Çikot, 2009, p.12).

Carried out between the purchaser and the seller of carbon, carbon trade mechanism works as follows: As it pollutes the environment, carbon is assigned an economic/monetary value. Besides, individuals, companies and/or governments take part in carbon trade. In other words, carbon purchasing countries are entitled to the right to burn it. Carbon selling countries, on the other hand, gives up the right to
burn it. Under these conditions, the carbon market is there to facilitate the purchasing and selling of carbon. (Birgili, Çelik, 2010, p. 70). Those companies emitting higher levels of gases than those identified by the quota pay a particular amount of price and purchase carbon credit for the toxic gasses they produce. Emission trade can be carried out by means of various exchange markets as well as free market (Activeline, 2008, p. 60).

2. CLIMATE CHANGE AND GREENHOUSE GASES

Gases which are available in the air in the highest amounts with a high permeability level are nitrogen and oxygen. Furthermore, some gases (greenhouse gases) do not have the feature of permeability. Recent studies showed that with the increasing number of impermeable gases or with these gases increasing over a particular level the earth would heat up.

Essentially, each greenhouse gas does not have the same effect. Among the others, carbon dioxide is the most attractive one because it is the most available gas in the environment and the longest-staying in atmosphere (Lynas, 2009, p. 16).

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<th>Table 1: Greenhouse Gases (GHG)</th>
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<td>Gas</td>
</tr>
<tr>
<td>----------------------------------</td>
</tr>
<tr>
<td>Carbon dioxide</td>
</tr>
<tr>
<td>Methane</td>
</tr>
<tr>
<td>Nitrogen oxide</td>
</tr>
<tr>
<td>Chlorofluorocarbons (KFC)</td>
</tr>
<tr>
<td>Hydrofluorocarbons (HFC)</td>
</tr>
<tr>
<td>sulphur hexafluoride (SF₆)</td>
</tr>
</tbody>
</table>

Source: Lynas, 2009, p. 17

The table above shows the greenhouse gases which are made up of six gases as well as how long they stay in the atmosphere.

These gases increased in amounts in the atmosphere especially after the industrial revolution. In 1750, amount of carbon dioxide was 278 ppm per million. This amount is 379 ppm today (as of 2005) with 2ppm increase each year since 1750. Besides, methane increased from 710 ppm per billion to 1775 ppm. Nitrogen, on the other hand, increased from 270 ppm to 319 ppm. Furthermore, emissions of such gases as chlorofluorocarbon, hydro-fluorocarbon and sulphur hexaphlorer started only after the industrial revolution (Climate Change 2007 Synthesis Report, p. 15).

With the industrial revolution experienced, fossil fuels (coal, oil and gas) were used to develop the world industry and trigger economic growth for 210 years. These fossil fuels are the elements that
increase the carbon dioxide emissions most, which stimulates such dramatic changes as climate changes and the global warming which is brought on with it.

Table 2: Sources of Greenhouse Gases

<table>
<thead>
<tr>
<th>Source of Greenhouse Gases</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon dioxide</td>
<td>Essentially emerges as a result of burning of such fossil fuels as coal, oil and gas. Furthermore, it emerges when plantation is destroyed in the tropical regions and dead plants (tuba) are burned.</td>
</tr>
<tr>
<td>Methane</td>
<td>Emerges in areas where anaerobic decomposition occurs such as rice fields and landfill sites. Besides, leakages in pipelines as well as gases emitted by the cattle produce methane emissions.</td>
</tr>
<tr>
<td>Nitric oxide</td>
<td>Emerges as a result of burning of fossil fuels (e.g. exhausts) and decomposition of the agricultural fertilizers on the soil.</td>
</tr>
<tr>
<td>HFCs and the other industrial gases</td>
<td>Emerge as a result of the industrial operations. HFCs are used instead of CFCs which are forbidden today. They are used in cooling units, aerosols and foam-coating. SF6, on the other hand, is used in high-voltage electric sites as well as spongy parts of some sports shoes and coating of tennis balls.</td>
</tr>
</tbody>
</table>

Sources: Lynas, p.21

Studies and scientific researches carried out in the recent years put forward that accumulating carbon dioxide gases in the atmosphere as a result of intensive production and consumption activities threaten the future of the earth. What everybody endorses is that “economic development dependent on carbon emission is not sustainable”.

As can be seen from the table above, considering the period between 1990 and 2005, annual carbon emission increased almost in all countries (except Germany and Russia).

3. THE KYOTO PROTOCOL AND ITS MECHANISMS

The Kyoto Protocol includes some project and market based flexibility mechanisms to facilitate it for the developed countries to achieve their objectives oriented towards greenhouse gases and decrease their costs. Countries apply these mechanisms when actions taken for greenhouse gas reduction are insufficient or uneconomical. Those which are project based are “Clean Development Mechanism” – CDM- and “Joint Implementation” – JI-. In the Clean Development Mechanism, countries to the ANNEX-1 will ensure greenhouse gas reduction in countries which are not parties to the ANNEX-1 by means of technology transfer, and in return will win some credits of Certification Emissions Reduction and be entitled to as much emissions as the credits give the right of. In another mechanism, namely Joint Implementation mechanism, both parties are countries to the ANNEX-1. A county to the ANNEX-1 can carry out a joint project with another country to the ANNEX-1 to reduce the emission in that country. (http://www.iklim.cob.gov.tr/iklim/files/bilginotu/karbon%20piyasalar.pdf).

In Emission Trade System which is a project based flexibility mechanism, those countries which adopted emission reduction objectives by signing the Kyoto Protocol can trade some of the emission reduction amount identified. In other words, a country which achieves more emission reduction than the levels identified in the protocol can sell these additional reduction in the emissions to another country. For example, say, there are two companies carrying out greenhouse gas reduction. Company
A incurs 10 EURO per ton for gas reduction while Company B incurs 25 EURO. In this case, Company B will pay 10 EURO to the Company A ensuring that this company will carry out additional sera gas reduction. Therefore, Company B will use the credits won for the emission reduced. As a result, this company will have paid 10 EURO per ton instead of 25; therefore will have fulfilled its obligations and incurred lower costs (http://www.iklim.cob.gov.tr).

Table 3: Countries and Carbon

<table>
<thead>
<tr>
<th>Countries and Regions</th>
<th>Annual Emission (metric tons) 1990</th>
<th>CO2 total tons 2005</th>
<th>Change between 1990-2005 (%)</th>
<th>CO2 emission per capita (metric tons) 1990</th>
<th>CO2 emission per capita (metric tons) 2005</th>
<th>Share of annual total CO2 emission 2005 (%)</th>
<th>Cumulative emissions since 1850 metric tons (billions) 1850-2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>260</td>
<td>370</td>
<td>45</td>
<td>15.2</td>
<td>18.5</td>
<td>1.42</td>
<td>12.5</td>
</tr>
<tr>
<td>Belgium</td>
<td>109</td>
<td>112</td>
<td>27</td>
<td>10.9</td>
<td>10.7</td>
<td>0.42</td>
<td>10.4</td>
</tr>
<tr>
<td>Brazil</td>
<td>195</td>
<td>334</td>
<td>70.8</td>
<td>1.3</td>
<td>1.8</td>
<td>1.26</td>
<td>8.8</td>
</tr>
<tr>
<td>Canada</td>
<td>433</td>
<td>552</td>
<td>27.5</td>
<td>15.6</td>
<td>17.1</td>
<td>2.08</td>
<td>23.8</td>
</tr>
<tr>
<td>China</td>
<td>2,211</td>
<td>5,060</td>
<td>128.9</td>
<td>1.9</td>
<td>3.9</td>
<td>19.06</td>
<td>94.3</td>
</tr>
<tr>
<td>Finland</td>
<td>55</td>
<td>56</td>
<td>0.7</td>
<td>11.0</td>
<td>10.6</td>
<td>0.21</td>
<td>2.3</td>
</tr>
<tr>
<td>France</td>
<td>355</td>
<td>388</td>
<td>9.3</td>
<td>6.3</td>
<td>6.4</td>
<td>1.46</td>
<td>31.7</td>
</tr>
<tr>
<td>Germany</td>
<td>968</td>
<td>814</td>
<td>-15.9</td>
<td>12.2</td>
<td>9.9</td>
<td>3.06</td>
<td>117.8</td>
</tr>
<tr>
<td>India</td>
<td>597</td>
<td>1,149</td>
<td>92.6</td>
<td>0.7</td>
<td>1.1</td>
<td>4.33</td>
<td>28.6</td>
</tr>
<tr>
<td>Japan</td>
<td>1,058</td>
<td>1,214</td>
<td>14.8</td>
<td>8.6</td>
<td>9.5</td>
<td>4.57</td>
<td>46.1</td>
</tr>
<tr>
<td>Norway</td>
<td>30</td>
<td>38</td>
<td>27.9</td>
<td>7.0</td>
<td>8.2</td>
<td>0.14</td>
<td>1.9</td>
</tr>
<tr>
<td>Russia</td>
<td>2,194</td>
<td>1,544</td>
<td>-29.6</td>
<td>14.8</td>
<td>10.8</td>
<td>5.81</td>
<td>92.5</td>
</tr>
<tr>
<td>Turkey</td>
<td>129</td>
<td>219</td>
<td>70.3</td>
<td>2.3</td>
<td>3.0</td>
<td>0.82</td>
<td>5.3</td>
</tr>
<tr>
<td>The USA</td>
<td>4,874</td>
<td>5,841</td>
<td>19.9</td>
<td>19.5</td>
<td>19.7</td>
<td>22.0</td>
<td>324.9</td>
</tr>
<tr>
<td>Total of less developed countries</td>
<td>549</td>
<td>707</td>
<td>28.9</td>
<td>0.7</td>
<td>0.6</td>
<td>2.66</td>
<td>24.0</td>
</tr>
<tr>
<td>Total of developing countries</td>
<td>9,150</td>
<td>12,631</td>
<td>38.0</td>
<td>2.6</td>
<td>3.0</td>
<td>47.59</td>
<td>395.1</td>
</tr>
<tr>
<td>Total of developed countries</td>
<td>10,999</td>
<td>13,207</td>
<td>20.1</td>
<td>11.8</td>
<td>12.7</td>
<td>49.75</td>
<td>750.1</td>
</tr>
<tr>
<td>EU-15 total</td>
<td>3,122</td>
<td>3,271</td>
<td>4.8</td>
<td>8.6</td>
<td>8.5</td>
<td>12.32</td>
<td>284.8</td>
</tr>
<tr>
<td>OECD</td>
<td>11,121</td>
<td>12,946</td>
<td>16.4</td>
<td>10.7</td>
<td>11.1</td>
<td>48.77</td>
<td>764.7</td>
</tr>
<tr>
<td>World total</td>
<td>20,693</td>
<td>26,544</td>
<td>28.3</td>
<td>4.0</td>
<td>4.2</td>
<td>100</td>
<td>1,169.1</td>
</tr>
</tbody>
</table>

Table 4: Kyoto Protocol Mechanisms

<table>
<thead>
<tr>
<th>Project Based</th>
<th>Obligatory</th>
<th>Voluntary Carbon Markets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clean Development Mechanism (CDM)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Joint Implementation (JI) Mechanism</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Market Based</th>
<th>Obligatory</th>
<th>Voluntary</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU – ETS</td>
<td></td>
<td>Chicago Climate Exchange (CCX)</td>
</tr>
<tr>
<td>International Emission Trade System</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


Voluntary carbon market which grows in parallel with the Kyoto Protocol is a market emerged with a view to facilitating it for the companies, institutions and organizations which are sensitive to the climate change to balance their carbon emissions in the framework of social responsibility. By means of projects developed upon the principle of “carbon dioxide balancing”, which is defined as neutralizing greenhouse gases emitted from one place with the same amount of greenhouse gases emitted from another place, Voluntary Emission Reduction Units –VER- certificates produced on this market are traded. Voluntarily, countries or companies calculate the amounts of gases (carbon footprints) they emit as a result of their activities and purchase carbon credits produced by the projects ensuring emission reduction in the framework of social responsibility to reduce and balance their emissions. CER- credits are more valuable than VER- credits, and VER credits cannot be used for reducing carbon emissions in those countries which are parties to the Kyoto Protocol. (http://www.iklim.cob.gov.tr/iklim/files/bilginotu/karbon%20piyasaları.pdf).

Table 5: Volumes and Their Values on the World Carbon Market

<table>
<thead>
<tr>
<th>Markets</th>
<th>2008(CO2e million ton)</th>
<th>2009(CO2e million ton)</th>
<th>2008(Million dollar)</th>
<th>2009(Million dollar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voluntary OTC</td>
<td>57</td>
<td>51</td>
<td>420</td>
<td>326</td>
</tr>
<tr>
<td>Chicago Climate Exchange (CCX)</td>
<td>69</td>
<td>41</td>
<td>307</td>
<td>50</td>
</tr>
<tr>
<td>Other exchanges</td>
<td>0.2</td>
<td>2</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td><strong>Voluntary market total</strong></td>
<td><strong>127</strong></td>
<td><strong>94</strong></td>
<td><strong>728</strong></td>
<td><strong>387</strong></td>
</tr>
<tr>
<td>EU ETS</td>
<td>3.093</td>
<td>6.326</td>
<td>100.526</td>
<td>118.474</td>
</tr>
<tr>
<td>Primary CDM</td>
<td>404</td>
<td>211</td>
<td>6.511</td>
<td>2.678</td>
</tr>
<tr>
<td>Secondary CDM</td>
<td>1.072</td>
<td>1.055</td>
<td>26.277</td>
<td>17.543</td>
</tr>
<tr>
<td>Joint Implementation</td>
<td>25</td>
<td>26</td>
<td>367</td>
<td>354</td>
</tr>
<tr>
<td>Kyoto (Assigned Amount Unit –AAU-)</td>
<td>23</td>
<td>155</td>
<td>276</td>
<td>2.003</td>
</tr>
<tr>
<td>New South Wales</td>
<td>31</td>
<td>34</td>
<td>183</td>
<td>117</td>
</tr>
</tbody>
</table>
As shown above, although the number of the projects on the carbon market has decreased because of the financial crisis experienced it is obvious that there will be more actors in the future going into the market.

4. VOLUNTARY CARBON MARKET IN TURKEY

Looking at the years, it can be seen that carbon dioxide emission in our country increased year by year. As evident in the table below, while carbon dioxide emission was 141.36 tons in 1990, it increased to 297.01 tons in 2008, indicating 110% increase. The total greenhouse gas emission increase is 96% in 2008 when compared to the year 1990.

Table 6: Greenhouse Gas Emissions in Turkey (million ton CO2 equivalent)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CO₂</td>
<td>141.36</td>
<td>173.90</td>
<td>225.43</td>
<td>259.61</td>
<td>297.12</td>
<td>110.19</td>
</tr>
<tr>
<td>CH₄</td>
<td>33.50</td>
<td>46.87</td>
<td>53.30</td>
<td>52.35</td>
<td>54.29</td>
<td>62</td>
</tr>
<tr>
<td>N₂O</td>
<td>11.57</td>
<td>16.22</td>
<td>16.62</td>
<td>14.18</td>
<td>11.57</td>
<td>0</td>
</tr>
<tr>
<td>F Gases</td>
<td>0.60</td>
<td>0.52</td>
<td>1.66</td>
<td>3.73</td>
<td>3.51</td>
<td>485</td>
</tr>
<tr>
<td>Total</td>
<td>187.03</td>
<td>237.51</td>
<td>297.01</td>
<td>329.87</td>
<td>366.50</td>
<td>96</td>
</tr>
</tbody>
</table>

Source: TUIK, Turkey Greenhouse Gas Inventory

When CO₂ emissions of the year 2008 are evaluated in relation to the year 1990, it can be seen that there is 114% increase in the energy sector while the increase is 79% in the industrial sector. In 2008, approximately 91% of the total CO₂ emissions was from the energy consumption while 9% was from the industry. Besides, 59% of the CH₄ (methane) emissions was found to be from waste disposal and 31% from agricultural activities. In addition, 72% of N₂O emissions were found to be from agricultural activities.
Looking closer at the energy sector which had a high increase in carbon dioxide emission and examining the energy-related CO2 emission in 2008, it was assessed that 36% of the total CO2 emissions were from the cycling and energy sector, %19 from the industry, 16% from transportation sector and the remaining 21% from the other sectors (TUIK, Turkish Greenhouse gas Inventory).

Table 7: Greenhouse Gas Emission According to the Sectors (million ton CO2e)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>132.13</td>
<td>160.79</td>
<td>212.55</td>
<td>241.75</td>
<td>277.71</td>
</tr>
<tr>
<td>Industrial Operations</td>
<td>15.44</td>
<td>24.21</td>
<td>24.37</td>
<td>28.75</td>
<td>29.83</td>
</tr>
<tr>
<td>Agricultural Activities</td>
<td>29.78</td>
<td>28.68</td>
<td>27.37</td>
<td>25.84</td>
<td>25.04</td>
</tr>
<tr>
<td>Waste</td>
<td>9.68</td>
<td>23.83</td>
<td>32.72</td>
<td>33.52</td>
<td>33.92</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>187.03</strong></td>
<td><strong>237.51</strong></td>
<td><strong>297.01</strong></td>
<td><strong>329.87</strong></td>
<td><strong>366.50</strong></td>
</tr>
<tr>
<td>Increase percentage compared to 1990</td>
<td>-</td>
<td>26.99</td>
<td>58.80</td>
<td>76.37</td>
<td>95.96</td>
</tr>
</tbody>
</table>

Source: TUIK, Turkey Greenhouse Gas Inventory

The following table elaborates on the sectoral distribution of the greenhouse gases.

Table 8: Sectoral Distribution of Carbon Dioxide Emissions (%)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>89.63</td>
<td>89.33</td>
<td>91.85</td>
<td>91.04</td>
<td>91.16</td>
</tr>
<tr>
<td>1. Cycle and Energy Sector</td>
<td>24.06</td>
<td>27.21</td>
<td>34.06</td>
<td>34.11</td>
<td>35.66</td>
</tr>
<tr>
<td>3. Transportation</td>
<td>18.36</td>
<td>18.88</td>
<td>15.51</td>
<td>15.61</td>
<td>15.83</td>
</tr>
<tr>
<td>4. Other Sectors</td>
<td>20.66</td>
<td>19.10</td>
<td>15.72</td>
<td>15.36</td>
<td>20.83</td>
</tr>
<tr>
<td>Industrial Operations</td>
<td>10.37</td>
<td>10.67</td>
<td>8.15</td>
<td>8.96</td>
<td>8.84</td>
</tr>
<tr>
<td>1. Mineral Production</td>
<td>9.71</td>
<td>10.05</td>
<td>8.04</td>
<td>8.69</td>
<td>8.84</td>
</tr>
<tr>
<td>2. Chemistry Industry</td>
<td>0.58</td>
<td>0.55</td>
<td>0.07</td>
<td>0.23</td>
<td>N/A</td>
</tr>
<tr>
<td>3. Mine Production</td>
<td>0.08</td>
<td>0.06</td>
<td>0.05</td>
<td>0.04</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Source: TUIK, Turkey Greenhouse Gas Inventory
Turkey became a party to the Kyoto Protocol in 2009. However, Turkey has no obligations to reduce its carbon emissions. Therefore, it cannot host the JI and CDM which are market based mechanisms of the protocol. Under the circumstances, the only flexibility mechanism it can make use of is the “Voluntary Carbon Trade”.

Voluntary carbon market is such a market which was established with a view to facilitating voluntary reduction and balancing of greenhouse gases emitted as a result of the activities of individuals, institutions, organizations, private companies, non-governmental organizations and events (conferences, etc) (Mehrali Ecer; 2010 ). There is no restriction in participation. Organizations desiring to have zero carbon emission calculate the greenhouse gases or carbon footprints they emit into the atmosphere as a result of their activities and purchase carbon credits produced by the projects ensuring emission reduction with a view to reducing or balancing their emissions. In short, features of the voluntary carbon markets are as follows:

✓ The process is similar to that of the Flexibility Mechanisms in the Kyoto Protocol.
✓ The objectives of the institutions and organizations on this voluntary market can be achieved independently of the policies and objectives identified by the State.
✓ Institutions desiring to neutralize their carbon emissions calculate the greenhouse gases they emit into the atmosphere as a result of their activities, i.e. measure their carbon footprints, and purchase carbon credits produced by the projects ensuring emission reduction with a view to reducing and balancing their emissions.
✓ There are many standards on the market in the area of VER Verified or Voluntary Emission Reduction) standards and trade rules of the carbon credits produced during the voluntary carbon reduction process (The Kyoto Protocol Flexibility Mechanisms and the Other International Emission Trade Systems, Specialized Commission Report of the Ministry of Environment and Forestry).

On the voluntary carbon market, projects can be developed on the following subjects:

✓ Renewable energy projects
✓ Fuel exchange (industry, transportation, settlements) etc.
✓ Waste Management Projects
✓ Carbon Capture and Storage Projects
✓ Projects on Increasing Energy Efficiency
✓ Energy Generation with Advanced Coal Technologies

The following table shows the projects developed in Turkey as well as carbon reduction amounts and the carbon financing.
Table 9: Voluntary Carbon Market in Turkey

<table>
<thead>
<tr>
<th>The number of Voluntary Carbon market Projects recorded</th>
<th>108</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission reduction</td>
<td>8 million ton CO2 equivalent</td>
</tr>
<tr>
<td>Estimated annual volume of the market</td>
<td>81.6 million US Dollars</td>
</tr>
<tr>
<td>(According to the VER values of Turkey in 2009)</td>
<td></td>
</tr>
<tr>
<td>Total established capacity (MW)</td>
<td>2,796.9</td>
</tr>
<tr>
<td>Project types</td>
<td>HPSSs (50%)</td>
</tr>
<tr>
<td></td>
<td>Wind (42%)</td>
</tr>
<tr>
<td></td>
<td>Waste storage (5%)</td>
</tr>
<tr>
<td></td>
<td>Geothermic (3%)</td>
</tr>
</tbody>
</table>

Source: Capacity Building Project for Combating Climate Change, July 2010.

The share of Turkey on the voluntary carbon market was 15% in 2008 and decreased to 6% in just one year. This decrease can be attributed to the global crisis experienced, post-2012 uncertainties in the climate regimen and Turkey’s uncertain position in this regimen, current purchasing tariffs being insufficient for the innovative renewable technologies and lower demands for the voluntary credits from Turkey.

As the following figure shows, Carbon Emission Reduction Certificates of Turkey are not attached enough value yet. Currently, they are attached as half or one fourth as the values of the certificates of the other countries which are parties to the Kyoto Protocol. Looking at the underlying reasons, we come up against the fact that there is no such an entity in the country that can guide such projects and certificates as well as the lower interest in them because they are not known enough and, most significantly, lack of exchange market where such certificates can be sold and purchased.

5. FROM KYOTO TO CANCUN

As the objectives contained in the Kyoto Protocol expire in 2012, interim studies for a new protocol or climate summit were undertaken. Among the others, expectations were particularly high in the Copenhagen World Climate Conference. The aim of this historical meeting was to identify actions to be taken against the global climate change after the year 2012; draw up a roadmap; determine how much greenhouse gas reduction will be needed; and discuss whether it was an accessible goal or not. However, no binding climate agreement could be reached in the World Climate Conference held in Copenhagen. In Copenhagen countries could only agree that counties would take protective actions for the climate upon their own initiative. No new agreements could be drafted to replace the Kyoto Protocol which would expire in 2012.

In this regard, it was decided to continue the meetings in Bonn prior to the climate conference to be held in Cancun, Mexico, (December, 2010 ) with a view to re-ensuring an atmosphere of trust among the countries and putting together an activity timetable.
In the meeting held in Cancun, Mexico (December, 2010), establishment of the Green Climate Fund to be managed by the World Bank was decided. An amount of 100 billion dollars will be transferred to the Fund to be established. These funds will be used to help poor countries reduce their greenhouse gas emissions caused by their industrial activities and effectively combat climate change. A board of 24 members who will be from different countries will be responsible for the management of these funds. The framework of the financial aid to be given to the countries to protect forests was identified. However, it is still not clear how rich countries will limit their carbon emissions. In the meeting, it was decided that the developed countries would continue to assume the obligations of producing and reporting low-carbon growth plans and strategies. A further agreement could be reached on the establishment of a Technology Execution Committee and Climate Technology Center and Network. Giving support for a better protection of tropical forests and dissemination of clean energy technologies was another area of agreement. The objective, on the other hand, was set to be “fixing the increase in global warming at 2 degrees”.

Conclusively, formation of a new international climate agreement to replace the Kyoto Protocol was postponed until the next summit meeting to be held in the South Africa.

6. CARBON MARKET

Carbon markets are similar to financial markets. Pollution credits, pollution permits, pollution rights, pollution quotas, emission permits or emission shares which represent carbon dioxide, methane or the other greenhouse gas emissions are sold and purchased under different names on the carbon market. Selling and purchasing of the permits on the carbon market is carried out by means of the brokers as it is in the other markets (Demireli, Hepkorucu, 2010, p.40).

6.1 Dealers of the Carbon Market

Organizations or countries which emit carbon dioxide into the atmosphere make use of the carbon trade mechanisms on the carbon market with a view to achieving their emission objectives, complying with the quotas identified for themselves or balancing their emissions. These are called potential carbon credit purchasers. On the other hand, those entities which produce lesser amounts of emissions than identified by the quota are called potential sellers.”

To elaborate on the purchases and sellers:

1. Purchaser: includes all the entities purchasing carbon assets, legally or voluntarily, with a view to achieving its emission objectives. It is possible divide them into two as the public sector (states desiring to meet their emission objectives and purchasing carbon credits) and the private sector (Kadilar, 2010, p. 30). A large part of these purchasers are given the CER and ERU permit, to a certain extent, for them to fulfill their obligations. Voluntary entities, on the other hand, are entitled to use various balancing credits in addition to CER and ERU. Purchasers purchase carbon assets by developing supply programs, acting jointly or individually. To develop CDM projects large resources are allocated, or as an easier way, credits produced by the other groups are purchased (Kadilar, 2010,p.78).

2. Carbon Credit Producers and Project Owners: Credit producers provide those companies which develop greenhouse gas reduction projects with guidance. In return, they generally expect carbon credits from the carbon projects they organize.
Project owners sometimes act alone, without getting into any cooperation with producers. As a precaution against any fluctuation in the carbon credits, project owners can sell those CERs they are expecting to obtain on the derivatives market. However, instead of risk of price, risk of delivery is dealt with this time. For example, in the event that the project owner cannot obtain CERs because his project gives insufficient performance or is rejected by the UN, he will have to re-purchase those CERs he has sold in order to deliver them. Furthermore, if the prices are higher at that period, he will experience loss of earning.

3. Carbon Credit Collectors (Carbon funds): With a view to eliminating the risk of price and delivery, producers and project developers refer to the carbon credit collectors. Collectors are generally structured as funds. Investors have different shares in these funds. The role played by the collectors is to form the primary non-guaranteed large portfolios of the CER or URUs purchased from the project owners or producers for lower prices when compared to the secondary CER prices. Therefore, it is the collectors who assume the risk of price and delivery. Success of such funds is based on their abilities to mitigate the risk of price and delivery. Portfolio diversity method can be applied and hedging tools can be used to mitigate the risk of price and delivery. In addition, to achieve the above mentioned success, factors which have an impact on the carbon prices need to be known very well and realistic estimates need to be made about the CER/ERU.

4. Financial Institutions: Thanks to the relations they had with the EU ETS, financial institutions got specialized in the area of emission permits and credit proceedings in a short time. Banks started to carry out proceedings on behalf of their customers in the framework of permit portfolio management strategies. In addition, some banks established their own CDM project portfolios.

In 2007, a host of investment banks formed various special investment instruments for carbon and climate change. Furthermore, some established carbon funds, while some others allocated funds to establish climate banks and some declared to invest money in climate-related assets. Some others, on the other hand, got into partnerships with companies to manage the carbon assets. Specialized investments funds also function intensively. Among these funds, there is European Carbon Fund – ECF managed by Carbon Asset Management Sweden AB and Natixis E and I Banks.

4. Companies Specialized in the Area of Carbon (asset managing companies): These companies which are divided into two, namely those that are registered in the exchange market and those that are not, are active in the primary credit market. Those that are registered in the exchange market generally operate in the Alternative Investment Market in London and try to collect fund by means of stock exchange. Those that are not registered in the exchange market, on the other hand, form funds by means of individual investments. Such companies are active in every area of the carbon financing activity. Purchasers, project developers, producers and financial investors provide various services for the individual investors. Therefore, they are exposed to various risks (Kadılar, 2010, p.89). For example; Camco International, EcoSecurities Ltd., Energy Systems International, Agrinergy, Carbon Resource Management Ltd., MGM International

5. Companies Managing Carbon Funds: Service providers such as banks, brokers and carbon exchange platforms decrease trade costs and introduce more sophisticated financial instruments to the market. These brokers form carbon funds in a way to enable third parties to invest.

The funds can be distributed to the shareholders of the carbon credits or can be turned into cash. Therefore, a strategy is adopted against the fluctuations in the carbon prices. In our day, carbon funds play a significant role in financing the emission reduction with the CDM and contribute to the growth of clean technology investments in developing countries.
Carbon funds are used by all the parties operating on the carbon market. For example, purchasers form the funds by collecting all the resources in a pool and purchase carbon assets (for example carbon funds) (Kadılar, 2010, p.90).

6.2 Main Carbon Exchanges

1. European Climate Exchange (ECX): It is a leading carbon dioxide (carbon) exchange in Europe and in the world. Its head office is in London. In this exchange, two types of carbon credits (or carbon products) has been traded: EU Allowances (EUAs) ve Certified Emission Reductions (CERs). These emissions products were first traded in April 2005, with the launch of futures on EUAs. EUA options were listed the following year. Similar contracts on CERs were introduced in 2008, with Daily Futures (spot) contracts on both underlying products added in 2009. (In other words, they are the futures contracts called sport products, in which the payment and delivery are made next day) (agenda, p.20)

The latest launch of ERUs will provide price discovery and transparency for the ERU market, enabling market participants to manage their carbon price risk more efficiently with EUAs, CERs and ERUs on a single platform. EUA futures contracts are subjected to the EU Emission credits. One unit of contract corresponds to 1.000 EU emission credits (EUA=1Ton CO2). ECX future contracts is a product based on CERs gained from the abovementioned clean development mechanism (CDM). One unit of contract corresponds to 1.000 CER (Cikot, 2009, p.20).

2. Bluenext: it was established in 2007 by NYSE Euronext and Caisse des Depots, a state financing house in France. There are two markets in the stock exchange such as spot and futures. In spot market, EUA, CER and ERU transactions are carried out. The Bluenext system automatically filters out certain credits. For instance, projects relating to nuclear activities and to Land Use, Land Use Change and Forestry will be excluded from the list, in accordance with the EU Linking Directive; also credits originating from hydroelectric projects with a generating capacity equal or exceeding 20 MW are excluded (http://www.bluenext.eu/).

3. Climex: Climex started in the Netherlands in 2003 under the name New Values. New Values offered support in emission rights trading by offering a user-friendly and reliable online trading platform called Climex. In 2005, New Values founded the Climex Alliance, comprised of regional partners all over Europe. The Climex Alliance included: New Values (based in The Netherlands), SENDECO2 (based in Spain), Vertis Environmental Finance (trading as euets.com, based in Hungary), STX Services (based in The Netherlands), APX Power Limited (trading as APX Power UK, based in the UK), APX B.V. (based in The Netherlands). In 2008, the Climex Alliance partners merged to form Climex, a pan-European organization committed to providing a transparent marketplace for trading and auctioning environmental commodities and energy contracts. The Climex platform currently counts 94 members. EUAs, CERs, ERUs ve VEs and energy contracts are the products traded. Climex Energy Contracts are traded in auctioning where the companies which need electricity, gas and renewable energy certificates may participate (http://www.climex.com).

4. Chicago Climate Exchange (CCX): Chicago Climate Exchange (CCX) was established in 2003 as a voluntary greenhouse gas reduction and offset trading platform. Market participants included major corporations, utilities and financial institutions with activities in all 50 United States, 8 Canadian provinces and 16 countries. The total program baseline covered 700 million metric tons CO2 - equal to roughly one-third the size of Europe's cap and trade program (http://www.chicagoclimate.com/contentjsf?id=821). As stated above, the member of CCX undertake the carbon emission voluntarily and the emission reduction quotas they undertake become obligatory.
The members which reduce more than the emission targets sell their extra credit certificates to the members which cannot reduce the emission to the desired level. Therefore, a member which could not meet the desired level has to purchase the Carbon Financial Instrument (CFI) (Çikot, 2009, p.12). The CFI contracts are the equivalents of 100 tones of CO2. CFI contracts consist of exchange allowances and offset credits. Allowances were issued to members in accordance with their emission baseline and reduction schedule. Offsets are generated by qualifying offset projects. The offsets program includes participation by more than 15,000 farmers, ranchers and foresters who conduct mitigation practices on more than 25 million acres of land (http://www.chicagoclim ate.com/content?jsf?id=821).

6.3 Towards the Carbon Exchange in Turkey

Since Turkey does not have any emission reduction commitment and liability, it is voluntarily carrying out transaction in only over-the-counter market. If an emission reduction target has been set for our country after 2012, Turkey can take part in organized markets and benefit from other Protocol flexibility mechanisms as well. The availability of spot and futures markets where carbon-based financial instruments are traded, the attraction of the existing carbon funds in the world to our country and the opportunity to establish similar funds in our country as well would make great contributions to the expansion of our capital market. (Haselçin, 2009). To sum up the efforts for the reduction of carbon emissions in our country in financial terms so far;

1. Since there is no stock exchange where carbon-based credits or contracts can be traded, the “Verified Emissions Reductions – VERs can be certified by the institutions accredited by the United Nations Framework Convention of Climate Change in return for the credits generated by the environment conscious companies and they can carry out transactions in over-the-counter markets as voluntary carbon units (Çikot, 2009, p.13). There are broker companies in Turkey in this regard. These companies are able to produce carbon credits projects and they sell them to those in need. Among these companies, Futurecamp, Ecofiys, Turkuaiz, JP Morgan, Ençev, Mavi Consultans and Gaia can be listed.

2. This kind of companies provide consultancy or brokerage. The carbon credits generated thanks to the “Carbon Reduction Projects” which enable the reduction of emission of existing greenhouse gases or the reduction of existing greenhouse gases can be sold to private and public sector organizations even if they are not a party to the Kyoto Protocol, since they are voluntary (http://www.encev.com.tr). These broker companies provide expertise at each phase from the rise of the project idea to the end of the project (developing methodology, preparation of project designing document, supporting the approval process, support for receiving Host Nation and Annex 1 Country approvals for the CDM and JI projects, support during the registration process) (http://www.turkuazcarbon.com)

3. The banks started to work on it before the carbon Exchange and/or energy and/or climate exchange were established. They offered the carbon credit based funds to public. Turkish Industrial Development Bank (TSKB) created B type “Clean Energy Fund” with 10% revenue guarantee and offered it to the public in 2009. It is planning to erase the carbon footprint of those who purchase this fund. With this fund, annual carbon emissions of the investors which are calculated as 1.740 tones in total (assuming that 348 investors purchased it and their average carbon emissions are 5 tones in total) were purchased from the “Solid Waste management” project realized in Turkey with the investment loans provided by especially TSKB and an offset was aimed with the voluntary carbon credits. Other banks which carry out studies about environment are Vakıfbank, Sekerbank and Isbank. The said banks established a separate environment department within their bodies (http://www.tskb.com.tr)
4. Either Capital Markets Board or Istanbul Gold Exchange started their studies on establishing a new carbon market. The decisions to be taken after 2012 for Turkey and Turkey’s position either will affect the decision of establishing a market or will direct this decision. However, Turkey accelerated the process for forming a new index other than establishing a new carbon market. In this regard, studies have been carried out especially with the companies listed in Istanbul Stock Exchange- 50 Index. The efforts to create a “carbon index” which is similar to Corporate Governance created in ISE.

First of all, the publicly listed companies were invited to disclose their greenhouse emissions within the scope of “Carbon Disclosure Project-CDP” in 2010. Within the scope of this project, the greenhouse gas emission amounts and the climate change policies of the companies are aimed to be presented to the information of corporate investors. Carbon Disclosure Project (CDP) has been operated since 2000 throughout the world and started to be operated in Brazil, China, Korea and India last year; it was started in Turkey in 2010 by Sabancı University with the assistance of a private bank.

With Carbon Disclosure Project, the companies are asked to disclose how they managed their climate change risks and prices. Therefore, companies started to share their sustainability reports issued within the scope of corporate social responsibility and climate change governance via other instruments and the information on greenhouse gas emissions with public. It has not been an obligation in Turkey yet, however, the companies which want to consider the global greenhouse emissions a risk factor started to take part in these studies and create data. In the first year report of the project when the participation rate was 20%, 10 companies included in Istanbul Stock Exchange and 1 company which have been carrying out voluntary reporting although it is not included in this index, a total of 11 companies were mentioned. Despite 2010 was the first year of CDP Turkey, the high participation rate draws the attention compared to 2010 rates of other developing countries. This kind of performance in the finance sector shows the sensitivity of the sector about risk management. In 2010, CDP was the first company among which responded Turkish banks. Four out of five banks which responded CDP state that the climate change issue is at the highest level of responsibility, the same level as the board of management and or at another top management level. 80% of the companies which responded to CDP Turkey and are included in Istanbul Stock Exchange- 50 Index disclosed their emission data, it is stated in the report that 80% of those companies have either a determined greenhouse emission target or they are developing such a target.

5. The limitations on carbon emission have not been implemented in Turkey yet, the leading companies which deal with and apply environmental policies at a strategic level see the risks which are rapidly getting closer about carbon costs and they assess the period until 2012 with the aim of “being ready”, they create the greenhouse emission inventories and carry out studies to determine the easily accessible energy efficiency opportunities at first stage. These studies increase the brand value of companies besides ensuring short and long term savings with a good carbon management.

6.4 İstanbul Gold Exchange Carbon Market (IGECM)

EU Emissions Trading System-EU ETS started to operate on 1.1.2005. In this system, thousands of companies from EU countries carry out transactions in the stock exchanges established in this regard. The contracts based on the greenhouse gas (especially carbon dioxide) amount corresponding to one tone are traded in these exchanges. In addition to carbon emissions, mainly electricity energy and natural gas itself and the energy derivative products based on them are also traded in these exchanges. As stated above, these exchanges are European Energy Exchange (EEX), Nord Pool, European Climate Exchange (ECX), Bluenext, Climex, etc. Moreover, Chicago Climate Exchange, Chicago Climate Futures Exchange, Montreal Climate Exchange, Australia Climate Exchange, Envex and Asian exchanges are going on their operations as other world exchanges in this regard.
In this part of the study, some suggestions are provided for the carbon market which does not exist yet but is thought to be established and opinions are proposed about the required functioning.

In case certain quotas are set in Turkey especially after 2012, Carbon Market (CM) can be thought to be established as a sub-market under Istanbul Gold Exchange (IGE). We can resemble it the “Emerging Companies Market” established within the body of Istanbul Stock Exchange for the emerging entities or SMEs. Istanbul Gold Exchange (IGE), these new market transaction systems should provide expertise in the fields of market regulations and financial risk management.

The members of this exchange can be the companies which desire to carry out transactions with CM emission products, which cause energy, transportation, industry, forestry, waste sector and greenhouse gas emissions or whose emission limits are determined with the National Emission Allocation Plan within the scope of the Kyoto liabilities of Turkey and brokers, banks, authorized institutions, precious metal brokerage houses, Istanbul Stock Exchange institutions, foreign carbon and energy exchange members and investment companies. The world-wide investors are also expected to carry out transactions in this exchange via banks and brokerage houses.

The emission spreading members of CM undertook the emission reduction targets voluntarily. However, it would be legally obligatory to reach these targets after the undertaking. The countries which reduce their emissions more than expected can sell or keep their extra carbon credits. The members whose emissions are more than the estimated rate would carry out spot transaction based on Turkish Republic Emission Allowance (TREA) and Certification Emissions Reduction (CER) contract from this market. It is thought that all kinds of derivative instruments in the Carbon market should also be configured depending on the development of the market in the future, similar to the financial instruments traded in foreign commodity exchanges or departments. The prices of the instruments to be traded in CM are going to be determined and the emission credit amounts are going to be determined depending on the relation between emission credits to be determined and the market demands.

It is planned that the companies residing in abroad but having an Office in Turkey, which are deemed suitable by the Undersecretariat of Treasury can also apply for the membership of the exchange to be a participant and those which are deemed suitable pursuant to the regulations can be accepted as members.

In the TREA contract type regarding the new liability period which starts as of 2013 (each TREA corresponds to 1 ton CO₂) 1 lot will be at the size of 1000 tons CO₂. In pricing, TL/ton and €/ton are thought to be used, while the price increment is envisaged as 0,01 Kr/ton and 0,01 €/ton. The amount increment will be 1 lot, which means 1000 ton CO₂. Transaction hours can be thought as 9:30-17:00 and Internet session. The delivery date is T+1 or T+0 (In case of T+0, as in Bluenext, as soon as the transaction is carried out, the delivery can be ensured to be made in 15-20 minutes.) The delivery will be made from the account of the seller’s account to the purchaser’s account of the TREAs in question Turkey Emission Registry.

It has been thought to be realized via the transfer account in his Istanbul Gold Exchange in his institutions.

In the contract size, 1 lot corresponds to 1000 ton CO₂ in the Certified Emission Reductions contract (each CER corresponds to 1 ton CO₂) which is exported by the Board of Management of Clean Development Mechanism (CDM) developed within the scope of Kyoto Protocol for the projects upon the suggestion of the Ministry of Environment and Forestry. The price and amount increments are as stated in TREA contracts. The delivery and exchange transactions are going to be as stated above.
The institutions and organizations responsible for the related markets have been determined according to the Istanbul International Central finance strategy. Carbon Market is also one of these issues and it is shown under the responsibility of Istanbul Gold Exchange. In addition to the studies by the Ministry of Environment and Forestry, United Nations Development Program and State Planning Organization, the status of Turkey after 2012 will be clear and the developments will be followed. In the carbon market which the studies are going on for its legal and physical infrastructure, that the undertakings will become obligatory after 2012 will make the studies clear and also accelerate the formation of the related regulation.

7. CONCLUSIONS AND SUGGESTIONS

The concerns and delays in the establishment of carbon market, the lack of interest in emission reduction projects, the insufficiency of focal points where the emission reduction projects are directed or supported, high costs in the emission reduction projects, the low costs of emission unit price compared to precedents, the lack of an evaluation mechanism for the projects ensuring emission reduction, the lack of knowledge about the emission trade, not recording the data on the projects completed, the problems in accounting the emission certification, the lack of an exchange suitable for emission certificates can be seen the most important structural problems.

What can be done for their solutions?

The private sector should be informed about the emission reduction projects, procedures and principles should be determined for the operation of the institutions and organizations to be engaged in emission trade system and of the structure and system to be newly established, the project portfolios should be increased and the costs should be decreased, state institutions should be the regulatory and supervisory authorities, all the state institutions should be informed about the system, a clearing house should be established and these procedures can be started at least in one of the exchanges the infrastructure of which is suitable. These can be proposed as a solution.

Suggestions

Turkish Emission Reduction certificates regarding the voluntary carbon trade are sold under their market values; the reason for this is the demand for emission reduction certificates is low and a legal and corporate infrastructure which would regulate the market, a transparent, reliable, credible system have not been established yet and there is a lack of conscious between companies/individuals.

In order to fill this deficiency, an infrastructure should be established. Therefore, regulatory authorities are required. One of them is an exchange or a market where the carbon certificates are sold and purchased for creating the financial value of carbon and the required regulations for this.

1- Carbon market is an important instrument of greenhouse emission reduction strategies of a country. Any step for the carbon market should be included in this general totality.

2. The awareness of the actors in carbon market should be raised so that they can perform their market functions.

3- The carbon market should be recognized as a working process and the necessary introduction should be done.
4- The carbon footprints of companies and sectors should be measured. It should be started from the state sectors especially with high carbon intensity. By doing so, it should be encouraged in terms of capacity development.

5- A mechanism for carbon inventory notification and reporting reduction activities by the environment and energy managers in all the sectors with high energy/carbon intensity should be created with these regulations to be established. It should be also harmonized with the parallel legislations such as the Energy Efficiency Law.

6- The registry system should be designed in a manner to meet the requirements of the emission trade system which may be required within the framework of the possible liabilities.

7- Besides, a detailed analysis should be done regarding the relationships between investor/managers and consultancy – confirmation – brokerage firms, the status of the carbon savings traded within the scope of country quota after 2012, the popularization of the process, the role of the state in the process, the roles of Non Governmental Organizations in the process and the Turkish companies’ involvement in the process as carbon purchasers and the strategic decisions should be taken in the light of the analyses.

8- The inclusion of the sectors and projects still included in the voluntary markets after 2012 in the obligatory markets should be considered.

Therefore, investments into clean technologies which use more effective energy would be more attractive. Depending on the appropriate standard choice, the effective application of sustainable development would be accelerated. Ensuring the energy and raw material savings in enterprises, it would strengthen competition and efficiency. It would enable the corporate social responsibility projects to be enlarged in the subjects such as renewable energy, energy efficiency, waste management, land use and forestry.

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RATIO CLASSIFICATIONS FOR FINANCIAL STATEMENT ANALYSIS – HISTORICAL OVERVIEW
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Abstract
The aim of this article is to analyse differences among important ratios within similar classifications and the methods used for forming these classifications. For the review publications from major international online databases were attracted.

The review shows that there is only consensus about the most commonly used ratio categories like profitability and liquidity but other empirically based categories are different across studies. It is demonstrated that the number of essential ratios in each category varies mainly between 3–6. It can be also concluded that mainly factor analysis is used to classify ratios.

Key words: financial statement analysis, financial ratios, ratio classification(s)

1. INTRODUCTION
Nowadays it is not easy to conceive that accounting data can be analysed without transferring it into ratios. Quantity of financial statements has increased rapidly and there is need for quick analysis technique that can help to understand the company’s strengths and weaknesses and investment potential.

Even the origins of ratio analysis can be found in Book V of Euclid’s “Elements” where properties of ratios are analysed, ratio analysis as a tool of financial statement analysis can be traced back to the second half of 19th century. This was driven by America’s vast industrial expansion where:

- financial sector got more powerful position in the economy;
- management of enterprises transferred from capitalists to professional managers;
- accounting systems became more standardized.

Contemporary researchers and practitioners use financial ratios mainly for modelling purposes but the problem for all parties has remained the same: to define sufficient set of financial ratios to cover all different aspects and activities of the business.

2. EMPIRICAL CLASSIFICATION
A number of financial ratios were created by analysts in early decades of 20th century. Two paths of development of ratio analysis can be distinguished (Horrigan 1968):

- credit analysis to measure the borrower’s ability to repay loans;
managerial analysis where profitability measurement was more emphasized.

The first discussions in the literature about determining the most efficacious group of ratios started in 1930’s. In 1933-1934 Roy A. Foulke published in Dun & Bradstreet Monthly Review group of 14 ratios created based on his practical experience when preparing industry average ratio series. Foulke categorized ratios as Balance Sheet, Inventory, Sales and Net Profit ratios. Horrigan (1968) called this approach as a “pragmatical empiricism”.

One of the interesting early papers on financial ratios where many empirical issues are discussed first time is “Some Empirical Bases of Financial Ratio analysis” by James O. Horrigan (1965). Horrigan reviewed large number of sources related to financial statement analysis and decided to group ratios to liquidity and profitability ratios. He broke liquidity category down to short-term liquidity and long-term solvency divisions and classified profitability category further in line with Du Pont return on investment triangulation as follows: capital turnover, profit margin and return on investment. Based on the studies from the 1920’s till beginning of 1960’s Horrigan created basic list of financial ratios:

1. Short –term Liquidity Ratios
   a. Current assets to current debt (“current ratio”)
   b. Current assets less inventory to current debt (“quick ratio”)
   c. Cash plus marketable securities to current debt

2. Long-term Solvency Ratios
   a. Net operating profit to interest (“times-interest-earned ratio”)
   b. Net worth to total debt
   c. Net worth to long-term debt
   d. Net worth to fixed assets

3. Capital Turnover ratios
   a. Sales to accounts receivable
   b. Sales to inventories
   c. Sales to working capital
   d. Sales to fixed assets
   e. Sales to net worth
   f. Sales to total assets

4. Profit Margin Ratios
   a. Net operating profit to sales
   b. Net profit to sales

5. Return on investment Ratios
   a. Net operating profit to total assets
b. Net profit to net worth

Nowadays empirical classification can be found from many finance and accounting text-books where subjective classifications of ratios are presented. As the categories are created according to authors’ specific experience it is common that the ratios and classifications in the categories differ among authors. Usually profitability and liquidity ratios are presented but beyond that there is no clear consensus in the books.

2. DEDUCTIVE CLASSIFICATION

Technical (mathematical) relationships are used when classifying ratios in deductive approach. One of the best-known example of deductive approach is the Du Pont triangle system published in 1919 (Salmi et al 1994). In the top of the triangle there was return on the investment ratio (profits/total assets) and the base composed profit margin ratio (profits/sales) and capital turnover ratio (sales/total assets). Nowadays three components used for return of equity calculation based on traditional Du Pont model are equity multiplier (assets/owners’ equity), assets turnover (sales/total assets) and net profit margin (net profit/sales).

![Diagram of Du Pont Triangle System](image_url)

Fig. 1. Financial Ratios Categoric Framework (Courtis 1973).

Based on earlier studies and textbooks Courtis (1978) created a diagram where visual approximation of relations between 79 ratios was presented (see Appendix A). Courtis allocated these 79 ratios to three categories (see Fig. 1):
1. Profitability ratios indicating if there has been a satisfactory rate of return from business activities. Courtis extended Du Pont triangle to show the effect of financial leverage on owners’ equity: profit margin/net worth = total assets/net worth × profit margin/total assets.

2. Managerial performance ratios can be used to investigate specific management functions: credit policy, inventory, administration and assets-equity structure. Credit policy and inventory ratios indicate movements in current assets and seek to assess the effectiveness of credit management and the efficiency of the firm’s inventory management. These ratios measure cash flow and could be also classified under liquidity ratios below but Courtis treated these separately because both areas represent important control points of management (specially the receivables turnover and the inventory turnover). The administration ratios (operating expenses/sales, operating expenses/total assets) are intended to measure the effectiveness of cost control and have a clear link to profitability category above. Courtis moved assets-equity category from solvency to management performance category to emphasise the importance of appraising under/over capitalization, the relative proportions of current and fixed assets and the extent to which long-term assets are being financed by long-term debt.

3. Solvency ratios can be subdivided into short-term liquidity, long-term solvency and cash-flow ratios. Short-term liquidity ratios (current assets/current liabilities, current assets/sales, current liabilities/net worth etc) indicate “technical” solvency to pay all current liabilities. Long-term solvency ratios (total debt/net worth, total debts/total assets, EBIT/interest expense etc) assess the capability to pay both long-term liabilities and interests related to that. Cash-flow sub-category ratios (cash-flow/total debt, cash-flow/current liabilities, cash-flow/sales etc) consider liquidity through the maintenance of adequately matched periodic cash inflows and outflows.

UK based Centre of Interfirm Comparisons (CIFC) tested statistical significance differences between the average values of the ratios of inner city and other locations. The main conclusion of the study is that manufacturing profitability is lower in the inner cities (Fothergill et al 1982). They concentrated a 'pyramid' consisting of a profitability ratio on the top which is definitionally related to further 'constituent' ratios lower down (see Fig. 2).

Laitinen (1983) presented a multivariate model of the financial relationships in the company. The empirical evidence was presented in the form of correlations, path coefficients and factor analysis. The proportion of the variance of the fourteen variables accounted for by four factors below was 85 per cent (Laitinen 1983).

1. Profitability (the ability of the firm to generate revenues in excess of expenses)
   a. Return on investment
   b. Operating margin to net sales
   c. Profit margin (net margin) to net sales

2. Liquidity (the ability of the firm to meet its short-term financial liabilities when they fall due)
   a. Quick ratio
   b. Current ratio
   c. Short-term assets to total assets
d. Short-term debt to total debt

**Fig. 2.** An example of “Pyramid of Ratios” Approach (Fothergill et al 1982).

3. Leverage (the extent to which non-equity capital is used in the firm and the long-run ability of the firm to meet payments to non-equity suppliers of the capital)
   a. Total debt to total assets
   b. Cash margin 2 (the amount of cash revenue after short-term expenditure and profit-sharing items like interests, dividends and related taxes) to total debt

4. The sufficiency of revenue financing (the ability of the firm to finance its expenditure with revenue)
   a. Cash margin 1 (the amount of cash revenue after short-term expenditure) to total cash revenue
   b. Cash margin 2 to total cash revenue
   c. Average growth rate of net sales
   d. Net sales to total assets
   e. Short-term expenditure to total expenditure
Bayldon, Woods and Zafiris (1984) evaluated a pyramid scheme of financial ratios and found it to be methodologically suspect. As in general the pyramid approach seeks to explain differences in the higher ratios by identifying further differences in the lower ones, but this might be misleading.

Nowadays deductive approach has become mixed with confirmatory approach what will be discussed later.

3. INDUCTIVE CLASSIFICATION

Statistical techniques are used to classify financial ratios in inductive approach. The aim is to reduce large number of ratios to smaller number of mutually exclusive categories covering different aspects of companies’ activities. Rather empirical than theoretical foundations for grouping ratios is characteristic of the inductive approach (Salmi, Martikainen 1994).

One of the first attempts of empirically-based financial ratio classifications was Pinches, Mingo and Caruthers (1973). In addition to ratio classifications the purpose of their study was to measure the long-term stability in these classifications over the period 1951-1969. Using multivariate analysis they concluded that the financial ratio factor patterns for industrial firms are:

1. Return on Investment
2. Capital Intensiveness
3. Inventory Intensiveness
4. Financial Leverage
5. Receivables Intensiveness
6. Short-term Liquidity
7. Cash Position

Depending on the year these factors explain 78-92% of the total variance of the 51 ratios. The correlations for the factor loadings and the differential R-factor analysis indicate that the ratio patterns are reasonably stable during the period analysed.

Johnson (1979) continued Pinches et al research and confirmed the financial ratio patterns already identified using two different types of firms – retailers and primary manufactures. Johnson added the eighth dimension: decomposition measures (indicate deviation from proportional development of financial statement items).

Chen and Shimerda (1981) demonstrated that the financial ratios investigated in the previous predictive studies of bankruptcy can be classified by reduced number of factors. Because the ratios classified within the same factor have high correlation they recommended to select one ratio that accounts for most of the information to represent certain factor. Inclusion of more than one ratio from a factor leads to multicollinearity among ratios and distorts the relationship between independent and dependent variables.

Cowen and Hoffer (1982) found that on a micro basis consistent and logical ratio groupings may not exist, however different sets of ratios tend to move together which confirmed Pinches, Mingo and Caruthers macro study published in 1973. Cowen and Hoffer suggested to define the appropriate set of ratios useful in single industry context. They warned also that it may be unrealistic to assume that ratio
groupings will remain consistent and stable over the time. The sample of the study consisted of 72 oil-crude industry firms from 1967-1975, factor and cluster analysis were performed.

Gombola and Ketz (1983) identified cash-flow measures as a separate dimension of company performance. In earlier studies where net income plus depreciation and amortization was used as a proxy of cash flow resulted cash-flow ratios to be closely associated with profitability ratios. When cash-flow is measured as cash revenues from operating activities less cash expenses for operations, the cash-flow ratios are separated from profitability ratios and form distinct factor. Gombola and Ketz performed factor analysis based on 119 firm data.

One of the interesting researches from the author of the article point of view is the article of Salmi, Virtanen and Yli-Olli (1990) where they introduced three main categories of ratios: accrual ratios, cash flow ratios and market-based ratios:

1. Accrual ratios
   a. Liquidity
      • Quick ratio (current assets excl inventories to current liabilities). Many studies categorizing financial ratios often include current ratio (current assets to current liabilities) along with quick ratio. Salmi et al choice of quick ratio over current ratio was based on two considerations: 1) inventories (which the current ratio includes) are not always enough liquid and 2) many empirical results indicate that the quick ratio tends to be better behaved statistically than current ratio
      • Defensive interval measure (current assets less inventories per average daily expenditures to operations). Duality occurs: this ratio could be deemed as well as a profitability measure
      • Relative net working assets (net working capital to total assets). Net working capital to sales were not used as it is too similar to total liabilities to sales ratio used in capital adequacy category
   b. Capital adequacy
      • Total liabilities to sales. Ratios should have different bases to increase coverage and to alleviate the definitional dependencies. This is balance sheet / income statement ratio
      • Long term debt to equity. Balance sheet / balance sheet ratio
      • Times interest earned (earnings before interest and taxes plus depreciation / interest). Income statement / income statement ratio
   c. Profitability
      • Return after interest and taxes to equity (net profit / common equity). Balance sheet / balance sheet ratio
      • Return on total assets. Balance sheet / balance sheet ratio
      • Operating margin to sales. Income statement / income statement ratio
   d. Efficiency
• Inventory turnover period (average inventory / cost of goods sold). Turnover ratios (in years) were chosen because 1) as per Virtanen and Yli-Olli (1989) turnover periods have better statistical properties and 2) are easier to understand

• Accounts receivable turnover period (receivables / sales)

e. Operating leverage

• Labour intensiveness (Personnel expenditure / adjusted real-term fixed assets). Real-term fixed assets are used rather than the book value because the this reflects better the technology at the firms disposal

• Variable costs to fixed costs. Measuring variable costs to fixed costs should not be unproblematic even variable and fixed costs are not always easily separately available in financial statements. And also variable costs to fixed costs is an established concept in measuring operating leverage

f. Volume

• Growth rate (long-term growth rate of deflated sales).

• Size (firm’s total assets in proportion to the largest firm (annual figures)). Size is measured for each firm for each year by dividing the total assets (adjusted for appreciation) by the maximum observed total assets over all the firms and years. Thus the range of the resultant ratios is between 0 and 1

2. Cash flow ratios

a. Cash net income to cash from sales

b. Cash operating income to total assets

c. Cash outflow to capital investments to cash from sales

d. Cash outflow to materials & supplies and wages & salaries to cash from sales

e. Cash net income to average interest bearing debt

f. Cash outflow for interest payments to cash operating income

Cash operating income = cash from sales less cash outflow to direct materials and labour plus other cash based net (non-operating) income

Cash net income = cash operating income less cash outflow to interests, direct taxes and dividends

3. Market based ratios

a. Firm ratios

• Dividend payout ratio (Dividends per share / earnings per share)

b. Combined ratios

• Dividend yield

• E/P. Inverse of price per earnings
- Market to book ratio (Stock price per share / book value per share)

c. Pure market ratios
   - Return on the security. Capital gains and dividend yield
   - Security’s beta
   - Security’s total risk

There has been few research involving cash flow ratios and Salmi et all were the first investigating market-based ratios. They used factor analysis and transformation analysis. The latter method was used to test the temporal stability of the financial ratio factors. Six stable factors of financial ratio information were identified by factor and transformation analyses from based on data of 32 publicly traded Finnish companies for 1974-84. Stability means that the content of the factors remained reasonably unchanged when the results of the first half and the second half of the observation period are compared with the transformation analysis. The stable factors were a profitability factor, an operational leverage factor, a cash flow factor, a size & beta factor, a dynamic liquidity factor, and a growth rate factor.

Based on factor analysis and transformation analysis the authors made following conclusions:

- Cash flow ratios are loading on a separate and distinct stable factor. This confirmed earlier results that cash flow ratios impart information not present in the accrual-based financial ratios.
- Market-based ratios dispersed widely on different factors, the authors propose that unlike the accrual and cash flow financial ratios the market-based ratios simply are not amenable to a consistent categorization.
- The results did not support directly conventional classification (i.e. the standard text-book financial ratio classification into profitability, liquidity, solvency, and turnover) of ratios, but the authors recommended to consider the results as inconclusive.

Hutchinson, Meric and Meric (1988) presented six principle components for 127 small firms which are quoted on the UK Unlisted Securities market. For each component the ratio with the highest factor loadings were published (see Table 1).

**Table 1. Principle components and the financial ratios representing the best every component (Hutchinson, Meric and Meric 1988).**

<table>
<thead>
<tr>
<th>Principle component (factor)</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indebtedness and Liquidity</td>
<td>Equity to Total assets</td>
</tr>
<tr>
<td>Profitability</td>
<td>Earnings before interest and tax to Total assets</td>
</tr>
<tr>
<td>Growth rate</td>
<td>Annual average sales growth rate (two year average for the period t-5 and t-3)</td>
</tr>
<tr>
<td>Assets structure</td>
<td>Current assets to Total assets</td>
</tr>
<tr>
<td>Assets turnover</td>
<td>Sales to total Assets</td>
</tr>
<tr>
<td>Accounts receivable level</td>
<td>Accounts receivable to Sales</td>
</tr>
</tbody>
</table>
4. CONFIRMATORY CLASSIFICATION

As the inductive studies were not able to agree a consistent classification of financial ratio factors, numbers of studies started to confirm the classifications with empirical evidence.

Laurent (1979) identified through factor analysis small set of financial ratios which 1) account for proportion of the total variance in a relatively complete set of financial ratios, 2) are sufficiently few in number to increase the efficiency and effectiveness of financial ratio analysis and 3) are sufficiently independent of each other to permit proper identification of their individual effects in multivariate analysis. Financial ratios Laurent selected to represent each factor are listed in Table 2.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Financial ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return on investment</td>
<td>Earnings before interest and tax to Total assets</td>
</tr>
<tr>
<td>Gearing</td>
<td>Long-term debt to Total assets</td>
</tr>
<tr>
<td>Working capital management</td>
<td>Revenue (Sales) to Working capital</td>
</tr>
<tr>
<td>Fixed asset management</td>
<td>Revenue (Sales) to Fixed assets</td>
</tr>
<tr>
<td>Long-term solvency</td>
<td>Revenue (Sales) to owners’ equity</td>
</tr>
<tr>
<td>Short-term solvency</td>
<td>Current assets to Current liabilities</td>
</tr>
<tr>
<td>Inventory management</td>
<td>Revenue to Stock</td>
</tr>
<tr>
<td>Standing changes cover</td>
<td>Profit before interest and taxes to Interest</td>
</tr>
<tr>
<td>(liquidity to long-term debt)</td>
<td></td>
</tr>
<tr>
<td>Income retention policy</td>
<td>Reserves to Net income</td>
</tr>
<tr>
<td>Credit policy</td>
<td>Revenue to Debtors</td>
</tr>
</tbody>
</table>

Pohlman and Hollinger (1981) alerted users of financial ratios trying to use the fewest number of ratios to achieve parsimony due to information overloading. Even Pinches, Mingo and Caruthers study provides empirical grouping of financial ratios, these sets do not contain specific, separate and distinct sets of financial information. From Pohlman and Hollinger point of view every financial ratio is not always unique, wrong conclusions may be drawn when using too limited set of information.

Luoma and Ruuhela (1991) applied cluster analysis to group 15 financial ratios. They chose cluster analysis instead of commonly used factor analysis because criterions for determining factors may often give too many factors and some of them might be artificial. Another disadvantage of factor analysis is ratio may be included to several factors but in cluster analysis ratio can belong only to one cluster. Their results indicate that three dimensions are enough to encompass the important information of the 15 ratios. These three dimensions are usually separate: profitability, financial leverage and revenue liquidity (cash flows). The most consistent financial ratios were:

1. Profitability
   a. Net profit to Sales
b. Return on equity (Net income to Equity)

2. Financial leverage
   a. Equity to Invested capital (invested capital equals total assets minus accounts payable)
   b. Total debt to Sales

3. Revenue liquidity (cash flows)
   a. Operating Cash to Cash from Sales (Operating Cash = Cash from operating activities – other net cash expenses – interests – taxes – dividends)
   b. Net cash to Cash from Sales (Net Cash = Cash from operating activities – other net cash expenses)

Kanto and Martikainen (1992) introduced confirmatory factor analysis to test earlier classifications of financial ratios and came into conclusion that selected factors – profitability, financial leverage, liquidity and efficiency – are insufficient to illustrate key dimensions of the firm or selected ratios do not measure the ratio category.

CONCLUSION

The first discussions in the literature about determining the most efficacious group of ratios started in 1930’s. Based on the studies from the 1920’s till beginning of 1960’s Horrigan created basic list of financial ratios. That time the categories were created according to authors’ specific experience it was common that the ratios and classifications in the categories differed among authors. Also nowadays this kind of pragmatical empiricism can be found from many finance and accounting text-books.

The deductive (pyramid) approach seeks to explain differences in the higher ratios by identifying further differences in the lower ones, but some authors warned that this might be misleading.

In inductive approach statistical techniques are used to classify financial ratios. The aim is to reduce large number of ratios to smaller number of mutually exclusive categories covering different aspects of companies’ activities. As the inductive studies were not able to agree a consistent classification of financial ratio factors, numbers of studies started to confirm the classifications with empirical evidence (confirmatory approach).

In inductive and confirmatory approach mainly factor analysis is used to classify ratios. In some cases also cluster and transformation analyses were used. There is only consensus about the most commonly used ratio categories like profitability and liquidity but other empirically based categories are different across studies. It is demonstrated that the number of essential ratios in each category are mainly varying between 3-6.
APPENDIX A. FINANCIAL RATIOS CATEGORIC FRAMEWORK
REFERENCES


APPRENTICESHIP, TOOL OF TACIT KNOWLEDGE SHARING

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Abstract

Apprenticeship is a traditional tool for tacit knowledge sharing. Modern methods that belong to the group of apprenticeship methods are coaching, mentoring and counseling. Apprenticeship is based on method of controlled reflection. Master (coach, mentor) shares his knowledge with apprentice (coached, mentored person) and supervises the process of creation of apprentice tacit knowledge. Apprentice builds his/her own tacit knowledge in practical activity in real life or in stimulated situations. Together with tacit knowledge, apprentices adopt social skills and archetypes typical for certain activity or profession. The article discusses results of research on apprenticeship as a tool of tacit knowledge sharing in organizations in the Czech Republic. The research on apprenticeship and other knowledge sharing tools started in 2004, goes on to the present days and now provides us with experience of 145 organizations.

Key words: knowledge, tacit knowledge, knowledge sharing, apprenticeship, coaching

1. INTRODUCTION

Tacit knowledge is a success factor of any activity we do. It is deeply rooted in action, procedures, routines, commitment, ideas, value and emotions of people. It is partly subconscious; employees may not be aware of it or may underestimate it. When employee leaves the organization, tacit knowledge that cannot be separated from its owner, leaves the organization, too.

Tacit knowledge is difficult to communicate. Some authors think that tacit knowledge can be turned to explicit (Nonaka and Takeuchi, 1995), some argue that no (Polanyi, 1966). Anyway, externalization is difficult, expensive and often leads to damage of tacit knowledge. To keep tacit knowledge in organization and help knowledge workers to learn one from the other, managers are advised to initiate socialization that enables knowledge workers to share their tacit knowledge in tacit form. There are three ways of how to share tacit knowledge in tacit form – apprenticeship, communities and story telling. This article is dedicated to apprenticeship.

2. APPRENTICESHIP

Apprenticeship is a covering name for set of tools and methods for tacit knowledge sharing based on controlled reflection. Among others, vocational apprenticeship, coaching and mentoring belong to apprenticeship methods. Master (coach, mentor) shares his knowledge with apprentice (coached, mentored person) and supervises the process of creation of apprentice tacit knowledge during the process of apprenticeship. Apprentice builds his/her own tacit knowledge in practical activity in real life or in stimulated situations. Together with tacit knowledge, apprentices adopt social skills and archetypes typical for certain activity or profession.
Basic prerequisites of successful apprenticeship:

- An apprentice is willing and able to learn both explicit and tacit knowledge of his/her master.
- Master has required knowledge and is willing to share it with his/her apprentice.
- Involved tacit knowledge is sharable.
- There is an environment convenient for interaction between the master and apprentice.
- In case of vocational apprenticeship, the relationship of master and apprentice must be covered by a contract (Mládková, 2005).

Apprenticeship involves sharing of nonverbal practical personal experience (tacit knowledge). At the beginning of learning process masters usually share necessary explicit knowledge. Than, in various activities and situations try to create and develop tacit knowledge of apprentice. Apprentice executes practical activities and transforms knowledge of his master to his own knowledge. Master must monitor, evaluate and adjust the whole learning process through feedback (Mládková, 2005).

From the point of view of SECI (Nonaka and Takeuchi, 1995) apprenticeship starts with socialization. The first socialization does not involve knowledge sharing but enables to build relationship, trust, and sympathies between master and apprentice. This part is very important especially in coaching. Externalization is the second process. Master explicitly expresses his knowledge, formulates basic values and principles. Use of metaphors, analogies and stories is highly recommended in externalization as it helps to describe one piece of knowledge in different ways. Combination during which the apprentice combines pieces of explicit knowledge from various resources – books, articles, his master’s knowledge follows. The fourth process is internalization when apprentice builds his own tacit knowledge, through practical activity. Final socialization involves real sharing of tacit knowledge between the master and the apprentice. Master must supervise the whole process and ask apprentice for feedback.

Whitmore (2004) created a special four phase process of coaching that can be generally used for other apprenticeship methods. Four phases by Whitmore are - unconscious incompetence, conscious incompetence, conscious competence, and unconscious competence.

Unconscious incompetence represents the start of the learning cycle. The apprentice does not know what he does not know. If possible, master should explicitly explain the apprentice his weaknesses and offer some ideas how to eliminate them. Understanding of own limits moves the apprentice to the second phase, conscious incompetence. In conscious incompetence phase apprentice knows weaknesses he will have to eliminate and knows what he should do to eliminate them. He knows what he should learn and how the result of his activity should look like. He still lack tacit knowledge necessary to do the activity, or his tacit knowledge is weak.

Conscious competence is the third phase. An apprentice has explicit knowledge necessary for the activity, tacit knowledge is still weak. When the apprentice does the activity, he must consciously use and combine his tacit knowledge. The more the conscious competence develops the fewer mistakes an apprentice does.

Unconscious competence is the last phase of apprenticeship process. An apprentice uses his tacit knowledge automatically without thinking about it. Results of his work are of required quality.

The whole cycle may be repeated again and again which leads to improvement of an apprentice work (Whitmore, 2004).
Apprenticeship puts high demands not only on apprentices, but their masters, too. To successfully fulfill their role, masters must:

- Have necessary explicit and tacit knowledge.
- Be able to share it.
- Be trustworthy.
- Have necessary formal and informal authority.

As tacit knowledge is involved, they also must be:

- Patient.
- Unbiased.
- Able to see potential of other people and develop it.
- Enthusiastic in learning process.
- Perceptive. Be able to listen.
- Know themselves.
- Have good memory (Mládková 2005).

3. RESEARCH ON APPRENTICESHIP

The research on knowledge management in organizations in the Czech Republic started in 2004 and goes on to these days. The intention of the research is to monitor development of knowledge management activities in our country, to identify best practices and to evaluate potential of our
corporate environment for knowledge workers. Organizations are chosen randomly, they come from different industries, including the public administration and governmental area. A size of organizations also differs; we have interviewed both big multinational organizations and SME’s. The only prerequisite for organization to be covered by the research is location of its premises in the Czech Republic. Up till now we have interviewed 145 organizations.

The research is a qualitative research based on a questionnaire. The questionnaire mostly consists of closed questions with option of commentary; some opened questions are supplied, too. Questionnaires are completed under supervision of trained interviewer.

Problematic of apprenticeship is examined in section 5 where questions on vocational apprenticeship programs are asks and in section 7 focused on coaching and mentoring.

The questionnaire provides us with detailed information about work with knowledge and knowledge management in interviewed organizations. It helps to identify best practices and mistakes and problems and gives us a picture about quality and functionality of knowledge market in the organization. Some questions are interlinked; answers to them should be compatible. These questions are important as they validate the questionnaire. The reason of incompatibility of answers to such questions is always strictly enquired and the interviewer is asked to explain the reason in rich details. In case of doubts the questionnaire is rejected. As words apprenticeship and mentoring may confuse our respondents (we know that organizations confuse them), we use the word coaching as covering for all apprenticeship activities in our research. The only exception is vocational apprenticeship programs. These programs are covered by different part of the questionnaire and results are processed separately. Coaching as the leadership method was not examined. Questions on coaching were focused on official coaching activities of organizations.

4. RESULTS OF RESEARCH ON APPRRENTICESHIP

As mentioned above, we examine vocational apprenticeship separately. As we choose organizations randomly we do not suspect that many of them have vocational apprenticeship. Percentages on first question are calculated on 145 organizations. The rest of percentages in table 1 are calculated on 15 organizations. All percentages are rounded up.

<table>
<thead>
<tr>
<th>Table 1. Vocational apprenticeship</th>
<th>Nb.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organization has vocational apprentice program</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>Apprentice program is focused more on theoretical knowledge</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Apprentice program is focused more on practical knowledge</td>
<td>12</td>
<td>80</td>
</tr>
<tr>
<td>Apprentice program is focused equally on practical and theoretical knowledge</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>When finish training apprentices get job in our organization</td>
<td>13</td>
<td>87</td>
</tr>
<tr>
<td>We outsource apprentice program</td>
<td>5</td>
<td>33</td>
</tr>
</tbody>
</table>
15 organizations from the sample of 145 (10%) reported vocational apprenticeship program. 12 out of these 15 organizations (80%) focus their apprenticeship program more on practical activities, only 1 (7%) on theoretical knowledge, 2 organizations (13%) focus on both types of knowledge equally. 13 organizations (87%) offer apprentices who finished training jobs. Quite interesting was the result of answer on outsourcing of apprentice program; 5 organizations (33%) do outsource theoretical or practical training of their apprentices.

Table 2 provides answers to questions on coaching. First question in the section coaching was focused on if our organizations coach their employees and which groups they coach. Than we asked who serves in the role of a coach, five options were offered: the one who has good work results, the one who has necessary experience (we expect that people with good work results and experience posses necessary tacit knowledge), direct manager of coached, external subject, and coach is chosen in accordance with specific needs of coached person. We also see as important answers to question how organization rewards coaches; four options were offered: coach receives financial reward, coach receives different than financial reward, coach receives no reward, coaching is part of coach’s duties. Last set of questions enquired if organizations manage relationship between coaches and coached. Three options were offered: organization manages relationship between coach and coached, organization helps when relationship between coach and coached gets to problems and organizations does not interfere to relationship between coach and coached. Percentages on first question are calculated on 145 organizations. The rest of percentages in table 2 are calculated on 91 organizations. All percentages are rounded up.

| Table 2. Coaching (Mládková, 2011) |
|-----------------------------------|---|---|
| Organization provides coaching    | 91 | 63 |
| Organization provides coaching to line managers | 34 | 37 |
| Organization provides coaching to middle managers | 41 | 45 |
| Organization provides coaching to top managers | 30 | 33 |
| Organization coaches also employees who are not managers | 67 | 74 |
| Coach is chosen by his work results | 14 | 15 |
| Coach is chosen by experience | 12 | 13 |
| Coach is a direct manager of coached | 40 | 44 |
| Coach is an external subject | 13 | 14 |
Results of research on coaching are as follows; 63% of interviewed organizations provide coaching for their employees; 37% of organizations that provide coaching coach line managers, 45% of such organizations coach middle managers and 33% coach top managers. 74% of organizations coach employees who are not managers. This result was surprising – we suspected that top managers are the most coached group of employees but the research indicates that it is employees who work on non managerial positions.

Coaches are usually direct managers of coached employees – 44%. Proportion of coaches chosen on different parameters is much smaller: coaches chosen due to their work results - 15%, coaches chosen due to their experience - 13%, external coaches - 14%, and coaches chosen in accordance with needs of coached person - 21%. Coaching is usually understood as the part of job duties of a coach (together with other duties) - 58%; 26% of coaches receive financial reward (usually external coaches) and 4% of coaches are rewarded in different way.

Research shows that coaching is a popular method of tacit knowledge sharing in our organizations. On the other hand organizations do not manage coaching processes properly. It is questionable if direct managers should also fulfill the role of coaches (questions on coaching were focused on official coaching initiatives; coaching as a method of leadership was not studied), if they have enough time, knowledge and willingness to be good coaches. The findings that organizations do not reward their coaches and that they influence the relationship between the coach and the coached only when problems appear also indicate inefficiencies (Mládková, 2011).

5. CONCLUSIONS

Apprenticeship is a set of methods and tools that help us to share tacit knowledge. Coaching, mentoring and other methods can be classified under the label of apprenticeship. Apprenticeship is based on the process of controlled reflection. The master shares his knowledge with the apprentice; he helps the apprentice to build his own knowledge in controlled and safe environment. Our research on knowledge management tools and methods started in 2004 and continues to the present days. One part of the research is dedicated to tools of tacit knowledge sharing, among them to apprenticeship. The
The research focuses on vocational apprenticeship and on coaching (due to practical reasons we do not make difference between coaching, mentoring and similar methods).

The research shows that 10% of interviewed organization has vocational apprenticeship program. 80% of these organizations focus their apprenticeship program on practical activities. When apprentices finish their training, 87% of organizations offer them job. Some organizations (33%) outsource their vocational apprenticeship. The sample of organizations that reported vocational apprenticeship was very small – only 15 out of 145 so we cannot conclude any trends from this part of the research.

As for coaching we discovered that 63% of organizations have a coaching program. Organizations coach especially employees on non managerial positions - 74% which surprised us. This may be, in our opinion, caused by the fact that many of interviewed organizations are knowledge intense organizations and their employees are knowledge workers. Coaching (and mentoring) is good tool for personal development of such people. Unfortunately we discovered big inefficiencies. Many employees are coached by their direct manager (44%) and coaches are often not rewarded for coaching. Organizations also do not manage relationship between the coach and the coached, only 27% of them do.

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REFERENCES
TOTAL EDUCATION
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Abstract
Total education represents a process by which man and society participate in the individual development but also in the organizational development. We cannot talk only about the accumulation of knowledge. It is the leap to a different type of attitude both at the individual level but also at society level. Successive leaps from “TO KNOW” to “TO DO” and from there to “TO BE” require rigor and creativity. We cannot just talk about constructive behaviour architectures of isolated groups but we can talk about creating a value system that is becoming the foundation of a coherent set of attitudes within the society. The costs of lack of education are found in: illiteracy, crime, poor health, unemployment, disruption of the socio-economic mechanisms at international level. This paper wishes to emphasize the importance of continuous collaboration of all the decisional factors for a complete education: state institutions, family, civil society, business environment and last but not least MAN. Total education is no longer a desire, but a necessity.

Key words: Lifelong education, formal education, non-formal education, informal education, total education, leadership, emotional intelligence, social intelligence, appreciative intelligence

1. INTRODUCTION
Total Education is a form of lifelong education that takes into account not only the continuity of the educational process, but also all the contexts in which human trains (formal, non formal, informal). This process represents both organizations’ concern for training the individual, as well as the individual’s concern for his own development (self-education).

In this analysis we shall observe the way formal, non-formal and informal education together with other types of education define a coherent and consistent system that we define in this paper as Total Education. We suggest here the way in which some systems (NGOs and scientific circles) contribute to the Faculty of Business and Administration (FAA), University of Bucharest (UB) to articulate a high achieving educational architecture. We are considering here: Professional Association of Students (TEAM WORK) from the University of Bucharest, Scientific Circle "Entrepreneurship, Ethics and Social Responsibility - EESR", creativity circle “SpherAA”

2. LIFELONG LEARNING
Lifelong education establishes a new vision of education, shaped especially during the second half of the twentieth century, which indicates the process of training and personality development during the entire lifetime of the individual.
The concept of lifelong education draws our attention also to the fact that educational influences must cover the whole human person. Hence, the terms of "integrated lifelong education", the term "integrated" denoting, on one hand, integrating all the institutions and all forms of education at different levels (preschool education, school education, adult education), and, on the other hand, integrating within a unitary system of all social forms of education (formal, non formal and informal). Life-long education is thus a continuous integration process of all educational influences in a coherent and convergent system that are exerted over the individual - in various and specific ways - throughout his life. Therefore, lifelong education must be understood rather as a principle of organizing education.

Education is projective, but also corrective, prophylactic and therapeutic. To plead for the "permanence of the lifelong education" means to embrace education in society and human life at the same time.

Lifelong education acts as a set of means made available to people of any sex, age, social and professional situation, so that they should not cease to be trained during life, in order to ensure full development of the faculty and the effective participation to the progress of society. In conclusion, lifelong education implies the both vertically and horizontally correlation of various components of the educational system. Lifelong education involves a horizontally and vertically integrated educational system, whose elements complement and communicate together, being based on all the pedagogical resources of society and expressing themselves in the whole range of types of education: general, professional, social and cultural, moral and emotional, formal and non formal, institutional and non institutional, in schools, families and for adults.

The vision of lifelong education was established under the impact of some global social phenomena related to accelerating the development of society.

For this century, lifelong education has become a fundamental requirement of the society, driven by the exponential growth of information and their accelerated depreciation, the mobility of professions, the extraordinary progress of science, technology and means of information, the dynamism of economic and social life, the democratization of education, the increase of the level of aspiration for culture and education, spending leisure time in a more useful and enjoyable way.

Learning to learn and wanting to permanently improve yourself represent requirements of lifelong education, through which contemporary man learns to be himself, is responsive to changes, is able to anticipate and adapt to these changes, volunteering as a participant in social progress through his intellectual, moral and civic autonomy.

Lifelong education is characterized by the fact that it is global, integrating all levels and types of education, thus providing a balanced formation of personality, with a high degree of autonomy of learning, upon which man knows how to identify and use sources of information, to participate in the development of society and to educate other members of the community he is a part of.

Education represents a form of interpersonal communication through which cultural values, production experience and social behaviour are transmitted from one generation to another. Defined as social action and process, education represents a combination of influences exerted in a planned manner, within academic institutions based on a system of goals, principles, forms and organizational methods used for training human as personality, capable to actively integrate himself in the dynamics of social life.

Educational systems known to date were based on the school's institutional monopoly. Such a model functioned best as long as educational alternatives outside school were less developed and could not
become competitive. But past decades have highlighted the development of new educational environments outside school, able to become an alternative (either complementary or competitive) for the school type formal education.

Formal education (school education) is taking place in an organized and planned manner, benefiting from curriculum, programmes and textbooks necessary for achieving educational goals. The concept of lifelong education (practice) was the prerequisite for a better understanding and definition of the role and objectives of education, revaluating and organizing on other bases the learning contents, the introduction of new methods and forms of training and education, ensuring coherence and unity of the educational system.

One may observe in the current reforms of the educational systems of all countries concerns for articulating different levels and types of education, aiming at their continuity in time and space, trying to transform the end points of primary secondary and university education, in descriptions for lifelong learning and self-education.

School represents an initial phase of lifelong education, which must train students for this purpose and, therefore, the educational objectives, content and methods of teaching - learning - assessment should be reconsidered from this perspective.

Non-formal education is also an organized action, but outside school, either within the socio-professional environment in the form of improving and professional training, or within the socio-cultural environment, through theatres, museums, public libraries, cultural and artistic events, excursions, sport clubs, competitions, as well as with the help of media (cinema, television, radio, press), public disco clubs, etc. The non formal education operates within the socio-cultural environment through influences exerted by the family, urban or rural civilization, social groups, cultural activities, lived life experiences, etc. The rapid changes in contemporary society and especially the communication media have broadened the range of school education by supplementing it with informal and non-formal education that contribute to widening students’ horizons of knowledge and their lifelong education. Therefore, non-formal education provides a necessary set of social experiences, useful for every child, young or adult, supplementing other forms of education through: taking advantage of participants’ free time in terms of providing opportunities for using their life experiences in a more open and flexible environment and by diversifying the daily learning environments, individual or collective voluntary participation, flexible ways to meet the interests, the broad range of suggested activities and the opportunity for each participant to decide what activities to participate in, developing skills for life and training young people to become active citizens; in addition to the information and skills specific to certain area of activities projects and non-formal activities belong to, young people also develop organizational capacities, self managing a household capabilities, time management, critical thinking, adopting decisions or solving problems, a framework for exerting and developing different inclinations, skills and abilities, expressing their talents in art, culture, music, sports, painting, IT, etc.

Without being an organized action, informal education is conditioned by contexts in which each individual has an increased power in the choice of topics.

In conclusion, we can say that, traditionally, the education provided by school has been considered as formal education, the educational activities organized by other institutions such as museums, libraries, student clubs, etc., have been considered as non-formal education and the spontaneous or unorganized influences within the environment, family, group of friends, media etc., have been considered as informal education.
These three forms of education (formal, non-formal, informal) function as a complex whose borders are difficult to trace. The formation of human personality is the result of a complex process in which the actions and influences of the society, of the institutions (school, other institutions with ethic vocation, cultural institutions), of the cultural groups (family, work group) to which the individual belongs to are combined with each individual’s efforts of self-training undertaken throughout life. Knowledge, skills and abilities learned, formed personality traits, far from being a gift of nature, are the product of actions and influences exerted by the existence social environment upon the individual and they are combined, in varying degrees, with its self-training efforts. Self-education becomes possible until adolescent age, due to the three functions of self-consciousness: the anticipatory function, self projecting into the future, is aiming at assimilating influences from outside education on the other hand inter-facilitating the formation of the ideal accomplishment in life, resulted in his own way of assessing the values based on some social criteria and the human’s capacity to reflect himself, realizing who he is and what he wants to become.

Self-education becomes possible based on education, when the adolescent, reflecting on what he learnt and having a proper way of assessing the socio-cultural values, holds them inside, thus participating in his own training and development. At the same time, self-education favours lifelong education, thus increasing its efficiency. This represents the product of some cycles of lifelong education projected on superior achieving levels in a period of time which is significant psychosocial for making the most of the self-training and self development potential of human personality. As evolution trend of education, self-education highlights the possibility of transforming the object of education in the subject of his own training. This implies stimulating the capacity of the object of education by: internalizing the educational action, creating some internal reverse connection circuits, self-assessment, pedagogical self-projection (the structure of educational action).

Taking advantage of the human personality self-education resources enables the realization of a new balance between external factors and internal factors of the activity of personality training and development. We are recently witnessing a development and a "formalization" of the non-formal education, which is coming increasingly closer to the educational space. School also - as an institution – has retorted the social challenges by broadening the scope of activity and by initiating partnerships with civil society, local community or various cultural institutions. We present in the table below (Table 1) the similarities and differences between formal education, informal education, non formal education in relation to several criteria. We observe that the education model that we propose within the Faculty of Business and Administration the following components: Business, Ethics and Social Responsibility (BESR), SpherAA, TEAM WORK are found in terms of comparison criteria in the table below.

<table>
<thead>
<tr>
<th>Comparison criteria</th>
<th>Formal education</th>
<th>Non-formal education</th>
<th>Informal education</th>
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<tbody>
<tr>
<td>Education Topic (actors performing educational activities)</td>
<td>Educational institutions (schools, kindergartens, high schools, universities)</td>
<td>Cultural institutions (theatres, museums, libraries, culture houses, etc.), nongovernmental organizations and other institutions that have as common mission</td>
<td>Family, media, group of friends, anyone who exercises an unintentional or unorganized educational influence</td>
</tr>
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<table>
<thead>
<tr>
<th></th>
<th>(institutions whose main mission is education)</th>
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</table>
Training degree of the “educator” | Qualified teachers | Qualified staff in different fields of activity, sometimes with teaching qualification | Absent or sporadic didactic training. Training is not a prerequisite of educational influence.  
---|---|---|---
Goals of education | Clearly defined objectives divided on stages of study, disciplines, etc. | Established for each activity, without a long-term organization | Not established  
Content of education | Organized by years of schooling (age stages), profiles / professional stages | Relatively organized by area of interest | Unorganized, contextual  
Certification methods | Nationally recognized certificates and, where appropriate, international recognized (high school diploma, bachelor's/masters’ degree etc., certificate for graduating compulsory school, certificate of professional competence (for graduates of vocational education). | Participation certificates, certificates of completion of various courses, certificates, professional or vocational certificates that can be recognized or not | Without certification  
Learner's autonomy in choosing the homework/activities | reduced | relatively high | increased  

**Table 1.** Comparison criteria of formal education, informal education, non-formal education; Velea, S.

The presence of lifelong education contributes to anticipate problems that may occur at society level. But we cannot prevent crisis situations at individual and social level if we do not consider the
identification of the causes that generate the lack of education. In fact, lifelong education represents the continuity component of the total education.

We present further some reference points about the Finnish model of education that takes into account all its facets: formal, informal, non-formal.

3. A RENOWED EDUCATIONAL MODEL

The Finnish educational system is one of the most advanced in the world and the steps that had to be done to reach this position were due to the allocation of significant funding to education and research by the Finnish government since the 90s. Finland is currently a country with high levels of literacy and high social welfare.

Placing students in schools depending on where they live is done in such manner so that there is no student who lives more than 5 kilometers away from the nearest school. The hours are short, dense and interactive (45 minutes). 75% of the total of disciplines is common throughout the country focusing mainly on mother language, mathematics and English language, and the remaining 25% are chosen in agreement with teachers, parents and students.

Schools are well equipped, there being no lack of teaching materials and the laboratories are equipped for various activities such as: tailoring, carpentry, welding, etc. Books and school materials, as well as meals are free of charge. All necessary expenses (within educational institutions) are subsidized by the municipality.

The Finnish educational system is anti-elitist thus trying to raise the medium level of culture. Children who graduate are able to speak fluently English. The Government offers opportunities to students to study fields such as medicine, engineering or law without having to pay taxes, etc.

From informal perspective, parents are encouraged to spend time with their children and to allow them to be independent, and on the formal perspective teachers are encouraging students to evaluate and make judgements and develop critical thinking rather than mechanical memorizing.

The model that we propose wishes to add components so that total education develops new valences. Therefore, we introduced the following concepts: Business, Ethics and Social Responsibility (BESR), Theatre, Media, Dance Skills (SpherAA), Team Work. In addition to these concepts, each student may come with his own system where he can be context creator.

4. A POSSIBLE MODEL OF TOTAL EDUCATION

Total education must become lifelong education because modern society incurs huge expenses related to issues of: health, education, delinquency, and economics. These costs would be minimized if at the level of several generations the principles of total education would be applied. This implies the creation of a comprehensive system in which in addition to resources it also needs a network and a set of methods and specific work instruments. Within the total education system (TES) we consider a previous configuration of a lifelong education system and around it the emergence of a network of relationships in which skills of all types can get into relations that create huge potential synergies. Within these networks, feedback and assessments will play an important role in updating TES.
In Figure 1 we are presenting a possible model of the components of total education in which formal education, non-formal education and informal education can create a unified system through lifelong education. This model has been used successfully in Finland defining a coherent system in which political, social, economical, cultural have joined together around the family facilitating performance at individual level but also at group level. We can speak of lifelong education on all channels and in all contexts. For total educational we consider not only the contexts society creates for the individual, but also the contexts the individual creates for him and his peers. Within the system we designed we have in mind the professional life, family life, social life, spiritual life, educational life, etc.

Alan Mumford's remark about how each individual can exploit opportunities for improvement (especially those that are spontaneous) is very important. We speak here of the interest that each member of society has for his own education. That report between “TO KNOW” - “TO DO” - “TO BE” represents actually the projection intended by the TOTAL EDUCATION starting from INFORMATION, going through ACTION towards ATTITUDE.

"It is essential to manage to improve the individual's ability to recognize and to exploit his opportunities for improvement, both those large-scale planned, as well as those that are spontaneous.” (Page 67, Management Learning, Alan Mumford).
We present in Figure 2 a diagram where we suggest the basic components of a system of lifelong education that may lead to a system of total education by using all the actors of the socio-economic system. We observe that: resource allocation, access to learning opportunities, integrated policies, learning culture, excellence in education, development of partnerships and demand for education can create conditions for the development of a society in which the costs from the acute lack of education of population can be eliminated to a large extent. It is obvious that in such a society is imperative that all socio-economic entities to participate in educating each individual in particular but also society in general.

Throughout all its components, the Total Education System (TES) that we propose takes into account the following: the attraction and use of resources, access by all means to learning opportunities, integrated policies for education, creating a dynamic learning culture, encouraging fair competition by defining a system of values regarding EXCELLENCE IN EDUCATION, developing partnerships with all the socio-economic components (Figure 3).

Leadership used in the Total Education System must consider Appreciative Intelligence as a form of anticipation of reality and the development of some motivational contexts for each individual but also for each group.
"Appreciative intelligence is an individual ability, but it has a significant impact on larger systems. The most successful leaders and innovators extend their appreciative intelligence beyond their personal lives and into the very fabric of their organizations. They build an environment, infrastructure, corporate culture, or system that generates success and helps appreciation perpetuate." (page 130, Appreciative Intelligence, Thatchenkery, T., Metzker, C.)

For the development of the Total Education System we consider the synergistic effect of combined actions of some components of students’ Team Work Professional Association at the University of Bucharest. We consider here Team Work Departments (Human Resources, Communication, Team Work School, Training and Consulting, International Relations, Research) in relation to: University of Bucharest and other Romanian and foreign universities, state institutions, family, high schools, business environment, NGOs. This booster effect has created the conditions for the development of a Total Education System. Within this system, we tried to attract people with emotional, social and / or appreciative intelligence.

![Diagram of the synergistic effect of Team Work’s relationships with public and private institutions]

"People with appreciative intelligence have the ability to see parts of the landscape as more than background scenery. They perceive situations, people, products and ideas as part of a larger picture, connected or related to other situations or people, and as something valuable waiting to happen" (Thatchenkery, T., Metzker, C.).

TEAM WORK Professional Association is part of the non-formal component of lifelong learning and its relations with the business environment, with public institutions and non-governmental organizations create a booster effect for each entity but also for the participants in their work. Lifelong
education, as a sub-component of the Total Education System, provides the context in which all types of education can develop all connecting every individual and every group with other individuals and groups.

Within Team Work coaching is used as a form of individual training but also as a form of group training. Coaches are selected from among teachers and students but they may also be specialists in the field who are volunteering to participate in coaching sessions.

"The goal of the coach is to understand how to create the conditions in which the manager is able to invent." (Page 112 Coaching for Leaders, Graham Lee).

In addition to coaching, in the process of building interpersonal relationships, the team that has designed the TES has in mind also the mentoring as a form of guidance for young people in various contexts created.

We further present the SpherAA concept of informal education where we meet students primarily from the Faculty of Business and Administration, but also from other faculties of the University of Bucharest. The "Theatre" project within SpherAA has created the conditions for the students to express themselves by word and gesture within some formal and informal contexts. Theatre directors and young actors are the catalysts of this project that facilitates the participants’ relationship with the environment and with dialogue partners.

Within the "Media" project, film directors and specialists in advertising and PR facilitates students’ relationship with image (content and symbol).

The "Dance" project completes the SpherAA System to which it adds the harmony part as a complement of the human personality System. Supporters of this project are ballet dancers and professional dancers.

The Total Education System (TES) represents the creation of several competencies (abilities) and that is why the "Skills" project aims to combine all the skills acquired by young people in the other three components of the Sphere (Theatre, Dance, Media), associations or various other scientific circles.

![SpherAA concept of informal education](image-url)

**Fig. 4.** SpherAA concept of formal education in the Faculty of Business and Administration - University of Bucharest
The SpherAA concept is a component of the Total Education System (TES) which is implemented within the Faculty of Business and Administration (FAA), University of Bucharest. Within the SpherAA system four components have developed (theatre, multimedia, dance, skills) in which students discover four ways to "see" the world. With the help of directors, the theatre actors also learn to discover themselves but to discover the world as well. Communication takes on new meanings and may provide in future new ways of expression in relations with the environment.

Film directors and advertising specialists offer alternatives of seeing the world through the latest technology. Also, within the dance component, students gain skills in relation to gestural communication. "The personality of an individual is not influenced only by the events from his childhood; it is simultaneously the product of the social conditions of his existence" (Nicole Albert, Management Human and organizational aspects). It is worth mentioning that these four components within the SpherAA concept are elements "of the social conditions of existence".

Creating personalities with multiple intelligences represents the purpose of the network that was designed around the Faculty of Business and Administration through aptitudes of intelligences develops: emotional, social, appreciative, bodily - kinaesthetic, musical, intrapersonal and spatial.

"In short, an intelligence is a biopsychological construct; a domain or discipline or craft is a sociological construct. No doubt there are interesting connections between the kinds of intelligences human beings possess, the kinds of domains that we develop, and how those intelligences and domains
map into one another, but it is analytically confusing to mix these two kinds of entities." (Multiple Intelligences, Howard Gardner).

The ability to maintain social connections of the community is one of the objectives of Total Education System (TES).

The development of the extracurricular network as a form of facilitation of a Total Education System (TES) has defined a system where we have the following components: the network of Faculty of Business and Administration partner high schools, the Scientific Circle of Business Ethics and Social Responsibility (BESR), SpherAA, Team Work Professional Association. The network of partner high schools represents a laboratory where future students are educated and projects are created with the participation of: students, teachers and businessmen.

Within the scientific circle BESR two components have developed: the Business Incubator where there are simulated situations in which business can occur and Ethics and Social Responsibility within which partnerships with parishes and social have developed with the purpose of encouraging the attitude of human solidarity under Social Responsibility circumstances. These activities can become significant in the lifelong education of youth. First of all, the individual must be motivated to learn. The ability to get out of crisis situations and imbalances, by opting for action and creativity, not by choosing chaos and despair, gives the individual the measure for success. Within the BESR Circle skills that are specific to Social Intelligence are being developed.

![Diagram](image-url)

**Fig. 6.** The development of extracurricular network at the Faculty of Business and Administration
Correlating these five dimensions (situational awareness, the presence, the authenticity, the clarity and the empathy) we have a working definition and a tool for diagnosing social intelligence "(page 50, Social Intelligence, Karl Albrecht, translated by: Adriana Ciorbaru).

Here's how, through a variety of initiatives (Team Work, BESR, SpherAA, High school Network) designed around the Faculty of Business and Administration a TOTAL EDUCATION SYSTEM is defined, a system that finds resources in students’ and teachers’ actions.

CONCLUSIONS:
The Total Education System (TES) does not represent just an objective. It can become a reality to the extent that concepts such as Emotional Intelligence, Social Intelligence, Appreciative Intelligence, Leadership – are combining in coherent and consistent activities aiming at creating at the level of humans but also at the level of groups of some attitudes that are favourable for building contexts where diversity becomes a resource through which everyone can express themselves in relation to their own value system in consonance with the value system of the society in which they live and grow.

"Any of us feel more relaxed, in some cultures than others." (Page 262, Leadership: The art and mastery of leading Manfred Kets de Vries).

Even if in the globalization world events often unfolds out of society’s control, it is necessary for people as well as the socio-economic systems to design ways of operating with the environment so that they can be stimulated to develop but also to develop other contexts for other people. The Total Education System (TES) is trying to use the therapeutic virtues of education which can mean not only the healing of the individual but the healing of the society too. The Total Education System also means socialising, as well as the individualization of the human because it provides him anchors in reality but also the possibility to create anchors for his peers.

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SYSTEM OF THE STATE PURCHASES
AS THE TOOL INNOVATIVE AND STATE SOCIAL POLICY
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Abstract

Article is devoted a role of the state order in development of an innovative and social and economic policy of the country. Using the state orders as the effective economic tool, the state solves the major social and economic problems, for example, stimulates those or other branches of economy, provides carrying out of scientific researches, creation and introduction of new technologies, workings out in socially significant areas, such as public health services, formation, ecological safety, solves problems of improvement of quality and a population standard of living, creates preconditions for development of bases of innovative economy. Besides, the state order is used as the mechanism of attraction of potential of private business to maintenance of steady economic development.

Key words: the state order, innovations, the state innovative policy, an innovative product, competitiveness

I. COMPONENT OF A SOCIAL AND ECONOMIC POLICY OF THE STATE

The major component of a social and economic policy is the innovative policy, and creation of economic and legal mechanisms of working out and introduction of the newest technologies and innovations in practical sphere of ability to live of a society should become one of priorities of an innovative policy.

In too time, world financial crisis and its consequences convince us that modern conditions the Government of Russia should use "all tools available at its order economic and social policy with a view of. A non-admission of destructive processes in social sphere and economy, providing simultaneously with it the decision of strategic problems of social and economic development" [1].

It is impossible for itself to present development of an innovative component without forward, a market sustainable development, and, first of all, its socially significant sectors - the market of educational services, the market of medical services etc. "Social justice is the insistent requirement of time. From the beginning of process of industrialization the social problem turns to a main point of human life which has the big historical value" [2] more and more.

The socially-significant market - a commodity market and services on which are presented cheap (thus qualitative), the goods or the services which are carrying out irreplaceable function for ability to live and calculated on buyers with various levels of solvency [3] and which is characterized by a number of features. We will allocate some features: the goods and the services presented in these markets, are...
consumed by the majority of the population and urged to satisfy the most important requirements of
the individual and a society; 2) manufacture and use of these goods and services improves quality of
life of the population of the country; 3) utility of the goods and the services presented in these markets,
has social character; 4) efficiency of functioning of the socially-significant market depends on rational
behavior of all its agents and, first of all, the state.

The modern market in the course of functioning isn't independent from state actions. Rational
interaction of the state and the market is one of the most important and questions of principle. It
concerns a problematics of public interests, formations of the public blessings in which frameworks
the state purchases of the goods and services are considered in a context of wider problem of
satisfaction of public requirements. The state bears civil responsibility for maintenance with the social
blessings, than the tendency to development of system of the state orders (drawing 1), carried out
through the state purchases, as one of forms of economic activities of the state speaks.[4]

![Diagram of Ways of Placing the State Order]

**Fig. 1. - Ways of placing of the state order**
II. THE DECISION OF SOCIALLY SIGNIFICANT PROBLEMS BY MEANS OF THE STATE ORDER

The nature of the state order is defined by requirements of the population. For performance of the functions the state uses resources, material benefits and services of non-material character. Acquisition of the blessings for granting to their consumer sector in the various markets underlies definition of essence of the state purchases.

In a context of the decision of socially significant problems the state order can be considered as the economic-legal form of realization of the state plans and the programs, directed on satisfaction of social requirements of the citizens, provided with budgetary financing and based on contractual relations between authorities and subjects of civil legal relationship irrespective of pattern of ownership and Subordination. Its purpose: the decision of socially significant problems of a society by budgetary financing of socially significant services and projects of the social organizations, and also attraction for this purpose innovative, intellectual, personnel and material resources.[5]

Expected results of realization of the given approach are:
— Achievement of high level of maintenance by socially significant services;
— Improvement of quality of services and satisfaction of clients;
— Increase of level of social protection of the population;
— More an effective utilization of the budgetary funds directed on the decision of social problems;
— Reduction of probability of protectionism and corruption.

According to the Federal law № 94-FZ from July, 21st, 2005 «About placing of orders for deliveries of the goods, performance of works, rendering of services for the state and municipal needs» are understood as the state needs provided at the expense of means of the federal budget or budgets of subjects of the Russian Federation and off-budget sources of financing of requirement of the Russian Federation and subjects of the Russian Federation, the state customers in the goods, works, the services necessary for realization of their functions and powers (in т. ч. For realization of federal and regional target programs), for execution of the international obligations (in т. ч. For realization of interstate target programs in which the Russian Federation participates).

The state orders (the state purchases) goods and services are the major part of public reproduction. The system of the state purchases allows to carry out market regulation of manufacture and товарооборот. The state purchases are used as the tool of stimulation of national manufacturers, developments of an infrastructure, information manufacture, research and development and introductions of new technics and technology, regulation of branch and regional structure of economy, small-scale business support, and as, for "activization" of socially significant markets and process of transition of economy on innovative rails.

In general, it is necessary to notice that for creation of initial demand for innovations state orders for innovative production and the state contracts for research and development performance have huge value. Within the limits of the contract on research workings out the executor undertakes to conduct the scientific researches caused by the technical project of the customer. The contract can cover as all cycle of carrying out of research, working out and manufacturing of samples, and its some stages.[6]
Performance scientifically research work, research and development and the scientific and technological revolution, the state (municipal) needs intended for satisfaction, is carried out on the basis of the state (municipal) contract on performance of contract works for the state (municipal) needs.[7] Customers under the state contracts on performance scientifically research work, research and development and a scientific and technological revolution can be:

— State structures (including public authorities);
— Controls the state off-budget funds;
— Budgetary establishments and other addressees of means of the federal budget and budgets of subjects of the Russian Federation.

As customers under municipal contracts can act:

— Local governments;
— Municipal budgetary establishments and other addressees of means of local budgets at placing of orders for deliveries of the goods, performance of works, rendering of services at the expense of budgetary funds and off-budget sources of financing.

Support of demand for socially significant production of the Russian enterprises from the state also should be carried out through realization of the investment projects planned within the limits of federal target programs and the federal address investment program, and also the projects realized with participation of means of Investment fund of the Russian Federation. In general, it is obvious that there should be displacement of accent from the measures aimed at anti-recessionary support of branches, the enterprises and the population, on the measures focused on modernization, innovations, an improvement of quality of the human capital.[8]

The system of purchases for the state needs the overall objective recognizes an effective utilization of means of budgets and off-budget sources for creation of the public blessings. Hence, the system of the state purchases is an economic method of planning of social and economic development.

In Russia the share of the state purchases in budgets makes more than 30 %.[9] In particular, in the Volgograd region the budget provides financing of expenses on purchase of the goods, works and services at a rate of 62 %. The basic source of financing of expenses on the state purchases is the regional budget which share in 2008 has made 98,8 %.

In structure of purchases of the goods, works and services for the state needs in the Volgograd region the considerable share is made by following directions: contract works (20 %), a transport infrastructure (24 %), public health services maintenance (17 %), research works (14 %).

The expenditure of budgetary funds through system of the state purchases leads to economy of budgetary funds. The economy of budgetary funds from planned expenses at order placing at the auctions recognized taken place, in 2008 has made: in the form of competition — 7,26 %; in the form of auction — 10,73 %. The saved means remain in the budget of region and further can be directed on development of socially-significant branches.

The state order is used as the tool of regulation of economy, the state involves potential of private business in maintenance of stability of economic development, the decision of actual social and economic problems.

The conclusion of contracts with managing subjects of region provides inflow of tax revenues to the regional budget which can be directed on acquisition of the additional public blessings that promotes
social and economic development of region. Besides it, the system of purchases urged to develop a healthy competition. Involving the existing enterprises and the organizations in participation in the state purchases, the state stimulates them to the further development. An overall objective of carrying out of purchasing campaign is maintenance of the set result with the least expenses. The buyer should find the supplier who at performance of all necessary conditions offers floor price for the sold goods and services. In a basis carrying out of the open competitive auctions lies. The auctions are a special way of delivery of orders for delivery of the goods and delivery подрядов on manufacture of certain works on the conditions in advance declared in the special document assuming attraction to certain term on principles of competition of offers from several participants of the auctions for the purpose of maintenance of the most favourable terms of transaction for organizers. At these auctions in the conditions of an openness the state realizes the orders for delivery of the goods or manufacture of any kinds of works among firms – participants of the auctions on competition principles. This competitive system completely adequate to an essence of market managing, allows to provide both the most favourable economic conditions, and the decision of the put social and economic problems at performance of orders. Distribution of the auctions on financing sources is presented in table 1.

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<tbody>
<tr>
<td>The regional budget</td>
<td>6911,9</td>
<td>95,06</td>
<td>7101,2</td>
<td>98,8</td>
</tr>
<tr>
<td>The federal budget</td>
<td>143,9</td>
<td>1,99</td>
<td>154,5</td>
<td>1,1</td>
</tr>
<tr>
<td>The local budget</td>
<td>49,8</td>
<td>0,69</td>
<td>14,4</td>
<td>0,05</td>
</tr>
<tr>
<td>Other sources</td>
<td>163,8</td>
<td>2,26</td>
<td>14,4</td>
<td>0,05</td>
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Thus, using the state orders as the effective economic tool, the state solves certain social and economic problems, for example, stimulates those or other branches of economy, provides carrying out of scientific researches, creation and introduction of new technologies, workings out in socially significant areas, such as public health services, formation, ecological safety, solves problems of improvement of quality and a population standard of living, creates preconditions for development of bases of innovative economy.

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THE AUDITORS’ ROLE IN “WINDOW DRESSING ACCOUNTING” OR THE IMPACT OF “CREATIVE ACCOUNTING” ON THE ACCOUNTING INTERNATIONAL STANDARDS

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Abstract

In our paper entitled The Auditors’ Role in “Window Dressing Accounting” or the Impact of “Creative Accounting” on the Accounting International Standards we have presented the main implications of the creative accounting upon an entity and the main reasons why an entity might decide to use this type of techniques.

At the beginning of our research we have defined the notion of creative accounting which specialists have often associated with manipulation of financial information, earnings management, income smoothing, aggressive accounting or account/accounting manipulation, creative bookkeeping and we have presented the main characteristics and the main perspectives that it can offer, in time, to an entity. We have also given some examples of how does creative accounting work in several counties and in several companies which practice it. In the last part of our study, we have presented the perspective of creative accounting through the eyes of the auditor and we have explained the role of auditors in determining anomalies that might occur in an entity’s accounting records. At the part of conclusions, we have considered extremely important some techniques used as creative accounting which, of course, are not at all new, but proof to be extremely expensive for an entity.

Key words: creative accounting, creative bookkeeping, window dressing, earnings management, income smoothing, aggressive accounting, impression management, fraud, accounting manipulation, auditor, International Standards of Accounting, IFAC

1. INTRODUCTION

The manipulation of financial information, also known as earnings management, income smoothing, creative accounting practices, aggressive accounting or account manipulation, plays a key role in preventing the allocation of resources in the most efficient areas of the economy. Due to this fact, our main interest in our study was to make a short but conclusive presentation upon the subject of creative accounting throw the perspective of the auditor’s responsibility towards the auditor’s profession, ethical and moral principles and society and economy as a whole.
2. CREATIVE BOOKKEEPING – DEFINITIONS, CHARACTERISTICS AND MAIN PERSPECTIVES

The manipulation of financial information is also known as earnings management, income smoothing, creative accounting practices, aggressive accounting or account manipulation, and has the role of preventing the allocation of resources in the most efficient areas of the economy.

The accounting manipulation can be defined in several ways, such as (see, in this matter, Table 1: Definitions for accounting manipulation):

<table>
<thead>
<tr>
<th>Definition of the accounting manipulation</th>
<th>Conclusion: the firm benefits from the wealth transfer</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) A situation in which the managers of an organization intentionally misstate their financial information to favorably represent the entity’s financial performance.</td>
<td></td>
</tr>
<tr>
<td>b) A situation in which the managers of nonprofits organizations may get incentives to manipulate their reported program - spending ratios because donors use them in determining contribution decisions.</td>
<td></td>
</tr>
<tr>
<td>c) A situation in which the accounts manipulation represents the use of management’s discretion to make accounting choices or to design transactions so as to affect the possibilities of wealth transfer between the company and society (political costs), funds providers (cost of capital) or managers (compensation plans).</td>
<td>Conclusion: the managers are acting against the firm</td>
</tr>
</tbody>
</table>

Creative accounting deals with the question: “What does an entity want to create?” and the answer could refer to one of the following aspects:

- More profit?
- Less profit?
- More assets?
- Fewer assets?
- More liabilities?
- Fewer liabilities?

Creative accounting practices deals with:

a) Income smoothing – move profit from one year to another;
b) Changing accounting policies, particularly depreciation, asset valuations;
c) Overstating costs, particularly in regulated industries;
d) Making expenses into Assets - „capitalization”.

Creative accounting also could involve:
- Inflating reported profits and EPS;
- Accounting for losses via balance sheet reserves and all profits through P & L;
- Reporting profits without generating equivalent cash;
- Reporting lower borrowings.

Accountants may be “creative” in their:
- Choice of accounting policies;
- Estimates or predictions;
- Disclosure;
- Timing of transactions.

Between creative accounting (see, in this matter, Table 2: Definitions for creative and creative bookkeeping), impression management and fraud there are certain differences, such as:

a) Creative Accounting: Using the flexibility within accounting to manage the measurement and presentation of the accounts so that they serve the interests of preparers.

b) Impression Management: Using the flexibility of the accounts (especially narrative and graphs) to convey a more favorable view than is warranted of a company’s results serving the interests of preparers.

c) Fraud: Stepping outside the Regulatory Framework deliberately to give a false picture of the accounts.

d) Table 2: Definitions for creative and creative bookkeeping

<table>
<thead>
<tr>
<th>Notion defined:</th>
<th>Definitions and different meanings:</th>
<th>Source:</th>
</tr>
</thead>
</table>
| Creative        | • Having the quality or power of creating;  
                  • Resulting from originality of thought; imaginative;  
                  • Facetious: producing deceptive or fraudulent information, etc.; creative bookkeeping. | Random House Webster’s College Dictionary |
|                 | • Originative, having the ability or power to create, „a creative imagination”;  
                  • Promoting construction or creation, „creative work”. | Princeton’s WordNet |
|                 | • Good at thinking of new ideas, a creative person;  
                  • Involving imaginative ideas  
                  the creative arts; creative parenting. | Kernerman English Learner’s Dictionary |
|                 | • Having the power to create; exerting the act of creation. | Webster Dictionary |
### Conclusions:

**Creative accounting or creative bookkeeping or window dressing**

- According to critic David Ehrenstein, the term „Creative Accounting” was first used in 1968 in the film *The Producers* by Mel Brooks (see, in this matter, [http://en.wikipedia.org/wiki/Creative_accounting](http://en.wikipedia.org/wiki/Creative_accounting)).
- The use of accounting methods to hide aspects of a company’s financial dealings in order to make the company appear more or less successful than it is in reality;
- New and original: using or showing use of the imagination to create new ideas or things;
- A creative approach to the problem of lack of space;
- Able to create: able to create things;
- Resourceful: making imaginative use of the limited resources available;
- Finance deceptive in presenting financial information: employing deceptive methods to distort financial records.
- Accounting practices that follow required laws and regulations, but deviate from what those standards intend to accomplish. Creative accounting capitalizes on loopholes in the accounting standards to falsely portray a better image of the company. Although creative accounting practices are legal, the loopholes they exploit are often reformed to prevent such behaviors.
- A primary benefit of public accounting statements is that they allow investors to compare the financial health of competing companies. However, when firms indulge in creative accounting often distort the value of the information that their financials provide. Creative accounting can be used to manage earnings and to keep debt off the balance sheet.
- Creative accounting and earnings management are euphemisms referring to accounting practices that may follow the letter of the rules of standard accounting practices, but certainly deviate from the spirit of those rules. They are characterized by excessive complication and the use of novel ways of characterizing income, assets, or liabilities and the intent to influence readers towards the interpretations desired by the authors. The terms „innovative” or „aggressive” are also sometimes used.
- The term as generally understood refers to systematic misrepresentation of the true income and assets of corporations or other organizations. „Creative accounting” is at the root of a number of accounting scandals, and many proposals for accounting reform - usually centering on an updated analysis of capital and factors of production that would correctly reflect how value is added.
The concept of “creative accounting” means, in Trotman opinion a way to “allowing the display of a new favorable image of the results and the statement of account” (Briciu S., 2006).

According to Jean - Jerome Bertolus, Maryvonne Lignon or Isabelle Gounin “creative accounting” is „the art of juggling with a statement of account”, „of calculating the benefits” and „of saving money” (Bertolus, J. J., 1998).

The creative accountant can be seen as „an assembly of techniques, options and freedom room left by accounting regulation, without moving away from laws or accounting requirements, allowing to the managers to change the financial result or the financial statements face” (Gillet, quoted by Shabou and Boulila Taktak, 2002).

Creative accountant represents „an assembly of procedures in order to change the profit, by increasing or decreasing, or to misrepresent the financial statements, or both of them” (Stolowy 2000).

Another word used in accounting language for window dressing is “Creative Accounting”. It is done to suit the purpose of various stakeholders. This practice is very common with commercial companies.

For example:
- A high profit will be declared for shareholders
- A reduced profit for Tax Authorities
- A high profit for management to negotiate new employment contract
- A reduced profit to avoid a revision of salary for all the employees.
- A high profit to prevent a corporate takeover
- A reduced profit when the company exceeds the market benchmark.

Managerial motivation implicates that there are certain relationships between the following elements presented below (see, in this matter, Table 3: The relationship between management and creative bookkeeping):

<table>
<thead>
<tr>
<th>Managers may wish to:</th>
<th>Methods of creative accounting:</th>
<th>Balance sheet financing scenario:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boost profits to benefit from:</td>
<td>Managers can, for example, manipulate income, expenses, assets and liabilities:</td>
<td>A company wants to acquire new premises;</td>
</tr>
<tr>
<td>- Profit related pay;</td>
<td>- Income Recognition;</td>
<td>- The merchant bank sets up a special purpose company to acquire clients properties;</td>
</tr>
<tr>
<td>- Shares and share options;</td>
<td>- Interest payable (capitalization);</td>
<td>- The loans are secured on properties;</td>
</tr>
<tr>
<td>Manage gearing;</td>
<td>- Stock;</td>
<td>- The ownership spread over clients;</td>
</tr>
<tr>
<td>Profit - smooth.</td>
<td>- Depreciation;</td>
<td></td>
</tr>
</tbody>
</table>
Goodwill and intangibles;
Off balance sheet financing.

- The company leases properties;
- Rents pay loan interest end of initial lease, clients can: buy leased properties; or sell properties and repay.

**Conclusions:** Taking into account the data presented above, we can conclude that the impact of „creative” accounting implicates:

- Changes in accounting policies;
- Changes in accounting estimates;
- Changes in consolidation scope;
- Changes in interest;
- Exceptional sale of assets or business segments;
- Other extraordinary operations.

These are financial techniques used by an entity in order to show a strong or weak financial position at a particular period in time.

Of course, **Window Dress** or **Creative Accounting** or **Creative Bookkeeping** is considered by specialists a set of Financial Statements, due to the reasons presented below:

- Directors or a group of shareholders may want to impress a „prospective” group of shareholders with the company’s past performance.
- Following a takeover bid, management may wish to impress existing shareholders of their strategic decision.
- Earning fixation. – Earnings-per-share indicator as the top market news.
- Directors remuneration may be fixed to profit performance of the business (e.g. profit related pay).
- Income smoothing to show a low variability in income, thus give the impression of low risk operation.
- Information Asymmetry – managers are privy to internal information than most outsiders inclusive of analysts.

In regard to the accounting techniques used to window dress a set of financial statement, T. Smith (1992) in Accounting for Growth, Century Business, London, argued that there are at least twelve methods that can be used to produce profit, namely:

1) Capitalization of Operating Costs;
2) Off-Balance Sheet Financing;
3) Deferred purchase consideration;
4) Use of Brand Accounting;
5) Apply contingent liabilities;
6) Use of Profits on disposal of a business;
7) Treat Extra-ordinary and exceptional items of income and expenditure;
8) Changes in depreciation policy on fixed assets;
9) Use of Pension Fund Accounting;
10) Use of Convertible Securities;
11) Treatment of Foreign Exchange Currency Items;
12) Write down of pre-acquisition costs or potential future costs.

Davidson, Stickney & Well (1987) in “Accounting: The Language of Business, 7th Edition, Horton, Arizona, argued that window dressing accounting is equivalent to “magic accounting”, when it comes to disclosing earnings: “It is a process of taking deliberate steps within the constraints of generally accounting principles to bring about a desired level of earnings”.

Holmes & Sugden (1990) refer to the fact that financial analysts expect some companies to “try to show continuous growth year after year and to pull out all the stops to avoid reporting a downturn”.

3. CREATIVE BOOKKEEPING AND EXAMPLES OF COUNTRIES IN WHICH IT IS PRACTICED

In an article published recently on “aggressive” bookkeeping, the authors of the article showed that the European nations have deployed to satisfy the deficit and debt targets of the Growth and Stability Pact (see, in this matter, Article A specter is haunting Europe — the specter of creative bookkeeping., By Donald Marron, Guest blogger / February 23, 2010, http://www.csmonitor.com/Business/Donald-Marron/2010/0223/Creative-bookkeeping-Not-just-a-Greek-problem). In the table below we have made a synthetic approach regarding this matter and we came up with the next details concerning some examples that illustrate some basic strategies that governments use to conceal the size of their deficits and debts, such as: pretend the spending does not exist (Greece), pretend that spending is really an investment (Portugal), or pretend the future pension liabilities are not real (France) (see, in this matter, Table 4: Facts concerning countries and “aggressive” bookkeeping):

<table>
<thead>
<tr>
<th>Countries analyzed for “aggressive” bookkeeping:</th>
<th>Comments and important facts:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Greece</td>
<td>• Is known for its recent use of derivatives to hide liabilities and for other creative moves in the past.</td>
</tr>
<tr>
<td></td>
<td>• The authors of the article insisted to the Eurostat statistics authority that large portions of its military spending were “confidential” and thus excluded from deficit calculations.</td>
</tr>
<tr>
<td></td>
<td>• In 2000, Greece reported that it spent €828 million ($1.13 billion) on the military - about a fourth of the €3.17 billion it later said it spent.</td>
</tr>
</tbody>
</table>
Countries analyzed for “aggressive” bookkeeping:

<table>
<thead>
<tr>
<th></th>
<th>Comments and important facts:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>▪ Greece admitted to underreporting military spending by €8.7 billion between 1997 and 2003.</td>
</tr>
<tr>
<td>2) Portugal</td>
<td>▪ Classified subsidies to the Lisbon subway and other state enterprises as equity purchases in 2001.</td>
</tr>
</tbody>
</table>
| 3) France            | ▪ Arranged a deal with the soon-to-be privatized France Telecom in 1997 under which the company paid the government a lump sum of more than €5 billion.  
                          ▪ In return, France agreed to assume pension liabilities for France Telecom workers.  
                          ▪ The billions from France Telecom helped narrow France’s budget gap. |

4. CREATIVE BOOKKEEPING AND THE ROLE OF AUDITORS – EXPLAINING ANOMALIES

The main question that specialists have often been interested in is the one concerning if the market can be fooled by window dressing measures, especially if the market is efficient. The right answer is that the market should not be fooled by the effect of window dressing measures, which a management may indulge. Of course, in this case, some investors might be influenced by its effect, but not the market. Nowadays, the markets, which are considered as efficient, are primarily: London, New York and Tokyo.

However, there are some anomalies sometimes:

a) R. Watts (1986) “Does it pay to manipulate E.P.S. in the Revolution in Corporate Finance” (eds. J.M. Stern & D.M. Chen), Blackwell, Oxford: Argued in his research that “findings manipulating reported earnings through accounting changes to increase the corporation stock prices will in most cases be a futile exercise”.

b) Interestingly, most studies in this area of research found have stated that “no reaction in the share price of a company to new accounting disclosures or to changes in accounting practices”.

At this point, another very important question comes into discussion: “What about the auditors’ role in window dressing accounting?”

In order to give an answer to this very interesting question, we have to say that the auditors have a crucial role to identify fraud, mistaken, incorrect value, manipulation, errors in his client’s accounts. Due to this fact, auditors are responsible directly under the law especially the international standards to report directly to the shareholders on the status of the company’s or a bank’s account at a particular point in time. Of course, in regards to window dressing, if they have been unable to identify such a practice, then they cannot be made to be solely liable for negligence because its it the responsibility of the Board of Directors and the management to ensure that the accounts are not tempered with.
Apparently, accounting seems to be a mechanical process which does not implicate any creativity and imagination, being very important for its component of financial and accounting information.

The impact of accounting standards has been considered very strong for the auditors and that is the reason why we should state that it is not easy to implement rigorous standards without changing incentives. This situation can even be seen in South East Asian countries like: Singapore, Thailand, and Hong Kong, China.

It is generally known that each country can implement its own accounting standards, but did not implement the substantial institutional changes required to make these standards effective. However, according to various studies conducted in this area, new standards did not result in better-quality financial reporting. It appears that managers have great temptation to manipulate numbers on financial reports just to make a good impression in the market.

Sometimes, executives have a personal interest in the information disclosed, because of the potential incentives linked to the company’s performance such as; bonuses, promotions, stock options, and other financial benefits. A very important case of window dressing and even fraud we might say is the case of Enron, which has become indeed a lesson from which the Corporate World had a lot to learn. Speaking about Enron the most important lessons that were learned were as follows:

1) The emergence of Sarbanes-Oxley act 2002;
2) New emphasis on corporate governance;
3) More power and responsibilities to the external and internal auditors;
4) Strengthening risk management practices;
5) Accountability by all executives;
6) More power to the shareholders;
7) New accounting and auditing standards inclusive of disclosure requirements.

CONCLUSIONS

In order to conclude, there are several techniques used in the creative accounting and, according to specialists, there are six main areas which can be considered the source of inspiration for the creative accounting. These areas are flexibility in regulation, a lack of regulation, a scope for management that assumed some targets for the future, the timing of some transactions, the use of artificial transactions, but also the reclassification and presentation of financials (see, in this matter, Table 5: Techniques used in the creative accounting). It is already well known that even in highly regulated countries such as U.S.A. the accounting environment gives place to a lot of flexibility (Largay, 2002; Mulford and Comiskey, 2002).

That is the reason why our belief is that all the techniques defined as creative accounting are not at all new, but also the experience has showed us that in most cases it can be extremely expensive. The main reason why entities decide to make use of creative accounting is due to their desire to attract investors and to look profitable to the shareholders, employees, creditors, suppliers and other categories. However, all this practices lead to drastic consequences, due to the simple fact that the manipulation of the conduct to a mismatch of the financial position and of better results, also implies that the profit will not represent the long-term capacity of the firm to generate earnings. By using creative accounting
methods, entities can often generate confusion among the stock exchange investors, because the figures shown by financial statements are often inflated which makes it extremely difficult to investors to distinguish between the fair and unfair statements. Also, the future perspectives of the entities do not always offer a detailed picture the financial positions and performance. It remains of great importance that all the techniques used by creative accounting can impress the investors only for a short time period, because if the financial position goes worse, this cannot be hidden anymore and these methods proof to be worthless. Sometimes and here are numerous worldwide known scandals, the long time effect of such practices is the distrust of the investors which automatically implicates the collapse of this entities that take advantage of these techniques.

Table 5: Techniques used in the creative accounting

<table>
<thead>
<tr>
<th>The areas suitable for the creative accounting and the techniques used in the creative accounting:</th>
<th>Explanations:</th>
<th>Source:</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Flexibility in regulation</td>
<td>• Implicates generally the regulation; • Also, it implicates particularly the accounting regulation; • It permits flexibility in choosing a policy to follow; • The International Accounting Standards let the financial management to choose between valuations of the non-current assets at depreciated historical value or at revaluated value; the management may decide the change of the policies, and these shifts are difficult to be identified a few years later.</td>
<td>Schipper, 1989</td>
</tr>
<tr>
<td>II. Lack of regulation</td>
<td>• Can be seen in some areas in every domain; • In most countries accounting • Regulation is limited in some areas.</td>
<td>Standardele Internationale de Contabilitate, Editura Economica, Bucuresti, 2002 IFAC (International Federation of Accountants) (1992), IFAC Handbook 1992: Technical Pronouncements (New York: IFAC)</td>
</tr>
<tr>
<td>III. Management</td>
<td>• Can use their discretionary position in order to obtain the financial position and stability they assumed.</td>
<td>McNichols and Wilson, 1988</td>
</tr>
<tr>
<td>IV. The timing of some transactions</td>
<td>• Offers to the management the opportunity to increase the</td>
<td>Standardele Internationale de Contabilitate, Editura</td>
</tr>
</tbody>
</table>
### The areas suitable for the creative accounting and the techniques used in the creative accounting:

| Explanations:                                                                                                                                                                                                 | Source:                                                                                           |
|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| revenues, when the operating profit is not satisfactory, and to create the desired impression in the accounts;  
- The existing stocks in company’s patrimony, that have a significant higher value compared to the historical value, may be sold only when the operating profit is not satisfactory. | Economica, Bucuresti, 2002 IFAC (International Federation of Accountants) (1992), IFAC Handbook 1992: Technical Pronouncements (New York: IFAC) |

### V. The artificial transactions

- Are often used in order to manipulate the balance sheet amounts or to move the profits between accounting periods. These transactions are realized by entering in a controlled transaction with two or three parties, one of them, most of the times, a bank.  
- Such arrangements consists in selling of an asset at a higher/lower rate than in an uncontrolled transaction, and then leasing it back for the rest of its useful period, compensating through the rentals the price difference.  


### VI. Reclassification and presentation of financials

- Reclassification and presentation of financials are relatively less analyzed in accounting literature.  
- In reality the companies often proceed to make up the amounts in order to obtain good level of profitability, liquidity or leverage ratios.  
- In some cases the numbers are smoothly modified in order to improve the investors” perception.  
- Niskanen and Keloharju (2000) showed that: „the idea behind this behavior is that humans may perceive a profit of, say, 301 million as abnormally larger than a profit of 298 million”. Their study and others (e.g. van Caneghem, 2002) have indicated that some minor changes of figures do take place in order to reach significant reference points.

### ACKNOWLEDGEMENTS:

Deep gratitude to all the people that we deeply love and love and support us. We feel deep gratitude for the fact that they have shown faith in us and in our hard work all this years.
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*** http://aaahq.org/PublicInterest/newsletr/spring99/item07.htm

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Abstract

We live in global market environment, which is characterized by hyper-competition. That is main reason why it is important to implement some of effective modern methods of management. We can say that the successful way is a model of Lean Company. Using the principles of Lean Company is one form of gaining a competitive advantage. This article deals with Lean Manufacturing principles and its model. We will describe principles, metrics and rules for creating Lean Manufacturing model in this paper. Next part of paper deals with expert systems and its application. If we define Lean Manufacturing model so we can represent this information into knowledge base of expert system. There are many methods for creating knowledge base. We will mention IF-THEN rules and fuzzy intervals for important lean manufacturing attributes.

Key words: lean company, lean manufacturing, expert system, knowledge base

1. INTRODUCTION

We live in global market environment, which is characterized by high levels of competition. There are gaining in importance new methods of management principles to gain a competitive advantage. Getting a competitive advantage is very important for the survival of firms in the global market environment nowadays. Using the principles of Lean Company is one form of gaining a competitive advantage. These principles seek to eliminate all unnecessary processes and activities that do not bring value to the customer and profit for the company. The aim is to streamline the contrary and support processes with business value which deliver profit.

This article deals with possibility of identification Lean Company principles by using expert systems. We suppose that with expert systems can be significantly accelerated the process of identifying the Lean Manufacturing principles based on rules contained in the knowledge-based expert system. Part of this work is a case study which is aimed at assessing the degree of Lean Manufacturing principles using an expert system to bear. Article deals with process of creating a knowledge base containing rules for determining Lean Manufacturing principles. Inference mechanism of expert system will derive the degree of Lean Manufacturing principles based on answering specific questions relating to the company situation.

2. LEAN COMPANY

Model of Lean Company is one of the most innovative approach of management in the twentieth century. According to Charles Fincho, who is a professor of management at the prestigious Massachusetts Institute of Technology, are the most important innovations in management approaches in the twentieth century following (Šmida, 2007):
• The invention of moving production lines and standardization of work (Henry Ford)
• Statistical Quality Control (Edwards Deming, Joseph Juran)
• Lean Manufacturing (Sakichi Toyoda - CEO of Toyota Motor Corp.)
• Theory of constraints (Eliyahu Goldratt)
• Focus on process (Michael Hammer and James Champy)

Lean Manufacturing is a methodology developed by Toyota after World War II as the Toyota Production System (TPS). Lean Manufacturing is an alternative to mass production. It is an approach to the production method, where the producer seeks to meet the maximum requirements of the customer, it will only produce what the customer requires. It seeks to develop products in the shortest possible time and with minimal cost, without sacrificing quality or expense of customer.

The lean philosophy is based on a single principle: All forms of waste should be identified and eliminated. This seems simply, but it is not, because recognizing true areas of waste is difficult (Morgan, 2005).

There are many definitions of Lean Manufacturing and Lean Company. Lean Company may be defined as the following: “A systematic approach to the identification and limitation of waste (limitation of activities without value added) in the form of constant improvement of the production processes.” (Wolf et al., 2009)

Lean Company consists of the following four elements (Karlsson and Ählström, 1996):
• Lean development: supplier involvement, cross-functional teams, simultaneous engineering, integration instated of coordination, strategic management and blackbox engineering.
• Lean procurement: supplier hierarchies and larger subsystems from fewer suppliers.
• Lean manufacturing: elimination of waste, continuous improvement, multifunctional teams, vertical information systems, decentralised responsibilities and pull instead of push.
• Lean distribution: lean buffers, customer involvement and aggressive marketing.

The lean manufacturing paradigm is simple. Take a process. Focus on the intent of the process. Eliminate all parts of the process do not contribute to meeting the intent, all those that do not contribute to value. Then look at each remaining part and work continually to lower its cost, make it faster, and improve the quality of results. This focus on eliminating all wasteful effort, the fat that did not contribute to achieving the desired outcome, resulted in Toyota’s lean production system (Jordan and Michel, 2001).

Benefits from the introduction of the principles of Lean Company can be divided into a number of these groups: operational, administrative and strategic. (IFS White Paper – Lean Manufacturing)

Operational benefits:
• Reducing the use of space;
• Improved quality;
• Reduction of unfinished inventory;
• Increase productivity;
• Decreasing product cycle time.

![Lean Company elements diagram]

**Fig. 1.** Lean Company elements.

**Benefits office:**
- Reduction of paperwork in the office;
- Reduction of errors in processing orders;
- Reducing staff in promoting a higher number of orders;
- The implementation of labor standards.

**Strategic benefits:**
- Reduce the time required for implementation;
- Reducing costs;
- Improving quality;

### 3. PRINCIPLES OF LEAN MANUFACTURING

Among the current trends of modern enterprise management includes the use of such management techniques focus on maximum flexibility to the organization while minimizing wasted time and resources. In this context we are talking about so-called lean management or management "lean" organization, or the "downsizing". The decision of senior management, the company disposes of those activities that unduly burden the company and do not add significant value-added final products (services), and thus the customers of the company.
Lean management is sometimes referred to as a revolution in production management. In its application should not be forgotten, of course, that was developed in the automotive industry in Japan and applied in western countries, namely in an environment very different from our emerging economy. However, the principles of lean management can be inspiration for solving many problems in the management of production management of many of our businesses as quickly as possible to deal with.

The concept of lean production represents a comprehensive system of effective methods gathered into a single philosophy (Wolf and Machula, 2011).

The conception of lean company can be characterized by the following 5 basic principles: value identification, mapping the value chain, creation of the flow, creation of the move and finally permanent improvement.

![Diagram of Lean Company Principles]

**Fig. 2.** The basic concept of lean companies.

**4. MODEL OF LEAN MANUFACTURING**

We should describe Lean Manufacturing model in many ways. Very often are used schemes, structures etc. Our model of Lean Manufacturing will be based on combination of tools and metrics.

**4.1. Lean Manufacturing Tools**

We can define some of tools, which are used to implement lean manufacturing in enterprises.

Standard Lean Manufacturing Tools:

- Kaizen and continuous improvement of its tools,
- Six Sigma principles,
- preventing the emergence of defects in systems and FMEA Poka Yoke,
- productive maintenance TPM
Systems for production planning and control - Kanban, JIT, etc.

The aim of the tools of Lean Manufacturing is to reduce waste and eliminate all activities that brings added value to the product, customer or the company itself.

4.2. Metrics

This section is about metrics for Lean Manufacturing measurement. At first we mention generally lean metrics, then metrics for Lean Manufacturing in the best companies in the world.

Lean metrics allow companies to measure, evaluate, and respond to their performance in a balanced way, without sacrificing the quality to meet quantify objectives, or increasing inventory levels to achieve machine efficiencies. The type of the lean metric depends on the organization and can be of the following categories: financial performance, behavioral performance, and core process performance (Wang, 2010).

If we want to improve any process, it is necessary to define indicators of the metrics that we monitor and evaluate. We can only improve those processes that can be measured. How can we define metrics for Lean Manufacturing? Very often is used benchmarking with “World-Class companies”. We can define values that can be achieved for manufacturing.

The goal of Lean Manufacturing is the creation of "World Class" level of manufacturing operations metrics. The following chart shows typical world class manufacturing metrics (http://www.continental-design.com/lean-manufacturing):

Table 1. "World Class" level of manufacturing operations metrics

<table>
<thead>
<tr>
<th>Measure</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing Lead Time</td>
<td>&lt;1 day</td>
</tr>
<tr>
<td>Delivered Quality</td>
<td>3 PPM</td>
</tr>
<tr>
<td>Delivery Performance</td>
<td>99+ %</td>
</tr>
<tr>
<td>Inventory Turns</td>
<td>&gt;50</td>
</tr>
<tr>
<td>Conversion Costs</td>
<td>25-40% less than mass producers</td>
</tr>
<tr>
<td>Manufacturing Space</td>
<td>35-50% less than mass producers</td>
</tr>
<tr>
<td>New Product Development</td>
<td>&lt;6 months</td>
</tr>
<tr>
<td>Skill Trades Response</td>
<td>&lt;2 minutes</td>
</tr>
<tr>
<td>Production Skilled Trades Ratio</td>
<td>&gt;20:1</td>
</tr>
<tr>
<td>Changeover Time</td>
<td>&lt;TAKT Time</td>
</tr>
</tbody>
</table>

Next examples of metrics for Lean Manufacturing

OEE - Overall Equipment Effectiveness

The TPM is involved in production workers, maintenance workers and engineers. Level of implementation of TPM in the company can be determined using OEE (Overall Equipment
Effectiveness). It defines using of production equipment. Average percentage of OEE in manufacturing plants is about 60%, while the world-class companies have OEE about 85%.

OEE advantage is that this indicator reflects both the total available time machine, so its actual speed and the quality level of production.

Productive use of employees

The most common types of waste are: unnecessary movements, searching tools, materials and information, waiting time, non-working hours. Indicator of this type of waste is the percentage of activities that add value. Ideal and affordable value of productive use of employees is about 70% and more.

The proportion of wasting time on continuous production (VA index)

The most common value of waste for this indicators are especially: stocks, waiting in warehouses, large doses, disturbances, missing components, inefficient supply. The aim is to reach about 70%.

4.3. Key elements of the Lean Manufacturing model

Our model of Lean Manufacturing consists from standard Lean Manufacturing tools and metrics. Both were discussed in previous chapter. We used some of them. Others metrics and tools will be also added. Basic model will be created with a view to its possible use in a knowledge-based expert system. We will need to create rules that are based on the following table, which includes questions to introduce Lean Manufacturing. Model will work with weights that express the uncertainty in the knowledge base. Each attribute may have values of weighting function in the interval <-3;3 >.

Table 2. Key elements of the Lean Company manufacturing.

<table>
<thead>
<tr>
<th>Name of Elements</th>
<th>Weight &lt;-3;3&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Productive Maintenance</td>
<td></td>
</tr>
<tr>
<td>5S Methodology</td>
<td></td>
</tr>
<tr>
<td>Visual Management</td>
<td></td>
</tr>
<tr>
<td>Systematic shortening time resetting device</td>
<td></td>
</tr>
<tr>
<td>Teamwork</td>
<td></td>
</tr>
<tr>
<td>Production in small doses</td>
<td></td>
</tr>
<tr>
<td>The program for the identification and elimination of waste in a buffer</td>
<td></td>
</tr>
<tr>
<td>Product development with a view to eliminating waste in manufacturing and logistics</td>
<td></td>
</tr>
<tr>
<td>Cooperation technical preparation of production and manufacturing cost reduction</td>
<td></td>
</tr>
<tr>
<td>Standardization Process</td>
<td></td>
</tr>
<tr>
<td>Self control quality at source, removing the causes of poor quality compromise</td>
<td></td>
</tr>
<tr>
<td>Pull production control</td>
<td></td>
</tr>
<tr>
<td>Manufacturing cells</td>
<td></td>
</tr>
</tbody>
</table>

From the above table we will use key elements relating to lean manufacturing. We will also use the following criteria, which are again relates to production processes:
What is the productivity of manufacturing area?
What is the percentage of planned performance standards?
What are the values of the productive use of the facilities?

To further extend the knowledge base may use other criteria for lean and efficient production:

- compliance spoilage;
- logistics costs per unit of production;
- period of change in technology;
- period of replacement of machinery.

Now we will focus on creating a knowledge base that can be used in expert system. Knowledge base consists from attributes, statements and rules. First we define attributes. From attributes are then derived statements. Statements are used for creating rules.

As an essential attribute we define "Lean Company", which has the following final statements:

- Lean company (principles do not exist);
- Lean company (principles are introduced);
- Lean company (established principles).

At first, we define the attributes and derive the propositions from attributes. Then, there can be defined the rules, which are composed from the specified propositions. For each proposition, there will be allowed to enter the weight value from the interval [-3; 3]. If the proposition is irrelevant, then enter the weight value is zero or you can directly select the value of the word "irrelevant".

5. EXPERT SYSTEMS AND CREATING KNOWLEDGE BASE

The expert systems can be applied in many areas. This case study deals with using expert system for identifying lean manufacturing principles. The analysis of Lean Manufacturing principles and its measurement can be done in consultation with the experts, who deal with the problem of Lean Manufacturing. But faster and less expensive should be the alternative to use the expert system that is based on specific measurable parameters and capable on evaluating the level of Lean Manufacturing principles.

5.1. Building knowledge base in expert systems

In the previous section was set out basic criteria that we can use to create rules based on which the inference mechanism of an expert system by entering specific data to evaluate the degree of implementation of the principles of Lean Manufacturing.

First we usually enter the global parameters of the knowledge base. Important settings include specifying the range of weights, the threshold of a global context and condition. Range of weights is used for express uncertainty. We can divide uncertainty in the knowledge-based rules or level of confidence and uncertainty in the base data. It is possible in many expert systems to define a type inference mechanism (standard logic, neural network or hybrid). You can also add the name of the expert and knowledge engineer, including a description of the knowledge base.
Expert systems and its knowledge base are often based on rules. On the basis of defined attributes, and statements derived from them can we create rules that are used to represent knowledge in a knowledge-based expert system. IF-THEN rules are the most used for creating rules into knowledge base of expert system.

We can also use for some numeric attributes and its propositions methods of fuzzy logic intervals. It is not easy to clearly define sharp boundaries, which may indicate for example “Manufacturing area productivity” such as: low, average or excellent. Manufacturing area productivity: We define in knowledge base for example numeric attribute “Manufacturing area productivity” with these possible propositions: low, average and excellent.

5.2. Consultation (solving problems with expert system)

If we have created knowledge base so we can solve problems through consultation with expert system. It is a process whereby the expert system tries to establish the validity of the target hypotheses. It can begin immediately after starting the steering mechanism and ends when the expert system receives all the necessary information.

CONCLUSION

This paper is focuses on Lean Company and especially Lean Manufacturing. There are mentioned its principles and basic model. If we want to measure Lean Manufacturing so we have to define metrics for this measurement. We have defined basic model of Lean Manufacturing and mentioned some types of metrics for Lean Manufacturing. These metrics and basic model can be represented into knowledge base of expert system. We can use expert system shell, which is an empty expert system with tools for creating knowledge base. The main advantage of the shell is possibility to create our own knowledge base. We have defined the key Lean Company principles, the rules for the evaluation the Lean Company principles. Application of expert system for Lean Manufacturing measurement will be subject to further research.

ACKNOWLEDGEMENTS:

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REFERENCES


THE INFLUENCE OF ECONOMIC CRISIS ON WELFARE IN THE BALTIC STATES

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Abstract

The main purpose of this study is to analyse the Baltic States welfare similarities and differences in conditions of economic crisis. The 2008-2010 international economic and financial crisis have long-term consequences for growth and employment in the Baltic States and in the EU overall. It has been influencing social welfare and social protection.

Key words: welfare, crisis, poverty, at-risk-of-poverty rates, employment, unemployment, jobless, social policy

1. INTRODUCTION

Well-being or welfare is the overall state of happiness and safety, which in the European cultural tradition is regarded as based on health, comfortable living conditions, individual freedom, well-paid work, safe working conditions and unemployed security. In economics, well-being is understood primarily as material welfare, in terms of current and potential consumption. An important dimension of well-being concerns social equality.

In reality, welfare states are built on combinations of certain choices and represent different degrees of government intervention. In the Anglo-American model of welfare, markets play an important role and governments have significant regulatory power. In the welfare model adopted in Continental Europe, important social functions are performed by governments, but also by businesses and families. A modern state-centred approach is represented in Scandinavian welfare model. The Baltic States - the Estonian, the Latvian and the Lithuanian - welfare model, are gradually taking shape. Twenty years ago the idea of restoring the independence of the three Baltic States – Estonia, Latvia and Lithuania - was still considered a risky political project. Accession to the European Union and European social standards have had a considerable impact on the social choices in the Baltic States.

The crisis in global financial markets which started to grow in autumn 2008 has led to the most severe recession since the Second World War. This has been affecting the wider economy and increasingly impacting on labour markets in the EU. After many years of relatively high growth and job creation (9.7 million new jobs alone between 2005 and 2008) –taking Europe back to employment levels not seen for decades.

As unemployment continues to rise, it has remarkable social impact on the Baltic States - Estonia, Latvia and Lithuania.
2. WELFARE AND POVERTY

Several studies and articles stress that poverty and social exclusion take complex and multi-dimensional forms. They relate to income and living standards, access to good quality health services, educational and work opportunities.

There are hundreds of somewhat different definitions of poverty available in international scientific works. Probably the most common definition of poverty is based on the need of and dissatisfaction with basic needs, which relate to both limited material resources and standard of life lower than generally approved in the society.

Poverty as social phenomenon is also characterised by lower level of security and greater social risks. Poverty describes the position of the poor in society and thus the people in the lowest strata of socio-economic hierarchy can be deemed as living in poverty, irrespective of their income or satisfaction of their needs (Poverty in Estonia, 2010: 22).

Permanent deprivation is also an important risk factor of social exclusion and poverty can be treated as insufficient social network that prevents the poor from normal participation in social life. The problem of poverty affects not only person living in poverty, but also other people and the entire society.

The meaning of poverty is entirely different in developed welfare states. In general, the poor living in the Member States of EU do not suffer from starvation and they usually have a place where to live, as well a basic opportunities for consumption and participation in society.

Subject to the above mentioned reasons, the year 2010 in the EU has been designated as the European Year for Combating Poverty and Social Exclusion.

The 2008-2009 international economic and financial crisis may have long-term consequences for growth and employment in the EU. The European Year against poverty should therefore have a crucial impact in rising awareness of social exclusion and promoting active inclusion, as no country can escape the consequences of this global crisis (Poverty in Estonia, 2010: 23).

The strategic framework document of European Commission (in 2008) about the objectives:

- to recognise the rights and abilities of people in situation of social exclusion play a full part in society;
- to emphasize individual responsibility of each member of society in the fight against poverty;
- to promote social cohesion and disseminate best practices of social inclusion;
- to strengthen the commitment of every main political player to implement more effective measures (Poverty in Estonia, 2010: 23).

Main conceptual dilemma in poverty studies consists in the issue of the absolute or relative nature of poverty. Historically, the concept of absolute poverty came first. In modern studies on poverty the concept of absolute poverty is applied mostly, when analysing the socio-economic situation in developing countries. This allows finding out the social groups living in the greatest need. In the context of developed welfare states, the general discussion of poverty is relatively well-associated with the concept of social exclusion.

As the society develops, poverty becomes complex multidimensional phenomenon, which integrates various social problems.
3. POVERTY AND THE CRISIS IN PUBLIC PERCEPTION

According to Eurobarometer 67, fieldwork April-May 2007, the most EU citizen are satisfied with the life that they lead (80%), although this picture is lower from autumn 2006 (-2 percentage points). Expectations for the next twelve months showed, that respondents in the Baltic States are among most optimistic: a third of them expect an improvement in their job situation (33% of Lithuanians, 32% of Estonians and 30% of Latvians), while a quarter of Hungarians are pessimistic (23% expect their job situation to get worse over the next year).

It is interesting to bring out that those polled in the Baltic countries were as optimistic about their long-term future as they were about short term future: 61% of Estonians, 58% of Latvians and 52% of Lithuanians expected their personal situation to improve in the period up to 2012.

According to a Flash Eurobarometer conducted in early July 2009 for the European Commission, citizens’ perceptions were that the economic situation crisis has had a serious impact on their lives. Overall, about one fifth of Europeans said that their households were facing financial difficulties and similar percentage said that, on occasion, they had no money to settle ordinary bills or to buy in the last 12 months. A majority of Latvians (56%) respondents had noted it had become to bear the costs of general health care for themselves and their family. A quarter of EU citizens expected the situation to get worse in the coming year, while just over half foresee no change and about one in six taught that things will improve.

Another Eurobarometer survey, carried out in September 2009, showed different aspects of poverty and social exclusion in the context of the crisis. The survey examined, among other things, people awareness of the extent of poverty within the European Union, the perceived personal and societal reasons behind poverty. Also survey showed who is thought to be most at risk if people feel somehow threatened by the possible prospect of poverty, how poverty may prevent people from taking from full advantage of society.

EU citizens are strongly aware of the problem of poverty and social exclusion in today’s society: three out of four Europeans (73%) feel that poverty in their country is widespread. However, the extent to which poverty is seen as widespread differs greatly from country to country.

Flash Eurobarometer Monitoring “The social impact of the crisis” (Flash EB Nr. 288) gave information that a majority of EU citizen considered that poverty was rather widespread in their country: 30% estimated that one person in three was poor. The opinion that poverty had strongly increased during the 12 months prior to March 2010 was shared 73% of Latvians and 50% of Estonians and Lithuanians (EU average was 40%).

High unemployment (52%) and insufficient wages and salaries (49%) are the most widely perceived societal explanations for poverty, together with insufficient social benefits and pensions (29%) and the excessive cost of decent housing (26%).

Over half of Europeans (56%) believe that the unemployed are most at risk of poverty, while 41% believe that the elderly are most vulnerable, and 31% see those with a low level of education, training or skills as most at risk. Other social categories considered most vulnerable by Europeans are people in precarious employment, people with disabilities, and those suffering from some form of long-term illness. Respondents in the Baltic States were most pessimistic about their job situation in the future. At least 4 of 10 Estonians, Latvians and Lithuanians in employment were not confident that they would be able to keep their current job in the next 12 months (40%, 43% and 46%).
Close to nine out of ten Europeans (87%) believe that poverty hinders people’s chances of gaining access to decent housing. While eight out of ten feel that being poor limits access to higher education or adult learning, and 74% believe that it damages their chances of finding a job. A majority of Europeans (60%) believe that access to a decent basic school education is affected, and 54% believe that the ability to maintain a network of friends and acquaintances is limited by poverty.

The majority of Europeans do not report difficulties in gaining access to financial services; the picture of the most vulnerable is very different. 70% of the unemployed in the EU find it difficult to get a mortgage according to the survey results, as against 49% of the general population. A further 58% of unemployed people, compared with an EU average of 34%, have problems getting loans, and 47% find it difficult to get a credit card (the EU average is 27%) (Joint Report 2010: 21).

The Eurobarometer 74 (autumn 2010) has revealed significant shifts in European public opinion since the onset of the financial and economic crisis in 2008.

In November 2010, 48% of Europeans consider that not all the negative effects of the crisis have jet been felt, 42% think instead that the impact of the crisis on the job market has already reached its peak (in Estonia 58%, in Latvia 44% and in Lithuania 45%). Difference between autumn 2010 and spring 2010 is biggest in Lithuania (+11%) but in Estonia -1%.

More than a third of respondents (34%) in EU continue to consider that their current situation does not allow them to make any plans for the future and that they live “day by day”. In 8 of the 27 Member States, an absolute majority of respondents say that their current situation does not allow them to make any plans for the future and they live “day by day”. This is the case also in the Baltic States as Estonia 49%, Latvia 57% and Lithuania 54%.

Almost a third of population have a long-term perspective of their household situation over the next one or two years. As in the last two Eurobarometer surveys, respondents who have a long-term view of their household situation (over the next one or two years), tend to live mainly in Northern Europe. A majority of citizens of these Member States are also optimistic about emerging from the crisis.

On average, 89% of Europeans say that urgent action is needed by their national governments to tackle poverty. Across Europe, 53% feel that their national governments are primarily responsible for combating poverty. Even if Europeans do not regard the EU as primarily responsible for combating poverty, its role is nonetheless seen as important by many (28% see it very important, and 46% somewhat important) (Joint Report, 2010: 21).

4. WELFARE IN THE EU AND IN THE BALTIC STATES BEFORE THE CRISIS

Looking at the history of EU Member States, relative poverty risks increased in most Member States between the mid-1980s and in the mid-1990s and in most cases they either increased or remained stable between the mid-1990s and the mid -2000s ( Joint Report 2010 : 33, 37).

Not all Member States were in the same situation when hit by the crisis beginning in 2008. In particular, the size and structure of social protection varied greatly. Generally, richer countries spend a large share of their GDP on social protection, and periods of economic growth had allowed many governments in the EU to devote more resources to social policy intervention. The structure of social protection expenditure shows that old-age pensions and sickness and healthcare benefits represent the bulk of spending in all EU Member States, and have also been the areas where most reforms have taken place. Social protection plays a redistributive role over the life-cycle, insuring people against
social risks and helping reduce poverty. Social protection benefits in 2007 as a percentage of GDP in EU-27 were 26.2%. At the same time in Estonia 12.5%, in Latvia 11.0% and in Lithuania 14.3% compared to 26.1% in Sweden (Joint Report 2010: 188).

In 2007 the at-risk-of-poverty rate in Estonia increased to 19%, increasing one percentage point from 2006. In 2007, the at-risk-of-poverty rate was 18% for children and 33% for the elderly (Joint Report on Social Protection and Social Inclusion 2009).

Growth in itself was sufficient to tackle poverty and inequality in Latvia. Although the at-risk-of-poverty rate in 2007 improved slightly (at 21%) compared with 2006 (23%), it was still the highest in the EU (Joint Report on Social Protection and Social Inclusion 2009).

Compared to other Baltic countries, in Lithuania 2007, relative poverty level stood at 19%. Looking at the different age groups, the at-risk-of-poverty rate is higher for children (22%) and elderly women (37%) (Joint Report on Social Protection and Social Inclusion, 2009).

Moving forward in time, 2008, 17% of the EU population was at risk of poverty, living on less than 60% of the national median income. The aggregate figure hides marked differences across Member States, ranging from 9-12% in developed countries to 20-26% in Lithuania and Latvia.

However, being at risk of poverty relates to very different living standards across the EU, as illustrated by the large differences in the levels of poverty thresholds.

Even when corrected for differences in the cost of living, poverty thresholds are five times higher in the UK at top of the ranking after Luxembourg (which is clearly an outlier) than in two countries at the bottom (Romania and Bulgaria). At risk-of-poverty threshold for one-person household in 2008 in Estonia was 4652 PPS, in Latvia 4403 PPS and in Lithuania 4196 PPS, compared to 16505 PPS in Luxembourg and to 11609 PPS in United Kingdom (Joint Report 2010: 167).

Over the last decades a shift in poverty risks was observed from the elderly towards younger people. Child poverty remained stable or increased in many EU countries with some exceptions (CZ, EE, IE, LT, PL). Today, both children and the elderly face a risk of poverty of 20% and 19% against 17% for the overall population. Age patterns of poverty differ across countries (Joint Report 2010: 24).

The overall stability at EU level hides great diversity. When looking at the old Member States (EU-15) and the Member States who joined in 2004 (NMS10) separately, the data shows that in the EU-15 the elderly (65+) are at higher risk of poverty than both children and working age population (20% against respectively 18% and 15%). This relation remained stable over the period (Joint Report 2010: 25).

On the contrary, in the NMS10 they experienced much lower risks of poverty in 2005 than children and the working age population (8% against 25% and 17% respectively). This reflects partly the age orientation of social protection in these countries where pensions used to appear relatively generous compared to weak support to families with children. During the period, the relative situation of children and the elderly evolves rapidly, with the child at-risk-of-poverty rate dropping by 5 percentage points and the elderly risk of poverty rate increasing by 4 percentage points.

Large increases in the at-risk-of-poverty rate of the elderly have been observed in a number of Member States, especially in those that have experienced strong economic growth, accompanied by a strong increase in wages in the years before crisis.

The lack of finances brings along number of people who cannot afford to pay their rent, mortgage or utility bills, also cannot keep their home adequately warm, face unexpected expenses, do not eat meat or proteins regularly, cannot go on holidays, or cannot afford to buy television, a washing machine etc.
17% of Europeans live in these conditions. In Latvia more than 30% of people affected. These disparities in material deprivation rates reflect the large differences in GDP per capita that remain between EU countries. This emphasizes that the fight against poverty in the EU will benefit from a greater economic growth as well as from greater territorial cohesion within the EU (Joint Report 2010: 30.)

EU data show that social transfers other than pensions effectively reduce poverty risks. The degree to which they do so varies substantially across Member States (ranging from poverty reduction effect of 50% or more in some countries, to one of 17% or less in others). This largely reflects differences in expenditure, which varies from 12% to 30% of GDP. Also important role is obtained to the composition of expenditure, the quality of interventions, and, more broadly, the efficiency and effectiveness of social protection (Joint Report 2010: 31).

5. LABOUR MARKET SITUATION

The source for unemployment and employment rates is EU Labour Force Survey. Employment is essential for social participation and personal development. Due to the importance of employment four out of 18 Laeken indicators relate to employment.

Joblessness is one of the main causes of poor living standards and it is also in itself a central dimension of social exclusion. Long-term unemployment represents an important loss of income for the individuals concerned, who also tend to lose their skills and the self-esteem.

5.1. Employment and GDP

In 2007, GDP growth in Estonia remained high, reaching 6.3% (2006 10.4%, EU 2.9%). At the same time, inflation was almost twice as high as the EU average (EE 6.7%, EU 2.3%). Comparing Latvia, economic growth peaked at 11.9% in 2006 and slowed in mid-2007. GDP contracted by 2.3% in 2008. Inflation was 15.3% in 2008. The Lithuanian economy experienced a period of impressive growth in 2001-2007. In 2007 GDP grew by 8.9 %. In 2007 the employment rate reached to 64.9% (EU: 65.4%) (Joint Report on Social Protection and Social Inclusion 2009: 351).

The economic situation started to deteriorate in 2008, inflation reached doubles digits and the projected slowdown of GDP growth to -4% in 2009. That affected the labour market situation and the situation of the poorest groups in society (Joint Report on Social Protection and Social Inclusion 2009: 351).

In 2008, the EU economy clearly suffered from the global economic crisis in financial markets and which resulted in the EU having entered a recession by the end of the year (2008). During 2008, annual GDP growth was only 0.9% much lower than the 2.9% growth rate achieved in 2007. The economic crisis especially affected output in industry, construction and retail trade. By end -2008, 18 of the EU-27 had entered recession – also Estonia, Latvia and Lithuania (Employment in Europe 2009: 11).

In 2005, about 64% of the EU-25 population aged between 15 and 64 were employed. In Netherlands it was 73.2%, in Estonia 64.4%, in Latvia 63.3% and in Lithuania 62.6%. On the other hand, the employment rate remained below 60% in Italy, Hungary, Malta, Poland and Slovakia (Living conditions in Europe 2007: 132).

Employment continued to expand in the EU in 2008, the rate of growth decreased in the vast majority of Member States compared with 2007. The economic climate affected the labour market in 2008,
Employment growth in 2008 was rather limited in Estonia, less than 0.5%, while in Latvia - a country with one of the highest growth rates in the EU in previous years – employment growth dropped by almost three percentage points in 2008. Employment growth was negative also in Lithuania in 2008, previously Lithuania had been experiencing employment growth of 3% in 2007.

In the EU, the employment rate of the working age population (15 – 64) reached 65.9% in 2008 an increase of 0.5% compared with the preceding year 2007 (Employment in Europe 2009: 17, 19).

The decline in employment over the 2008 year has been particularly severe in the Baltic States (Estonia – 10.2%; Latvia -13.1%; and Lithuania -6.7%).

5.2. Employment growth doesn`t automatically lead to reduce of poverty

Significant progress has been made in raising employment rates across Europe, also improving the participation of older workers. Unemployment rates fell significantly in the EU (from 8.7% in 2000 to 7.1% in 2007) the increased participation of older workers, women as second earners has helped to improve the income of many households.

The experience of this decade has confirmed that having a job remains the best safeguard against poverty and exclusion. The poverty risk for unemployed working age adults is more than five times higher than those in work (44% against 8%), and the inactive (other than retired) face a risk-of-poverty that is three times higher than that of the employed (27% against 8%).

However, having a job is not always a guarantee against the risk of poverty. The working people considered as poor, represent one third of the working age adults at risk of poverty. In 2008, 8% of the people in employment were living under the poverty threshold. This figure has not improved since 2005. In-work poverty is linked to employment conditions such as low pay, low skills, precarious employment or under employment.

In addition, evidence shows that workers working part-time or on temporary contracts are generally paid less per hour after controlling for differences in education and experience, and for many, these jobs are not stepping stones towards better job.

The last decade has also seen the persistence of groups of people who remain outside or on the margins of the labour market, often facing multiple barriers to entry (including low skills, care responsibilities, age, migrant background, disability and other discriminatory factors, etc.).

National experiences from past crisis show that long-term unemployment or inactivity tend to persist long after recovery has set in. In some countries, increasing number of people are moving onto long-term sickness and disability benefits or early retirement schemes. Of these people, many are likely never to enter or return to the labour market (Joint Report 2010: 33).

5.3. Unemployment and poverty

The ratio of the unemployed to the long-term unemployed provides a measure of labour market flexibility. These figures also reflect the different policies in the Member States.
Long-term unemployment rate is one of the main concerns of the governments and social planners. The long-term unemployment rate, i.e. the percentage of the EU-25 population without a job for more than 12 months stood at 3.9% in 2000 (Living conditions in Europe 2007: 81).

In the Baltic States the long-term unemployment rate increased in 1998-2000 and decreased in 2001-2003. The decrease of unemployment continued also in 2004, but the long-term unemployment rate increased though. In Estonia the long-term unemployment rate increased from 4.6% in 2003 to 5% in 2004. In 2004, the long-term unemployment rate increased only among men (from 4.8% to 5.6%), among women it remained the same (4.4%) (Labour Markets 2005: 44).

In 2004 in EU, long-term unemployment affected 4.1% of the active population, on average more women than men, at 4.7% and 3.1% respectively. The differences between Member States are considerable. Long-term unemployment rates are below in Sweden, but exceed 5% in Lithuania and 10% in Poland. In Sweden, Finland and Estonia –are long-term unemployment rates higher for men than for women.

Long-term unemployment rate in EU-25 in 2004 was 3.9%, in Estonia 4.2%, in Latvia 4.1%, in Lithuania 4.3% (Europe in Figures, 2007: 142).

Unemployment rate at EU level remained almost stable for 2008 compared with 2007, different developments could be observed across individual Member States. The unemployment rate for the EU averaged was 7.0% in 2008. If we look the three Baltic countries separately, it can be seen that with higher-than-average unemployment rate 2008 was in Latvia (7.5%), previously 2007 it was 6.0%. Situation for Lithuania was 5.8% (2008); 4.3% 2007 and Estonia 5.5% (2008); 4.7% 2007.

Unemployment rates started to rise in the first half of 2007 in Hungary, Ireland, Italy and Spain followed by Estonia, Latvia, Lithuania and Luxembourg later in 2007. All other Member States saw rates bottom out at the same time or later than the EU average. The increase in unemployment has been precipitous in certain member States – unemployment rates have almost tripled in the Baltic States. The most substantial rises in 2009 compared with August 2008 were in the Baltic States (of the order of around 9-11 percentage points). By mid-2009 the unemployment rate was highest in Latvia (18.3%) and in Estonia, in Lithuania rates around 11-14% (Employment in Europe 2009: 117).

However, even if labour markets have proven to be more resilient, the European Union (EU is still expected to lose some 8.5 million jobs over 2009-2010, with unemployment potentially reaching around 11% by 2010.)

Although the picture varies across Member States, the crisis is expected to have significant consequences for all of their labour markets. At the same time, the crisis appears to be affecting some groups of workers deeper than others.

The population subgroups that have so far been most affected by the rise in unemployment have been young people, the low-skilled, migrants and men rather than women (Employment in Europe 2000 : 44-45).

6. CRISIS AND SOCIAL PROTECTION

Currently, pension systems have significantly reduced poverty among older people, because the risk of poverty is higher for older people than for the general population. On average, people, aged 65+ have an income which is around 83% of the income that younger people have, ranging from 54% in Latvia
to more than 100% in Hungary. Single elderly women still face a much higher risk of poverty than single men (Joint Report 2010: 36).

Given the current economic downturn and increasing unemployment, protecting the pension entitlements of future pensioners during periods of unemployment is also an emerging feature in most pension systems across the EU. The risk of unemployment is well covered by public pension systems in many Member States.

Spending on health and long-term care represents a significant share of GDP and is on a secular rise. There is a growing share of GDP spent on healthcare. Member States are in very different position to face these challenges. In fact, there are substantial differences in health outcomes and health expenditure across the EU, with those reporting lower life expectancy (the Baltic States, Bulgaria, Romania). In many of these countries, out-of-pocket expenditure is a large part of total expenditure by EU standards), making health care more difficult to access for those who need it more (Joint Report 2010: 41).

The current crisis can place an additional economic constraint in countries where the health and social care sector is already under-resourced, social protection expenditure (as percentage of GDP) is low and the financial situation of households is poor (the Baltic States, Romania, Bulgaria) or in countries which have just recently faced macroeconomic stabilisation programme and where the financial situation of households is reduced (Hungary).

The impact of the economic crisis was felt strongly in some new Member States (Estonia, Latvia, Lithuania, Romania, Bulgaria), as well as in older and richer ones. However, health care sectors in the new Member States are more vulnerable to economic crisis, because the total health expenditure as a proportion of GDP is low (5% in Estonia, 5.5% in Romania, 5.9% in Lithuania, 6.4% in Latvia as compared to 8.4% in United Kingdom. The out-of-pocket payments as a proportion of the total health expenditure are high (38.6% in Latvia, 32.2% in Lithuania, 20.5% in Estonia as compared to 11.9% in UK).

Therefore, the role of private funding in adjusting for public health funding deficits remains a particular concern especially in the newer Member States, as several of them have increased the amount of out-of-pocket payments.

The current economic and financial crisis makes more evident and urgent the need to improve the effectiveness and efficiency of health care. The crisis may impact the health sector negatively on both the demand and supply side.

There are large and wide health inequalities between and within Member States (e.g. a 14-year gap in life expectancy at birth for men and 8 –year gap for women between Member States and differences of 10 years for men and 6 years for women in life expectancy at birth between the lowest and highest socio-economic groups) (Joint Report 2010: 89).

Fluctuations in the unemployment rate are more closely associated with short-time changes in health than any other economic indicator. A study has shown that every 1% rise in unemployment rates is associated with a 0.79% rise in suicides of those aged 65 and less and a 0.79% rise in homicides. The unemployment rate is also found to be a significant risk factor for morbidity and mental health. The negative effect of unemployment is stronger in countries with a weak level of social protection and unequal income distribution.

Very important are disease prevention activities. However, expenditures on health and disease prevention are still a minor part of total health expenditure (in Estonia in 2004 1.51%, in 2005 1.83%
and in 2006 1.94%). In Latvia situation was not good - in 2005 0.24%. In Lithuania situation was similar to Estonia (Joint Report 2010: 116).

There are significant weaknesses and gaps in social safety nets in some countries. Mapping the at-risk-of-poverty rate of the total population against total social protection expenditure as a percentage of GDP gives a first indicator of the importance of social security expenditure in reducing social vulnerability, and also the efficiency of social protection systems in reducing poverty. The report on Jobs, Growth and Social Protection was adopted by the Social Protection Committee (SPC) on 14 September 2009:

However, social protection is not enough to limit or prevent poverty and exclusion. Having a job remains the best safeguard against poverty and exclusion, thus confirming and important stance of the Lisbon Strategy. This report clearly shows that the virtuous circle of participation in employment and living out of poverty has not always functioned in the last decade. Serious obstacles still face the most vulnerable groups, such as low-skilled, lone-parent families, or migrants (Joint Report 2010: 46).

CONCLUSIONS AND GOVERNANCE

Well-being or welfare is the overall state of happiness and safety, which in the European cultural tradition is regarded as based on sound health, comfortable living conditions, individual freedom, well-paid work, safe working conditions and unemployed security. In economics, well-being is understood primarily as material welfare, in terms of current and potential consumption. An important dimension of well-being concerns social equality.

The Baltic States and the Estonian welfare model are gradually taking shape. Accession to the European Union and European social standards have had a considerable impact on the social choices in the Baltic States.

The unprecedented crisis in global financial markets which gathered pace in autumn 2008 has led to the most severe recession since the Second World War, affecting the wider economy and increasingly impacting on labour markets in the EU. After many ears of relatively high growth and job creation (9.7 million new jobs alone between 2005 and 2008) –taking Europe back to employment levels not seen for decades. The 2008-2009 international economic and financial crises may have long-term consequences for growth and employment in the EU.

Several studies and articles stress that poverty and social exclusion take complex and multi-dimensional forms. They relate to income and living standards, access to good quality health services, educational and work opportunities.

EU citizens are strongly aware of the problem of poverty and social exclusion in today’s society: three out of four Europeans (73%) feel that poverty in their country is widespread. However, the extent to which poverty is seen as widespread differs greatly from country to country.

Flash Eurobarometer Monitoring “The social impact of the crisis” (Flash EB Nr. 288) informed that a majority of EU citizen considered that poverty was rather widespread in their country: 30% of respondents estimated that one person in three was poor. The opinion that poverty had strongly increased during the 12 months prior to March 2010 was shared 73% of Latvians and 50% of Estonians and Lithuanians ( EU average was 40%).

In November 2010 48% of Europeans consider that not all the negative effects of the crisis have jet been felt, 42% think instead that the impact of the crisis on the job market has already reached its peak.
(in Estonia 58%, in Latvia 44% and in Lithuania 45%). Difference between autumn 2010 and spring 2010 is biggest in Lithuania (+11%) but in Estonia -1%.

Not all Member States were in the same situation when hit by the crisis. In particular, the size and structure of social protection varied greatly. Generally, richer countries spend a large share of their GDP on social protection, and periods of economic growth had allowed many governments in the EU to devote more resources to social policy intervention. Social protection plays a redistributive role over the life-cycle, insuring people against social risks and helping reduce poverty. Social protection benefits in 2007 as a percentage of GDP in EU-27 were 26.2%. At the same time in Estonia 12.5%, in Latvia 11.0% and in Lithuania 14.3% compared to 26.1% in Sweden.

In 2008, 17% of the EU population was at risk of poverty, living on less than 60% of the national median income. The aggregate figure hides marked differences across Member States, ranging from 9-12% in developed countries to 20-26% in Lithuania and Latvia.

By end-2008, over half of the EU Member States were either in recession or in the process of entering one: 18 of the EU-27 had entered recession – also Estonia, Latvia and Lithuania.

The deteriorating economic climate already affected the labour market in 2008, with employment growth in the EU declining to 1.0% compared with 1.8% in 2007. However, the slowdown in employment growth was less than pronounced than that in GDP.

Employment growth in 2008 was rather limited in Estonia, at less than 0.5%, while in Latvia – a country with one of the highest growth rates in the EU in previous years – employment growth dropped by almost three percentage points in 2008.

The experience of 2000-2007 decade has confirmed that having a job remains the best safeguard against poverty and exclusion, since the poverty risk faced by unemployed working age adults in more than five times higher than those in work (44% against 8%), and the inactive (other than retired) face a risk-of-poverty that is three times higher than that of the employed (27% against 8%).

However, having a job is not always a guarantee against the risk of poverty and the working poor represent one third of the working age adults at-risk-of-poverty. In 2008, 8% of the people in employment were living under the poverty threshold. This figure has not improved since 2005. In – work poverty is linked to employment conditions such as low pay, low skills, precarious employment or under employment.

Underlying the EU average are contrasting developments across individual Member states, both in terms of the onset of the rise in unemployment and its severity. Hungary, Ireland, Italy and Spain were the first Member States where unemployment rates started rise, as early in the first half of 2007, followed by Estonia, Latvia, Lithuania and Luxembourg later in 2007. All other Member States saw rates bottom out at the same time or later than the EU average. The increase in unemployment has been precipitous in certain member States – unemployment rates have roughly doubled over the 2008 in Ireland and Spain, and tripled in the Baltic States. The most substantial rises in 2009 compared with August 2008 were in the Baltic States (of the order of around 9-11 percentage points).

The current crisis can place an additional economic constraint in countries where the health and social care sector is already under-resourced, social protection expenditures (percentage of GDP) is low and the financial situation of households is poor (the Baltic States, Romania, Bulgaria) or in countries which have just recently faced macroeconomic stabilisation programme and where the financial situation of households is reduced (Hungary).
The impact of the economic crisis was felt strongly in some new Member States (Estonia, Latvia, Lithuania, Romania, Bulgaria), as well as in older and richer ones. However, health care sectors in the new Member States are more vulnerable to economic crisis, because the total health expenditure as a proportion of GDP is low (5% in Estonia, 5.5% in Romania, 5.9% in Lithuania, 6.4% in Latvia as compared to 8.4% in United Kingdom. The out-of-pocket payments as a proportion of the total health expenditure are high (38.6% in Latvia, 32.2% in Lithuania, 20.5% in Estonia as compared to 11.9% in UK).

Fluctuations in the unemployment rate are more closely associated with short-time changes in health than any other economic indicator. A study has shown that every 1% rise in unemployment rates is associated with a 0.79% rise in suicides of those aged 65 and less and a 0.79% rise in homicides.

The crisis has emphasised the value of policy coordination under the Social OMC and provides a further incentive to exploit fully is potential.

In preparation for the EU strategy post-2010, the Social Protection Committee has established a Task Force (The Task Force Report- Growth Jobs and Social Progress), to review the experience of the last decade.

The start of the post-2010 strategy coincides with the European Year for combating poverty and social exclusion. Raising awareness, reinforcing partnerships between actors and reaching out to new actors will help to generate new impetus. The European Year 2010 should lead the EU and Member States to strongly reaffirm the commitment made ten years ago to make a decisive impact on the eradication of poverty and social exclusion.

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MONITORING OF THE PRIMARY HEALTH CARE ACTIVITIES

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Abstract

The study of activities of GPs, working in the primary health care is essential to clarify the organization and temporal balance of their work corresponding to the basic functions of general practice. This study aims to analyze the organization of activities / health information, diagnostic, medicative and preventive / of the doctor in general practice by measurement of time in daily operations. The aim is to optimize the time-budget in ambulatory activity and non-ambulatory activities of GPs to improve the organization, the quality of medical care and patient satisfaction from primary health care.

Key words: GP, primary health care, measurements of time, time budget

The study of the work of GPs in primary health care /PHC/ is essential to clarify the organization and temporal balance of their work to the basic functions of general practice. The GPs are at the entrance of the health care system, they are the patient's first contact to the physician. The GP has a primarily responsible for providing comprehensive health cares for everyone who wants them and is prepared to coordinate with other healthcare personnel when it is necessary. The need of knowledge in the field of management functions is an important feature in the work of GPs. Every holder of an individual or group practice must be able to organize, monitor, coordinate and motivate. The time management of GPs is an important point in managing the activities of doctors in PHC. In terms of major functions (health information, diagnostic, therapy and prophylactic) of GPs is essential to achieve the optimal balance to improve the organization of work.

The purpose of this study is to identify and analyze the organization of work / health information, diagnostic, therapy and preventive / of physicians in general practice by monitoring the activity of GPs.

The study interprets the results collected by time measurement observation.

The monitoring of GPs was held in February-March 2011, in three primary practices for outpatient care for two weeks. The length of the elements included in the structure of the activity of GP (by the continuous time measure) of 664 visits is measured. The duration of activities is presented in seconds.

The results as representative of this type of activity as there is no selection of the type of medical work.

The structure of the activities included in the review is as follows:

1. Time for preparatory work
2. Time for obtaining a history
3. During the review of the patient
4. Time for health information activities
5. Time for advice and prescription (explanation of the prescribed treatment and behavior)
6. Time for documents filing
7. Interruptions during the patient's stay in office
8. Time for other activities (phone calls, inquiries)

Results:
During the study the 664 patients passed during surgeries, of which:

For the primary review - 217 people;
For the second review (issuance of a document - the direction of a specialist field of laboratory tests, medical certificate, recipe NHIF hospital sheet) - 447 people.

The elements of the information collected into three types of activities (Annex 1):

1. Diagnostic and treatment activities - Range groups 1, 2, 3, 5.
2. Health information work - reflected in paragraph 4 of the structure of the activity.
3. Documentary business - represented by 6, 7, 8.

Data analysis shows the distribution of outpatient hours of the doctors in the three main groups of activities.

Diagnostic and therapy work occupies 38.31% of total ambulatory time in the practice of GPs. Time for documentary work is 54.58 percent - about 17% of time spent on remedial work. An essential element in the structure of ambulatory during the GP is health information activities include:

Introduce to patients the structure, organization and work schedule of the hospital;
meet the patients with the contents of promotive, preventive, prophylactic, diagnostic and treatment and rehabilitation package to the hospital;
Introduce to patients therights and obligations.

This is one of the activities included in the basic package of primary health care, which is determined by the Minister of Health and is guaranteed by the NHIF budget. For this activity observed practices of physicians devote 7.1% of operating time in outpatient. (Figure 1)

It is found that the time for direct personal contact with the patient the physician (coefficient of useful real time) in a primary health care is 38.31%. Obviously the ratio of useful real time is very low and need for action time management in outpatient care is particularly acute. For a more detailed analysis of work in dispensaries for primary medical care differentiated information gathered in two groups (defined by the type of review). The first group provides data for the primary examination and the second - the second review. Data are presented in the table below (Table 1).

Diagnostic and therapeutic activity comprises 65.98% from the time of the primary review and 23.74% of the time the secondary review. In the secondary examination time documentary activity increased by 42% compared to the primary review, leading to a reduction of working time with the patient (Fig. 2).
Fig. 1. The activity structure of GP

Table 1. Distribution of activities depending for the type of examination

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Primary examination</th>
<th>Secondary examination</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Diagnostic and therapeutic activity</td>
<td>Health information activity</td>
</tr>
<tr>
<td>number of examinations</td>
<td>217</td>
<td>217</td>
</tr>
<tr>
<td>average time in seconds</td>
<td>475.39</td>
<td>47.96</td>
</tr>
<tr>
<td>share in %</td>
<td>65.98</td>
<td>6.66</td>
</tr>
</tbody>
</table>
In the system of primary health care a significant part of the production potential of health workers is reserved for information at this time. This information is used primarily as operational control and not analyzed for purposes of managing health care. It is necessary to analyzed and evaluated this information to create the conditions for scientific management, which will ensure the effectiveness of health reform.

Important activity in the work of GPs is disease prevention, which according to the basic package of primary health care include:

To the patient and his family - preparing and supervising the implementation of family programs for:

- Prevention of infertility;
- Prevention of sexually transmitted diseases and AIDS;
- Prevention of unwanted pregnancy;
- Prevention of infectious diseases and infestations;
- Prevention of addictions;
- Prevention of individuals with malignancies of the reproductive system;
- Prevention of mental disorders.

For groups at increased health risk:

- Assessment of risk factors for health of the patient;
Assessment of the bad habits that lead to damage to health;
- risk assessments.

Activities in national health programs - funded from the budget of the Ministry of Health in accordance with relevant programs.

Prophylactic examinations under the Ordinance on prophylactic examination.

The monitoring of the activities of the three practices shows that from all 664 reviews only 49 were prophylactic. (Figure 3).

![Fig. 3. Distribution of visits by type](image_url)

This result shows how small share / only 8% / of prophylactic examinations in comparison with the other two types of surveys carried out in GPs surgeries. This may be due to several reasons:
- low health culture of patients
- lack of patient information on the method of conducting prophylactic examinations for GPs
- unwillingness or lack of time by patients sown your doctor for check-ups.

In terms of time spent by GPs for outpatient primary check-in observed three practices found that only 7% of time is spent on this activity, but most of their time GPs spend on secondary examinations - 65%. (Figure 4).
GPs need to study and analyze the specific features of the time as a resource, thus they will be able to effectively manage their time spent on different activities and to adequately control their work.

From the presented results we can draw the following conclusions:

1. There is a temporal imbalance in the basic functions of doctors working in PHC.
2. The documentary style of medical practice involves more time than the medical review.
3. The created database is not used effectively for analysis, necessary for the management of health.
4. GPs need to study and analyze the specific features of time as a resource to effectively manage it in their business.

Annex 1. Structure of the ambulatory activity of GP / share in% /

<table>
<thead>
<tr>
<th>№</th>
<th>activity</th>
<th>total time</th>
<th>primary examination</th>
<th>secondary examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Time for preparatory work</td>
<td>7.81</td>
<td>7.38</td>
<td>8.04</td>
</tr>
<tr>
<td>2</td>
<td>Time for obtaining a history</td>
<td>9.88</td>
<td>15.93</td>
<td>6.70</td>
</tr>
<tr>
<td>3</td>
<td>During the review of the patient</td>
<td>12.97</td>
<td>22.91</td>
<td>7.74</td>
</tr>
<tr>
<td>4</td>
<td>Time for health information activities</td>
<td>7.1</td>
<td>6.66</td>
<td>7.34</td>
</tr>
<tr>
<td>5</td>
<td>Time tips and recipe</td>
<td>7.65</td>
<td>19.76</td>
<td>1.27</td>
</tr>
<tr>
<td>6</td>
<td>Time for filling in documents</td>
<td>53.93</td>
<td>27.06</td>
<td>68.07</td>
</tr>
<tr>
<td></td>
<td>Interruptions during the patient's stay in office</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----</td>
<td>---------------------------------------------------</td>
<td>--------</td>
<td>--------</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>0.34</td>
<td>0.15</td>
<td>0.44</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Time for other activities (phone calls, inquiries)</td>
<td>0.32</td>
<td>0.15</td>
<td>0.40</td>
</tr>
<tr>
<td></td>
<td>TOTAL:</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

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ABOUT THE POTENTIAL OF RURAL AREAS IN THE STRUGGLE REDUCE URBAN-RURAL GAP

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Abstract
Market economy practiced in the last two decades in Romania has increased the gap between the evolution of cities and villages. While most investments were directed, until recently, mainly to the few large urban centers of the country, the Romanian village is lagging behind. Agriculture being the main concern in rural areas, the Romanian inefficient agricultural system affects directly the prosperity of rural population. The Romanian rural environment offers many reasons to invest. A motivation would be provided by the land price, still lower than the city, which would favor the opening of some production facilities. Another target for investment in rural areas could be rural tourism, Romania having many authentic natural attractions to offer. While urban areas have evolved rapidly in recent years towards the life and civilization in the EU, the Romanian villages have remained last in modern Europe

Key words: educational development, macro-educational projects, compensatory education, educational disparities

1. INTRODUCTION
If the number of rural population has declined in recent years, this does not mean that people would have migrated from villages to cities, but that of the municipalities were called cities by a purely administrative decision.

The Romanian state should encourage, through fiscal and financial policies, the reorganization of agriculture on associative principles in medium and large farms.

Regarding the privatization in Romanian agriculture, this process would have needed more support from the rural population. The privatization program in agriculture has recovered property rights and has led to excessive land fragmentation, incompatible with the use of mechanized agricultural systems and dispersed farmers can not face the market economy demands and can not influence prices and may not benefit from technological advantages.

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2. ABOUT PRIVATIZATION IN ROMANIAN RURAL AREA

Because of the mentality of the rural population, which can hardly change, the positive effects of privatization are yet not seen. The current state of family farms is not favorable for obtaining advanced agricultural production both domestic and foreign markets, nor for providing a decent living for farmers.

"The apparition of agriculture about ten thousand years ago, is considered the first great economic revolution in human history. With it begins a new history, completely different from that which preceded it. Its spreading across the globe changed the relationship between man and nature. Through the invention of agriculture, man has begun to create necessary food products, increasing efficiency of the invested effort and reducing the chaos that marked his existence, there have emerged and have increased human settlements, cultivated land, domestic animals and, on this basis, a new way of life emerged."

In the field literature, some authors * say that the land reform of 1945, done by the communist regime has split some more the land property and the agrarian reform law implementation in March 1945 led to the expropriation of 1.909 million hectares of agricultural land, is causing important changes in the ownership structure. At that time the farms represented 92% of total holdings and had about 80% of the country's agricultural area.

Although, the agricultural reform has not achieved the stated purpose - that of appropriation of poor peasants and of those who fought in war and, and in a short period of time the collectivisation followed, a long and painful process of rural exodus.

The democratic regime installed in Romania after 1989 tried to solve in stages the problem of property transformation in agriculture.

In the first period of transition, the forced reorganization that took place in agriculture was carried out chaotically, worsening the economic efficiency indicators. Of those who received land back, one third were from urban areas, making it difficult or even impossible to practice agricultural activities. A reason for low agricultural production, the irrigation system has deteriorated and the methods applied in agriculture are not in line with the current requirements.

In many countries the public sectors’ expansion has proved ineffective. Numerous studies have shown that public enterprises are less efficient than private enterprises. * A study conducted in 1992 by the World Bank revealed a prosperity growth in 10 of 12 privatization studied cases. In 8 of the 12 cases the business productivity has increased after the privatization and in the remaining four cases it remained at the same level.

The main field of public reform in industrialized countries, the developing countries and those in transition, consists in tracking the capabilities and resources of the private sector and limiting the state intervention. The new division of tasks between the state and public and private sector and between different public institutions shall be guided by the principle of subsidiarity **. The state should intervene only if the measures adopted by the private sector produce negative effects, as in the case of natural monopolies or public goods.

After 1989, in a relatively short period, there were significant changes in ownership of Romanian land, socialist agricultural units have disappeared, their place was taken by new types of farms, farms, family associations, agricultural societies, changing the radical social and economic organization of agriculture for transiting to market economy. To transform the Romanian economy to market economy
was objectively necessary for privatization. Agriculture was the first branch of the national economy begins this process by applying the Land Law.

Currently, agriculture is facing a strong underemployment and land ownership consolidation and rejuvenation of agricultural labor are dependent on the ability of those currently working in agriculture to give up this activity. In addition, agriculture is characterized by partial occupation of the working time so that it appears necessary to pursue non-agricultural activities, alternative or additional to those already existing.

The need for a small public sector, specialized and effective, derives from two reasons: on the one hand favors accelerating privatization, and on the other hand allows the flourishing private sector newly created. Privatization should not be construed as a total withdrawal of the state, but the emergence of a broader field for the manifestation of the private sector.

Industrial privatization and reorganization had an impact on the population, in both urban and rural areas. Many of those who were fired were faced to the situation of no longer affording to live in towns and they were forced to go to villages where their parents or grandparents lived and had to give up their occupations and their lifestyle. And those who were already residing in rural areas have suffered when they lost their job during those transition years, their family income being considerably diminished.

For Romania, being in transition and going through economic reform, the dynamics of restructuring, regional, regional and local authorities is much higher. Re-restructuring programs have some features with the transition from an occupational type to another, from one branch to another (or others), the transition from a relatively specialized activity in multiple activities, from a more disparate activity concentrated in the territorial etc..

Even in 2011, Romanian villages and municipalities continue to feel the effects of industrialization policy of the old socialist system and policies of transition to market economy. Three decades of socialist industrialization have turned the youth of rural labor force employed in urban industries and the rural, peasant collectivisation turned unskilled labor.

Following the decollectivisation and the privatization there have been changes regarding the size of types and the forms of property. The major change consisted in to extend the restriction of private property and public and private property in the state. The private sector increased its share in agricultural production over 93%, but was insufficient for starting the privatization process and the consequent development of agriculture.

### Table 1 Total farms and farm area on size categories

<table>
<thead>
<tr>
<th>Size categories</th>
<th>Farms</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>number</td>
<td>%</td>
</tr>
<tr>
<td>&lt; 1 ha</td>
<td>2,169,257</td>
<td>50,46%</td>
</tr>
<tr>
<td>1 – 2 ha</td>
<td>897,891</td>
<td>20,88%</td>
</tr>
<tr>
<td>2 – 5 ha</td>
<td>952,395</td>
<td>22,15%</td>
</tr>
<tr>
<td>5 – 10 ha</td>
<td>218,880</td>
<td>5,09%</td>
</tr>
</tbody>
</table>
Analyzing the data presented in Tab. no. 1, we can see a great discrepancy between the number of holdings with less than 50 hectares, 14 100 farms or percentages - 0.33%, and the area they use - 48.8% of the total agricultural area. Holdings that do not hold more than 10 ha of agricultural land use 45.81%.

Operating this way with agricultural land, a part of agriculture could not register productivity gains and couldn’t emerge from a state of subsistence towards market relations.

Romanian agriculture crisis was caused by the failure of collectivist agriculture, determined by the policy against peasants and against economy of the former regime. The result of this policy was the reduced volume of investments, engaging in very low sale prices of vegetable and animal products. Romanian agriculture has evolved during the transition, like other countries in central and Eastern Europe after the fall of communism in these countries, centralized planning was abandoned, price control was abolished and most of the state firms entered the vast process of privatization.

"Agricultural reform is carried out according to the macroeconomic reform and privatization, pursuing: forming a new agricultural structure and food chains by restructuring the upstream and downstream industries, creating rural infrastructure, adapted to the new European orientation, the harmonious development of rural areas and environmental protection. The reform will produce profound changes in agriculture and in the agri-food sector as a whole, through privatization and consolidation of private structures, it will ensure the development basis of sustainable agriculture based on sustainable farming system and environmental protection, harmonious integration of this sector in the overall development of the country and into EU farm structures."

"Romania’s agriculture can not become again "a way of living," exclusively a family business, primarily producing for self-consumption. The reform in agriculture is meant to restructure, to focus and professionalize, to train farmers to become competitive in markets more and more competitive. The purpose of the reform is to increase prosperity and improve living standards of people by developing an efficient agri-food sector."

The growth of the population involved in agriculture is a specific feature of Romanian transition expressing low agricultural productivity and low activity diversification in poor rural areas. Evolution and structure of employment in rural areas are not the result of a development policy based on investment, but of labor migration from urban to rural.

The quality of rural life can be appreciated looking at income, expenses, self-consumption, housing, farm goods endowment. Poor peasant opening the market is demonstrated by the importance of agricultural products from own resources (self) - 54%.
Some of the observations made by the economist Virgil Madgearu six decades ago remain valid today, because even today the rural labor force is not used wholly and family income in many cases, regardless of their agricultural or extra-agricultural, is insufficient for ensuring a living.

"As it results from the prior observations, the character of agricultural economy is extensive. The agricultural overpopulation phenomenon is in part a corollary of this situation. The peasant labor force is insufficiently used, agricultural income does not cover all and farm consumption needs to be supplemented by auxiliary tenure. Even the entire income derived from peasant families, through agricultural and non-agricultural work, remains often under the nutritional limit, rural population is undernourished.

In these circumstances, it is normal to foresee that rural population pressure naturally would lead to culture intensification.

In this case, is it normal to expect that the phenomenon of relative agricultural overpopulation to disappear?

One thing is certain. The intensification of agricultural holdings, farm workers will be more fully utilized, which will contribute to reducing rural population pressure. »3

Despite the fact that there is a large area of fertile land and favorable climatic conditions, Romania is still a net importer of agricultural food products. The strong demand of urban markets is satisfied with increasingly more imports, while exports are increasingly limited to products with low added value.

2 Letitia Zahiu, Agricultural Management, Economica Publishing House, Bucharest, 1999, p. 31

3 Virgil Madgearu The Evolution of Romanian economy after the World War, Indepenta House, Bucharest, 1940, p. 5

To develop the rural economy and improving agricultural productivity is needed to increase the competitiveness of the primary sector and agro-food market in Romania, concomitant with accelerating development in rural areas through diversification of economic activities and exploitation of existing opportunities. To achieve this objective it is aimed: to increase agricultural productivity and forestry - combining direct measures to support investment of farms, fisheries and forestry, with investments for rural infrastructure development, including irrigation infrastructure, promoting a better integration of the food chain - by strengthening a network of quality control and certification of products, acting simultaneously on quality aspects, marketing and processing, diversification of income sources in rural areas - will be achieved by promoting cultural tourism in rural areas and specifically the agri-tourism, which will provide most employment opportunities.
Table 2 The dynamics of total consumption expenditures, for the main categories of farms

<table>
<thead>
<tr>
<th>Employees farms</th>
<th>Total farm income</th>
<th>1478.79</th>
<th>1681.81</th>
<th>2164</th>
<th>2268</th>
<th>2337</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total consumption expenditure</td>
<td>981.14</td>
<td>1132.17</td>
<td>1954</td>
<td>1994</td>
<td>2045</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Farmers households</th>
<th>Total farm income</th>
<th>988.04</th>
<th>1000.31</th>
<th>1739.56</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total consumption expenditure</td>
<td>577.00</td>
<td>658.18</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unemployed farms</th>
<th>Total farm income</th>
<th>758.08</th>
<th>828.00</th>
<th>1666.98</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total consumption expenditure</td>
<td>630.57</td>
<td>743.36</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pensioners farms</th>
<th>Total income farm</th>
<th>843.36</th>
<th>921.81</th>
<th>1821.20</th>
</tr>
</thead>
</table>

Source: INSSE, Bucharest, income and consumption, 2010

3. RURAL DEVELOPMENT AND REGIONAL DEVELOPMENT

Rural development, conceptually speaking, has multiple areas of coverage:

- Local rural development - which involves the development of villages and farms afferent to them;
- Regional Rural development - occurs at the level of regional interdependence relationships;
- Cross-border rural development - is based on multiple links between the border communities of different countries;
- Pan-European rural development, more frequently encountered in the rural areas in different parts of Europe.

Since agriculture is an activity with a high risk, the adverse effects should be diminished by its orientation towards new activities, in line with the economic interests of the rural population, for ensuring alternative income.

The international practice shows that the integration of farming into the market economy is an extremely difficult process, having a strong impact on the rural population. In this process, an important element of the rural economy is putting it on new principles.

The rural market as part of the global market, by the nature of its structure components, is involved in all the details of human activity. It is necessary to define an economic policy that contributes directly in increasing the intake of rural activities for developing the society and to reduce economic and social distortions facing mankind.
The economic policies promoted by most of world governments are considering, in the first place, the industrial development, neglecting the agricultural development and modernization. These types of growth require certain costs felt by the society under a double aspect: on the one hand, excessive urbanization leads to some large urban agglomerations with economic and social implications, and on the other hand, it generates considerable depopulations in some rural areas which also have adverse economic and social effects.

Agriculture as the main component of rural markets, both as a carrier of supply and demand don’t have a uniform activity in terms of its territorial opportunities. This way, the price mechanism, conceived as a unique, nationally applicable, comes in conflict with the real the pricing mechanism and creates problems in the rural market equilibrium.

It is necessary to connect the village to the development of the society, which involves the use of all levers of economic mechanisms to engage rural activities in a market economy.

The rural market, as a component goods and services market, was formed by the transition from subsistence agriculture to an agriculture-based on the principle - "to produce to sell and sell the produce", and rural markets presumes knowing specific location including:

- economic agricultural flows are created, in general, by family exploitations, which have reduced financial strength and are vulnerable in the competitive market;

- this market increasingly felt the impact of changes of traditions and customs of food products consumption.

Not even in the present, the agriculture is enjoying the attention of the national development economy strategy which ought to increase and upgrade production factors for increasing participation and competitive domestic food processing and agricultural exports.

Organic farming is a sector for which Romania has great developing opportunities, it is also an important tool in nature conservation and rural revitalization. Organic farming policy is provided by the Ministry of Agriculture, and the control and certification of organic products is ensured by inspection and certification bodies approved by the ministry, in accordance with Ministerial Order no. 65/2010.

The internal market for organic products is still forming and it represents a dynamic sector which had an upward evolution in recent years, both in the plant and livestock production sector. About 95% of organic products of plant origin (cereals, oil seeds, berries, herbs, honey) were exported to markets in Germany, Switzerland, Holland and Italy, where the demand for such products is growing.

The dynamic effects of EU membership, plus a solid and well-oriented regional policy, can generate positive results.

One of the priorities of regional policy is to make the living standards of the countries that have joined the EU since 2004 to reach the average level registered in the EU as soon as possible.

The differences between regions may have different causes. There might be persistent disadvantages such as geographical location, about more recent socio-economic changes or a combination of these factors. Often, the impact of these disadvantages is felt by social exclusion, poor education, high levels of unemployment and poor infrastructure. In some Member States, some of the gaps are due to their former centralized economic system.
Once these countries have joined, the EU has reorganized and restructured regional development expenditure. In 2007-2013, they will represent 36% of the EU budget, or about 350 billion Euros. Three objectives shall be considered: convergence, competitiveness and cooperation, grouped under the term "cohesion policy".

The attention is focused in particular on the Member States of Central and Eastern Europe, plus other regions with special needs from the EU countries. The 12 countries that have joined since 2004 will receive 51% of the total budget allocated to regional development policy for 2007-2013, although they represent less than one quarter of total EU population.

Funding comes from three sources, depending on the type of assistance and the beneficiary:

- European Regional Development Fund (ERDF) finances programs focusing on general infrastructure, innovation and investment. The money from ERDF is intended for poorest regions in the EU.
- The European Social Fund (ESF) funds training projects and other assistance programs in the field of employment and job creating.
- The Cohesion Fund finances projects that concern the environment, transport infrastructure and development of renewable energy sources. From this type of financing can only benefit the countries where the living standards are below 90% of the average EU level, meaning the 12 Member States which have joined the EU recently, plus Portugal and Greece.

6. CONCLUSIONS

Rural economy continues to rely exclusively on agriculture, non-agricultural activities have a low weight and is related to the exploitation of natural resources of the area.

Striking discrepancies between the two environments - urban and rural areas and some rural inherit inequality in serious social, perpetuate over time and turn the massive development and their cultural attitudes towards education.

The lack of infrastructure in rural area and extremely bureaucratic procedures for running a business are the most important obstacles for investment in rural area.

Romania, although it has a sufficiently large agricultural area, being one of the Europe’s agricultural backbones in the past, became a net importer of agricultural products.

The main problem we face in rural areas is the mentality, according to which the village represents subsistence economy and own consumption.

The poor infrastructure, the poor education or the lack of health services and the public utilities are the main problems identified regarding the gap between rural and urban areas.

Among the solutions for developing the rural area, we can mention: the simplification of tax legislation and providing incentives for SME development, attracting new teachers in rural areas.

In Romania, almost half the population lives in rural areas and over 30% of the workforce is active there. The European Foundation for the Improvement of Living and Working Conditions, 2010, 75% of rural households with the lowest incomes, were based on self-consumption, compared with the EU25 average which was 19%.
Although the Romanian village has potential, we can’t suggest to bring the villages to the cities level, but to reduce migration from rural to urban area.

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BUSINESS INTELLIGENCE ARCHITECTURE BASED ON MULTI-AGENT APPROACH

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Abstract

Business intelligence (BI) is a business management term used to describe applications and technologies which are used to gather, provide access to and analyze data and information about the organization, to help make better business decisions. The multi-agent approach provides a feasible solution for construction of the BI system. This paper firstly briefly introduces the traditional BI architecting principles and multi-agent approach. Secondly, a design of a BI system architecture is proposed, which is composed of the BI system framework, agent description and BI system workflow. This design allows effectively reducing the construction costs of BI systems and extending the applied scope of BI by minimizing the amount of data transfer and data storage. Using the predictive functionality of the proposal can be a significant competitive advantage of business units. The paper presents a new approach for BI architecture modeling, representing an extension over existing systems.

Key words: multi-agent, business intelligence, software agent, BI, architecture, MAS

1. INTRODUCTION

Business intelligence is a business management term used to describe the applications and technologies used to gather, provide access to and analyze data and information about an enterprise, in order to help them to gain more competitiveness. (Nicholls, 2006)

Business intelligence technologies include traditional data warehousing technologies such as the reporting, ad-hoc querying, online analytical processing (OLAP). More advanced business intelligence tools also include data-mining, predictive analysis using simulations, web services and advanced visualization capabilities. Traditionally, BI systems have been architected with focus on the back-end, which is usually powered by data warehousing technologies. Lately, architectures for business intelligence have evolved towards distributed multi-tier analytic applications. (Wu, Barash and Bartolini, 2011)

In this paper we describe the architecture of BI system based on the multi-agent approach. The existing approaches about construction of the BI system seriously hampered the popularization and development of BI because of the high construction costs. This work introduces multi-agent technology into the design of BI system to provide the prediction possibilities and effectively reduce the construction costs of BI system.

This paper is structured as follows. Section 2 briefly introduces the traditional BI architecting principles and the BI framework is explained in more detail. In section 3 is presented the multi-agent approach. In order to explain the use of mobile agents in our proposal the advantages of this type of
agents are declared. Section 4 presents the design of the BI architecture based on the multi-agent approach in detail.

2. BUSINESS INTELLIGENCE ARCHITECTING PRINCIPLES

As figure 1 shows, BI is a process that involves two primary activities: getting data in and getting data out. According to (Watson & Wixom, 2007) getting data in, traditionally referred to as data warehousing, includes moving data from a set of source systems (e.g. legacy systems, CRM, ERP and OLTP applications) into an integrated data warehouse. The source systems typically represent heterogeneous technical platforms and data structures. Sources can reside within the organization, be supplied by an external provider, or come from a business partner.

![Business Intelligence Framework](image)

**Fig. 1.** Business intelligence framework (source: own)

A data warehouse team extracts data from the source systems and transforms it so that it is meaningful for decision support. For example records from several systems can be matched and consolidated based on a customer identification number, or all currency fields can be converted into Euros. Sometimes the warehouse team creates new fields during data transformation, such as time period totals or customer value scores.

Getting data in is the most challenging aspect of BI, requiring about 80 percent of the time and effort and generating more than 50 percent of the unexpected project costs. The challenge stems from multiple causes, such as poor data quality in the source systems, politics around data ownership, and legacy technology.
The data warehouse team places the transformed data into a data store that is subject-oriented, integrated, time-variant, and non-volatile (Inmon, 2000). Depending on the architecture, the data warehouse may feed dependent data marts, which have a more narrow scope than a warehouse; marts focus on a particular functional area, geographic region, application, or organization division. Maintaining decision support data in a warehouse or marts that source their data from the warehouse ensures “a single version of the truth”.

Metadata plays a key role in data warehousing because of the complexity of the data migration process. Data warehouse teams and business users must understand many characteristics of the data to manipulate and use it effectively. Metadata is technical and business in nature; it describes field values, sizes, ranges, field definitions, data owners, latency, and transformation processes. Metadata provides transparency as data moves from sources to the warehouse to end users.

Getting data in delivers limited value to an enterprise; only when users and applications access the data and use it to make decisions does the organization realize the full value from its data warehouse. Thus, getting data out receives more attention from organizations. This second activity, which is commonly referred to as BI, consists of business users and applications accessing data from the data warehouse to perform enterprise reporting, OLAP, querying, and predictive analytics.

The principal objectives of business intelligence can be summed as follows:

- To provide a “single version of the truth” across an entire organization.
- To provide a simplified system implementation, deployment and administration.
- To deliver strategic, tactical and operational knowledge and actionable insight.

Because of the focus on information in business intelligence applications, the privileged point of view of the supporting architecture has to be the information view (Putman & Boehm, 2000). From this point of view, the most popular paradigms (Bussler, 2003; Ariyachandra & Watson, 2005; Ariyachandra & Watson, 2006) are:

- The hub-and-spoke architecture with centralized data warehouse and dependant data marts.
- The data-mart bus architecture with linked conformed dimensional data marts.
- Independent non-integrated data marts.

Figure 2 represents a typical layered vertical view of architecture for business intelligence. In today’s heterogeneous environments where many disparate systems and domains hold different parts of the necessary data, the most difficult challenges in achieving the above mentioned objectives are effective information delivery and technology integration.

Initially, BI reduces IT infrastructure costs by eliminating redundant data extraction processes and duplicate data housed in independent data marts across the enterprise. BI also saves time for data suppliers and users because of more efficient data delivery. As business users mature to performing analysis and prediction, the level of benefits become more global in scope and difficult to quantify.

We bring the advantages of multi-agent approach to above mentioned architecting principles to give a BI design which can reduce the construction costs of BI system and extend the applied scope of BI by minimizing the amount of data transfer and data storage. In next section will be the principles of multi-agent approach explained.
3. MULTI-AGENT APPROACH

Multi-agent system (MAS) is a dynamic system, composed of a number of mutually interacting active and autonomous components, called agents. The term agent is very widespread. It may indicate (Burian, 2010) the community, body or physical system (e.g. robot), which exists in the real world. In the context of multi-agent systems, however, the term generally refers to any relatively autonomous software application or only to a small part of it.

There are many sources, indicating the various definitions of an intelligent agent. For the purposes of this paper appears to be optimal the definition (Kubík, 2004) that the agent is an entity designed for the purpose to fulfill its objectives in an adequate environment. The functions of an agent are based on perception through sensors and actuators. Agent influences the conditions in the environment to achieve the objectives. Some sources (e.g. Wooldridge, 2009) depict the agent as a real or virtual object, placed in an environment, where it can act and perceive the environment. Agent is able to communicate with other agents. It has an autonomous behavior, which is based on its observations, knowledge and interactions with other agents.

Within this definition are listed some of the principles of an agent:

- **Location** – the agent must be located in some environment. Its specific behavior always depends on the environment. Behavior of other agents also depends on what each of them is performing in an environment.

- **Carnality** – the agents must be able to perceive and to affect their environment, including other agents. It must have something that creates its decisions.

- **Intelligence** – intelligence of an agent is the result of each conflict with the environment and appropriate responses.
Synergy – an agent affects other agents and reacts to their behavior. This principle is an explicit expression of one of the characteristics, of location.

Autonomy – an agent performs actions at its own discretion. This principle is an explicit expression of one of the characteristics, of carnality.

Emergency – a prerequisite for the emergence of this principle are all characteristics, listed above. The emergency concerns of the whole system. In coordination of the agents are emerging new system properties, which are not properties of individual agents. These properties, however, are based on the experience with similar systems and can be expected or even planned.

An important characteristic of an agent is the ability. The ability means the characteristic of an agent to perform a task. Agent may have the ability to answer questions, to provide information about its condition, to solve differential equations, to transfer goods with certain size and weight, to look for metal objects and to avoid obstacles etc. For the purposes of this article we abstract from one of the agents principle, from the physicality. We consider an intelligent agent in the form of interactive software component. Agent underlies the whole system. Its features decide not only on what role it can perform, but also how it can communicate and cooperate with other agents.

The interaction between agents is controlled by following rules set out in an interaction protocol. In this instance agents must be able to reach compromise, resolve conflicts, and allocate resources by agreement (Fasli, 2007). A negotiation situation is generally characterized by three elements; firstly a negotiation set is provided which can be used as a collection of possible offers that an agent can make. Secondly the specific protocol that is used controls the agent’s interaction and finally the strategies that have been defined for the agent to use; these are private and may take into account other agent strategies. A negotiation protocol is separated into admission rules, interaction rules, validity rules, outcome determination, withdrawal rules, termination, and commitment rules. Finally the chosen protocol is dependent on agent system itself, this includes the number of attributes that an agent is to have, the number of agents present and the number of goods. (Alshammri, 2009)

Agent architectures can be based on logic, reaction, belief-desire-intention, or hybrid. Logic-based agents utilize mathematical equations to model the surrounding environment and the rules with which makes its decisions. A disadvantage of logic-based agents is the difficulty with which to model the surrounding environment in a form that is suitable to allow the agent to perform the necessary reasoning, planning and action in time. Reactive architectures utilize a direct link to the environment by building the representation into the sensory capabilities of the agent. An advantage of using reactive agent architectures is that complexity is reduced due to the removal of an internal representation of the surrounding environment. However the planning capability of the agent is reduced as it requires large amounts of information to determine the current state. (Fazlollahi, 2004)

We know more types of intelligent agents (e.g. Wooldridge, 2009). Some of them are called stationary and mobile agents. Stationary agents exist as a single process on one host computer; mobile agents can pick up and move their code to a new host where they resume executing. Mobile agents are able to change platforms and environments; stationary agents are not. From a conceptual standpoint, such mobile agents can also be regarded as itinerant, dynamic, nomadic, wandering, roaming, or migrant. The rationale for mobility is the improved performance that can be achieved by moving the agent closer to the services available on the new host.

Some of the authors describe the attributes of stationary and mobile agents as follows (Odell, 2010). When a stationary agent requires processing on a different platform, it must employ the services of
another agent. Here, a communication (or request) conveys the intention to invoke a specific operation (via an RPC – Remote Procedure Call). The operation is then executed and the results (or reply) returned to the requesting agent. Using stationary agents, then, has the following advantages:

- Reduces the complexity required for mobility.
- Encourages specialization within platforms.
- Employs well-established protocols.
- Supports closed-environment philosophy.

Disadvantages:

- Results in performance problems in those situations requiring high volume or frequency.
- Results in processing inefficiencies because having many specialized agents create more work than having a single mobile agent.
- Reduces effectiveness when a connection is lost.

In contrast, mobile agents use the network to exchange information primarily by changing platforms and environments using the remote programming (RP) technique. When a mobile agent requires processing on a different platform, it physically relocates to the desired server. This requires that all structural and behavioral properties of the agent must be transferred during migration and that any environmental differences be changed or accommodated. The big issues here are how much time is required to prepare for migration, how much data is actually transferred, and the performance of the transfer communication. The advantages of mobile agents are that they:

- Reduce network load.
- Reduce network-related delay.
- Reduce resource usage of clients.
- Enable distributed problem solving.
- Support asynchronous, autonomous processing.
- Promote reconfigurable or customized services.
- Make active behaviour scenarios conceivable.
- Enhance decentralization options.

Disadvantages:

- Involve a number of security issues such as the identification and authentication of agents, protection from destructive agents, as well as the assurance of the agent’s willingness and ability to pay.
- Require transport/migration mechanisms be added to software environments - thus increasing their complexity.
- Have no industry standards for agent environments, migration approaches, or for measuring and billing resource consumption.
Have not yet been used in an environment containing a large number of mobile agents.

We design BI system architecture adopting the principles of MAS. Main tasks of BI process could be solved on the local using collaboration between intelligent agents at all stages of BI (e.g. data integration, OLAP, data mining and prediction). This access avoids a lot of data movement and storage.

4. BUSINESS INTELLIGENCE ARCHITECTURE AND OPERATION MECHANISM BASED ON AGENTS

In this section we propose BI system architecture based on the multi-agent technology. We based our research on the architecture presented in (Yong et all., 2010). We used the declared description of BI framework, core functions and operations and we extended this architecture with prediction possibilities.

Many tasks, for example metadata extraction, data query, analysis, mining, prediction etc., could be completed by agents as to reduce the cost of data movement and storage. The design consists of three elements, namely framework, agent descriptions and workflow of the system.

4.1. Framework of BI system

We divide (Figure 3) the BI system into three layers, namely user interface layer, agent layer and data layer (Rui, 2006). User interface layer achieves the standardization of user requests, the visualization of service results, and the intellectualization of service. Agent layer fulfills service demands (query, analysis, mining and prediction) from user interface layer. The main tasks of data layer are to provide data services to agent layer and to maintain local metadata.

4.2. Agent descriptions

In our design, there are eight agents, namely user agent, user management agent, task agent, OLAP agent, data mining agent, prediction agent, data management agent and data source agent.

- **User agent.** This agent is located in the user layer, created by user management agent when user logs and destroyed when user exits. The main function of user agent is to aid users to acquire BI services better. That includes: sending request to the request list, clarifying service request by interaction with user and displaying the results in the form of user’s preference.

- **User management agent.** This agent is located in the agent layer and mainly achieves the following function: managing the user agent, offering the query of sharing results, managing user profile base and sharing knowledge base, finishing certain tasks instead of user according to analyzing user’s historical behaviour record and carrying out some intelligent services (e.g. collaborative recommendation).

- **Task agent.** The main function of this agent is to assign the tasks based on the matchmaking between requests and services. That includes: assigning request to the corresponding service unit based on matchmaking between user’s requests and service items and managing request list and service list.

- **OLAP agent.** The main functions of this agent include: aggregating the relevant data in the form of multidimensional cube according to the user’s request, and providing the multidimensional data analysis function, such as slice, dice, rotation, drill-down, drill-up etc.
• **Data mining agent.** This agent mainly achieves the function of data mining. There are many types of data mining algorithms e.g. classification algorithms, clustering, regression, rule discovery algorithms etc. It executes the data mining tasks according to different strategies. It cooperates indirectly with the prediction agent through data bus. In accordance with the prediction agent (on the user’s request) it runs different algorithms. The result of the analysis uses prediction agent as a service providing to the user agent. The workflow of data mining tasks is as follows: Firstly, the data mining agent reads metadata from the metadata base to clarify the location of data resources. Then, it decomposes the mining request based on the metadata until each decomposed data mining sub-task can be completed at local data sources. Finally, the data mining algorithms which could finish the corresponding sub-tasks are executed and the results are returned to the data mining agent. Data mining algorithms are used so that only IDs of algorithms are sent to the data source agent and the data source agent calls the native code of corresponding algorithm. This can reduce the data flow on the network.

![Architecture of BI system (source: own)](image)

**Fig. 3. Architecture of BI system (source: own)**

• **Prediction agent.** This agent is located in the agent layer. It provides functionality to predict the business results to the user through the data bus in the agent layer. It cooperates indirectly
with the data mining agent. The results of the data mining analysis are used to simulate the business behaviour of the data resources owner. It uses many methods e.g. wavelet network, neural network, Box-Jenkins method, Mackey-glass time series etc. (Tamura et al., 2008). This feature can be a significant competitive advantage.

- **Data management agent.** The main functions of this agent are routine maintenance and implementation of the tasks. Routine maintenance achieves the monitoring of various data sources, integrating the metadata through the ontology mapping, summarizing the local metadata of various data sources, establishing the global metadata stored in the metadata base which provides the call for other service units and maintaining and updating the metadata base. Implementation of tasks receives assigned task about the data query, sends the task to the corresponding data source agent and integrates the results.

- **Data source agent.** This agent manages the various types of data resources. That includes structured, semi-structured data and unstructured data. It provides services to upper layers. The main functions of this agent are receiving the calls of the data query, to provide the data sets for query and analysis, the extraction and the mining to complete the corresponding task. It also establishes and maintains local metadata, and sends the local metadata to the data management agent.

4.3. BI system workflow

The proposed BI system based on the multi-agent approach runs according to the workflow as follows.

After users logging on the BI system user’s identity is verified. User management agent automatically creates a user agent for every user. The user agent is also responsible for the standardization of service requests and the visualization of results. User agent’s lifecycle ends when user exits the system. When a user requests the service, the user management agent receives the request message from the user agent and tries to retrieve the similar sharing knowledge from the history stored in the sharing knowledge base. If it exists, the user management agent returns the result to the user. This avoids the negative impact on the system performance when similar requests appear. Otherwise, the request is sent to the task agent for farther processing. At the same time, the user management agent can predict the service requests of the user according to the user’s history behaviour records stored in the user profile base.

Task agent puts the received service request into the request list, and then sequentially matches the description of the request in the request list with the record of service in the service list. Task agent sends the request to the corresponding agent according to the degree of matchmaking and the assignment strategies. Agents receive the service request sent by the task agent, complete the assigned tasks and directly return the result to the request initiator – to the user agent. The results are also stored in the sharing knowledge base.

5. CONCLUSIONS

This paper proposes the architecture of BI system based on the multi-agent approach. Presented architecture is described in three elements in detail, namely BI system framework, agent description and BI system workflow. The application of designed system can effectively reduce the construction costs of BI systems and extend the applied scope of BI by minimizing the amount of data transfer and data storage. Using the predictive functionality of the proposal can be a significant competitive advantage of business units.
The outline of the architecture can be seen as a basis for the further research especially in the specifying the algorithms used for prediction and in order to develop such implementation for the real existing companies.

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REFERENCES


E-COMMERCE SYSTEMS AND MULTI-AGENT TECHNOLOGY

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Abstract

Electronic commerce (e-commerce) has the potential to improve the competitiveness of the enterprises. E-commerce today is no longer technological issue, but is also a business issue. A decision support system (DSS), used in e-commerce, is an umbrella term used to describe any computer application that enhances the user’s ability to make decisions. E-commerce involves a number of forms, varying level of cost and complexity, depending on business need. This conceptual paper presents the architecture of an e-commerce application by integrating with multi-agent DSS for supporting e-commerce decisions.

Key words: multi-agent, e-commerce, software agent, DSS, architecture, Internet, MAS

1. INTRODUCTION

Nowadays, e-commerce is becoming so popular with the development of Internet that it has transformed the traditional ways of doing business face-to-face into signing a contract with a virtual enterprise on the basis of trust. It enables many businessmen and companies to do business at any place at any time, no matter what scale they have. (Hua, Meiqi, Lin and Zuqiang, 2004)

Agent technology is one of the most vibrant and fastest growing areas of information technology – new agent based products, applications, and services are being announced on an almost daily basis. The reason for this intense interest is that the metaphor of autonomous problem solving entities cooperating and coordinating to achieve their desired objectives is an intuitive and natural way of problem solving. Moreover, the conceptual apparatus of agent technology provides a powerful and useful set of computational structures and processes for designing and building complex software applications.

Relatively young technology of software agents combined with DSS tools can help decision makers to cope with problems of information overload. Through delegation of time-consuming decision-related tasks to software assistants, human decision makers can better concentrate on higher-level cognitive and analytical aspects of decision making.

This conceptual paper is in the first section trying to explain the concept of e-commerce. The core of this paper is the use of multi-agent approach in DSS to support e-commerce decisions. Features of multi-agent systems (MAS) are ideal to cover the functions of DSS components and thus also for use in e-commerce architectures. In the final section of this paper we will propose our architectural design of e-commerce system using the DSS, which is based on a multi-agent approach.
2. E-COMMERCE

E-commerce today means many things to different people. There exists a wide variety of e-commerce definitions and conceptualizations covering a plethora of issues, applications, and business models. Some view e-commerce as “doing business electronically” (e.g., EC, 1998). Such definition tends to be very generic and specify neither the network archetypes nor the business activities to be conducted electronically. (Zwass, 1996), for example, defines e-commerce as “the sharing of business information, maintaining business relationships and conducting business transactions by means of telecommunications networks”. Others (Applegate, 1999; Fellenstein & Wood, 2000) also support this view and consider e-commerce to include various processes within and outside the organization in addition to buying and selling activities.

According to (Velmurugan & Narayanasamy, 2008) e-commerce is defined as an attempt to increase transactional efficiency and effectiveness in all aspects of the design, production, marketing and sales of products or services for existing and developing marketplaces through the utilization of current and emerging electronic technologies. In the globalization era, understanding the adoption of information communication technology, including e-commerce by developing countries is becoming important to improve its adoption success. This, in turn, enables developed countries to trade with developing countries more efficiently.

E-commerce offers many potential benefits particularly in productivity gains and transaction cost reductions, mainly by enabling organizations to conduct business transactions electronically, facilitating efficient information sharing between organizations within and across industries and allowing automatic product identification. The rapid dissemination of information, the digitisation of record keeping and the networking capability of the Internet has improved flexibility and responsiveness and encouraged new and more efficient intermediaries. It has increased the use of outsourcing, expanded market access, reduced time to market by linking orders to production and improved internal coordination. Because of its potential in this era of globalisation, many countries have rapidly adopted e-commerce.

Generally and simply, e-commerce system can be defined as a web server linked by company’s information system. E-commerce system is about combining of several parts (Fig. 1.):

- customers,
- suppliers (sellers, dealers, producers, businessmen),
- web server,
- information system (ERP, CRM, database system),
- payment system,
- dispatch system,
- legislature.
E-commerce systems are developed to support business activities. Customers (buyers) have their own requirements and corporate managers have to find all the ways, methods and resources to meet their needs and requirements. Great emphasis must be placed on all management control systems and systems to support the decision-making processes. The deployment of e-commerce could be seen mainly in the CRM (Customer Relationship Management), SCM (Supply Chain Management), FRM (Financial Resource Management), HRM (Human Resource Management), MRP (Manufacturing Resource Planning) and CPM (Composite Product Mapping).

When implementing e-commerce system it is important to link new system with company’s information system. All changes in e-commerce system will be immediately performed into the information system to ensure the data consistency. Enterprise Resource Planning (ERP) is suitable for global operations as it encompasses all the domestic jargons, currency conversions, diverse accounting standards, and multilingual facilities. ERP software attempts to integrate business processes across departments onto a single enterprise-wide information system. The major benefits of ERP are improved coordination across functional departments and increased efficiencies of doing business.

Payment systems are often one of the problem areas of e-commerce. It can be seen especially in context of cross-border online shopping. There are numerous different payments systems available for online merchants. These include the traditional credit, debit and charge card but also new technologies such as digital-wallets, e-cash, mobile payment, e-checks, cash on delivery. To support of the cross-border online shopping development, it is necessary to provide the customers safe payment environment and to give support to international bank clearing. It is one of the tasks of e-commerce system to ensure the correctness of financial flows e.g. from the sales when converting and storing the business results to the company’s account information system. Dispatch is supported and controlled by SCM. SCM is the oversight of materials, information, and finances as they move in a process from supplier to manufacturer to wholesaler to retailer to consumer. Supply chain management involves coordinating and integrating these flows both within and among companies. Supply-chain management, at least in the largest multi-national corporations, is a global endeavor (Murillo, 2001). More about efficient SCM is discussed in (Šperka, 2010).
Like every area of business in these days, ecommerce is surrounded by a maze of red tape, rules and regulations. In fact, selling online tends to be worse because of the international dimension. On the one hand, legislature can help to online shopping and cross-border online shopping, on the other hand, can scant e-commerce development (Suchánek, 2010). Following part of the text is about DSS in the e-commerce. It will be explained why it’s suitable to use the multi-agent technology in DSS of e-commerce applications.

3. DECISION SUPPORT SYSTEM AND AGENTS

The customer decision-making process in the e-commerce environment is generally information intensive (Glazer, 1991). The age of web-enabled technologies and e-commerce bring about the abundance of information accessible to decision makers. If not properly filtered and pre-processed, this amplitude of information can easily "overload" the decision maker (e.g. Sean & Fernandez, 2000). As stated in (Shaw et al., 1997), "Web has made the need for decision support even more pronounced." Currently, there is a pressing need for tools that facilitate search, pre-processing, filtering of information, automation of routine tasks, and providing decision makers with valuable options and insights (Fazlollahi, 2001). The early applications of DSS in e-commerce belonged primarily to data-centric DSS category. The use of model-based DSSs is gaining popularity.

Because of differences in customers' needs, and contexts for purchase decision making, not all of the potentially available information and analysis are relevant in any given situation. The danger of "information overload" and "negative affective reactions" requires enabling customers to discover exactly the type of information they want and thus becoming selective in the use of information and analysis. Empirical evidence suggests that customer satisfaction with the decision process significantly increases as the models used by DSS fit the knowledge level of the customer. Increased customer satisfaction with the shopping experience may ultimately contribute to the intent to purchase.

Software agent technology is arguably well suited for e-commerce applications. Multi-agent system (MAS) is a dynamic system, composed of a number of mutually interacting active and autonomous components, called agents. The term agent is very widespread. It may indicate (Burian, 2010) the community, body or physical system (e.g. robot), which exists in the real world. In the context of multi-agent systems, however, the term generally refers to any relatively autonomous software application or only to a small part of it.

There are many sources, indicating the various definitions of an intelligent agent. For the purposes of this paper appears to be optimal the definition (Kubik, 2004) that the agent is an entity designed for the purpose to fulfill its objectives in an adequate environment. The functions of an agent are based on perception through sensors and actuators. Agent influences the conditions in the environment to achieve the objectives. Some sources (e.g. Wooldridge, 2009) depict the agent as a real or virtual object, placed in an environment, where it can act and perceive the environment. Agent is able to communicate with other agents. It has an autonomous behavior, which is based on its observations, knowledge and interactions with other agents.
Within this definition are listed some of the principles of an agent (Fig. 2):

- **Location** – the agent must be located in some environment. Its specific behavior always depends on the environment. Behavior of other agents also depends on what each of them is performing in an environment.

- **Carnality** – the agents must be able to perceive and to affect their environment, including other agents. It must have something that creates its decisions.

- **Intelligence** – intelligence of an agent is the result of each conflict with the environment and appropriate responses.

- **Synergy** – an agent affects other agents and reacts to their behavior. This principle is an explicit expression of one of the characteristics, of location.

- **Autonomy** – an agent performs actions at its own discretion. This principle is an explicit expression of one of the characteristics, of carnality.

- **Emergency** – a prerequisite for the emergence of this principle are all characteristics, listed above. The emergency concerns of the whole system. In coordination of the agents are emerging new system properties, which are not properties of individual agents. These properties, however, are based on the experience with similar systems and can be expected or even planned.

An important characteristic of an agent is the *ability*. The ability means the characteristic of an agent to perform a task. Agent may have the ability to answer questions, to provide information about its condition, to solve differential equations, to transfer goods with certain size and weight, to look for metal objects and to avoid obstacles etc. For the purposes of this article we abstract from one of the agents principle, from the physicality. We consider an intelligent agent in the form of interactive software component. Agent underlies the whole system. Its features decide not only on what role it can perform, but also how it can communicate and cooperate with other agents.

The interaction between agents is controlled by following rules set out in an interaction protocol. In this instance agents must be able to reach compromise, resolve conflicts, and allocate resources by agreement (Fasli, 2007). A negotiation situation is generally characterized by three elements; firstly a negotiation set is provided which can be used as a collection of possible offers that an agent can make. Secondly the specific protocol that is used controls the agent’s interaction and finally the strategies that have been defined for the agent to use; these are private and may take into account other agent strategies. A negotiation protocol is separated into admission rules, interaction rules, validity rules, outcome determination, withdrawal rules, termination, and commitment rules. Finally the chosen
protocol is dependent on agent system itself, this includes the number of attributes that an agent is to have, the number of agents present and the number of goods. (Alshammri, 2009)

Agent architectures can be based on logic, reaction, belief-desire-intention, or hybrid. Logic-based agents utilizes mathematical equations to model the surrounding environment and the rules with which t makes its decisions. A disadvantage of logic-based agents is the difficulty with which to model the surrounding environment in a form that is suitable to allow the agent to perform the necessary reasoning, planning and action in time. Reactive architectures utilize a direct link to the environment by building the representation into the sensory capabilities of the agent. An advantage of using reactive agent architectures is that complexity is reduced due to the removal of an internal representation of the surrounding environment. However the planning capability of the agent is reduced as it requires large amounts of information to determine the current state. (Fazlollahi, 2004)

Multi-agent systems are a collection of single agents that are used to communicate and interact with one another to solve problems that have been delegated by users. Agent technology differs from standard software due to the autonomy it undertakes to achieve its user’s goals. This is done through actively learning based on the situation that arises in the network. Agent technology can be used across many fields; these include process control, operations management, information management, and education. We decided to use multi-agent approach in our proposal of DSS architecture of e-commerce application as follows.

4. ARCHITECTURE OF A MULTI-AGENT BASED DECISION SUPPORT SYSTEM

In this section we propose architecture of DSS of e-commerce application. We are inspired by (Noor & Rosmayati, 2010). The authors of this article describe the architecture of DSS and its individual components. We decided to extend this model to detail with the characteristics of sellers and buyers interface agents. We have established the entire architecture into the layers. DSS consists of the following agents: sellers interface agent, buyers interface agent, facilitator agent, report agent, and database agent. The whole architecture is depicted in Fig. 3. The overall DSS agent architecture consists of three high-level layers: interface layer, process layer, and knowledge layer. The interface layer is publicly visible to other agents and users (consultants and clients). It provides mechanisms for interacting with the agent and supports inter-agent communication and collaboration. The process layer and knowledge layer are restricted for access. That means that other agents or users cannot directly manipulate the contents of these layers without access privileges. The process layer contains methods and heuristics that implement a variety of functions and processes using which the agent can respond to requests from other agents or users. Thus, the process layer basically provides the services and computations that may be necessary in solving a particular problem. The knowledge layer contains domain-specific and domain-independent knowledge relevant to problem solving. The detailed design of the three above-mentioned DSS agents, in terms of the three high level layers, is described in following text.

There are several agents involved in this research such as user interface agents (sellers and buyers interface agents), facilitator agent, and database agent.

- User interface agents

The user interface agents are divided into two types of users: sellers, and buyers. Each of different users has their own interface agent. Generally, user interface agent provides a Web interface for the users to interact with DSS and to help him/her deal with several online forms, perform
uploading/downloading related documents, and do data analysis activities. The user can provide a general description of the problem at hand in terms of high-level goals and objectives, or provide specific details about the data analysis or mining task to be performed. The user interface agent is responsible for receiving user specifications and delivering results. It also keeps track of user preferences.

![Diagram of DSS Based on Multi-agents Approach](image)

**Fig. 3.** DSS Based on Multi-agents Approach

The interface module of the user interface agent contains methods for inter-agent communication as well as getting input from the user. Its process layer contains scripts and methods for capturing the user input and communicating it to the DSS facilitator agent.

The functions of the user interface agent are providing Web interface for user interaction, Web page for user input and problem description, provide parameters to use, Web page for status information - feedback providing states of various processes, Web page containing final results, dynamically creating HTML documents with special formatting needs, communicating the user input to the DSS coordinator agent, capturing user activities and preferences and create user profiles.
On this level we propose to add some functionality to these agents to simulate the future trends of e-commerce results. This functionality could enable the agents to develop their behavior and strategies based on a combination of history, public information, available through requesting for market knowledge agent services; and private information, available only to the specific agent at their individual knowledge module. It is expected that each agent develops the individual knowledge module with historical information, since they have different behavior and consequently different results. On the basis of results from simulations, the agents can build a profile of the users with expected proposed prices, limit prices, needs and capabilities. On the other hand, requests for market knowledge agent services also provide a great support for agents that have more sophisticated behavior. This could e-commerce provider to predict some actions according to market strategies, advertisement, prices etc. and to gain more profit. More about simulation of business processes is discussed here (Vymětal, 2009).

- **Facilitator agent**
  
  The facilitator agent is responsible for coordinating the various tasks that need to be performed in cooperative problem solving. After receiving the user input from the interface agent, the facilitator agent identifies the relevant criteria, determines the alternative that need to be evaluated and generates a plan of action such as ranking of the alternatives. These alternatives may include identifying the relevant data sources, requesting services from other agents, and generating reports. The interface layer of the facilitator agent is responsible for inter-agent communication.

  The process layer contains methods for control and coordination of the various tasks as well as generating the task sequence. The sequence of tasks to be executed is created utilizing specific formula stored in the knowledge layer using a rule-based approach. The knowledge layer also contains meta-knowledge about the capabilities of other agents in the federation, available data sources and databases. The facilitator agent may seek the services of a group of agents and synthesize the final result. The functions of the facilitator agent are from user input, identify high-level objectives based on these objectives, identify tasks, generate "task sequence" and delegate actions to corresponding agents, provide intermediate feedback to user, synthesize and generate final result, perform the calculation/evaluation of problem-specific information.

- **Database agent**
  
  The database agent is responsible for keeping track of what data are stored in database. It provides predefined and ad hoc retrieval capabilities. It is also responsible for retrieving the necessary data requested by the data mining agent in preparation for a specific data mining operation. The database agent takes into account the heterogeneity of the databases that may exist within the organization, and resolves conflicts in data definition and representation.

  The interface layer of the database agent provides not only the public interface for inter-agent communication, but also to existing databases. This improves inter-operability and enables users to gain access to a variety of data sources which otherwise might be inaccessible. The process layer provides facilities for ad hoc and predefined data retrieval. Based on the user request, appropriate queries are generated and executed against the data warehouse. The results of these queries are communicated back to the user or other agents.

  The knowledge layer contains meta-data information, including the local schemas and a global schema. These schemas are used in generating the necessary queries for data retrieval.
The functions of the database agent are inter-agent message communication, provide interface to databases, application program interface (API) to commercial database products, Ad hoc and predefined data retrieval, maintain local and global schema and formatting query outputs based on user needs.

7. CONCLUSIONS

Aim of this article was to propose the architecture of an e-commerce system, which DSS is based on a multi-agent approach. The architecture of e-commerce system was divided into three layers. Users interface agents are designed to equip additional functionality, which allows them to simulate and predict the development of e-commerce results. Multi-agent technology can give computer systems and in our case, e-commerce systems capabilities, which bring the behavior of these systems to human behavior.

Features of multi-agent system can be used also in simulation and prediction of the behavior of real systems. That means in our case for e-commerce provider to gain more profit and to ensure the company better competitiveness. Possibility of applying the multi-agent approach awaits a great future.

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MANAGEMENT. CAREER IN THE PUBLIC FIELD- STRATEGY NEEDED FOR DEVELOPMENT AND QUALITY
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Abstract
Providing good quality services for citizens was most often the concern of certain scholars and critics. Integration and adaptation of new employees, either recent graduates or already integrated into the active population, to the organizational culture, the individual career planning and its adjustment to the organizational level is, in our opinion, an essential element to provide the necessary public services. A plan to promote career decisions at the right time, in terms of professional development opportunities.

The paper is developed based on empirical research, using tools, such as SWOT analysis, Gantt diagram and the questionnaire applied in the investigation.

Key words: community needs, public services, career management, quality, self-esteem, SWOT analysis.

1. INTRODUCTION
The role of the public employees has always been to serve the citizen. The citizen is the main consumer of the public sector and commends the conduct of public officials, sanctions or congratulates the public or contractual staff. Providing quality services for citizens was most often the concerns of scholars and critics. Integration and adaptation of new employees, whether recent graduates or already integrated into the active population, organizational culture, career planning at the at the individual and organizational level is in our opinion an essential element in providing quality public services. A plan to promote career decisions at the right time, in terms of professional development opportunities in order to motivate human individuals to accomplish goals when they seem hard to reach and provide stability, clarity and certainty for the future.

European Market development and its trends in the increasingly globalizing economy, which are visible in the last decade, brought into the foreground the issue of competitiveness of public services. In the early twentieth century, known in literature as the “century of services”, experts have established the definition of public services starting from their role in the coverage of collective needs which can not be replaced (on the production of public services, electricity distribution and consumption, health and social care, transport, telecommunications, postal services, etc.). Delimitation of the other categories of public services has been imposed for the following reasons:

• Public services are activities of interest, mostly producing public goods provided by governments and local communities.
• Their purpose is directed toward recovering the cost of production and not to obtain profit.
• Organization and operation is largely due to the public authorities (central government - ministries, other bodies subordinate to the government, prefectures, local government - municipalities, municipal councils and public enterprises - transport autonomous, post). The consumption of public services is an important indicator of quality of life inside a country. For example, the organization of public health services, education, transport, protection and security, sanitation, provide information on consumer living standards, the existence of concerns for the environmental conservation.

The quality of public services is given by the way they meet the consumers’ needs of permanent interest, which can be expressed by the time spent in the service or by the level of comfort provided by such services or by the effect they have on intellect, health, safety, consumer integrity. The importance of public services is greater for any society as well as the state and its administrative-territorial components appear as indispensable tools designed to ensure that level of welfare of its citizens that they can not find it in another way. Providing of quality services involves both expertise in the field of activity, self-knowledge and together with successful live. Practical experiences of human resources analysis reveals that among other things, collective standards of thinking, attitudes, values, beliefs, norms and habits of an organization plays a key role in attracting and retaining staff, and prove their importance in training and adapting to the organizational culture. Culture exerts a strong influence on all employees and consequently on the success of the organization. Its effects are not directly measurable, but they create a framework to influence the results. In order to provide quality public services some organizations have implemented the ISO 9001/2001. This is a standard that establishes requirements for a quality management system applied ever more frequently. Quality services, products, management is a decisive factor in the importance of the work of any companies present on the Romanian market. Basically, this system is based on eight principles, such as:

• customer orientation (people);
• leadership style;
• staff involvement;
• management processes;
• addressing systemic management;
• continuous improvement;
• decisions based on facts;
• mutually beneficial relationships between suppliers.

2. THE COMPETITIVITY OF PUBLIC SERVICES. THEORETICAL APPROACHES

In 1982 Naisbit published the volume named “Megatrends” presenting 10 hudies ways of changing: 1. from the industrial society to the informatic society. The economy is in a process of "megapassing" from an industrial to an informational society;

2. from a forced technology to a high technology. As the technological development is increasing so the need of leading technological features appears to be critical;
3. the national economy is transformed in a global economy. National economies are becoming increasingly influenced by the global interdependencies;

4. from a short-term vision to a long term vision. The companies will begin to think more seriously about the implications of long-term versus short-term actions;

5. from centralization to decentralization. Companies go through a process of decentralization of the initiative and decision-making power;

6. from institutional aid to their own forces, the emphasis is increasingly going to the a greater self-reliance;

7. from the representative democracy to the participatory democracy. Workers and consumers want to play a more active role related to the government, business and market;

8. from hierarchies to networks. Due to the computer the exchange of ideas is possible through the networks of communication instead through the hierarchical relations;

9. From North to South. Population’s main preferences are to move from north and north-east to north-south and east;

10. from time to time operations to multiple operations. People ask for variety instead of "promotion" for all;

Competitiveness can be viewed as the result of speed, creativity / uniqueness of solutions, reliable and price paid for a player to achieve its socio-economic objectives. So, the reaction rate is higher, as the solutions show a high degree of innovation, the solution can be more reliable as the economic cycle begins with the design of a new product / service and ends with a delivery date,

The European Union promotes a liberalization of the "controlled" services, it means a gradual opening of the markets, accompanied by protective measures for the general interest, especially by introducing the concept of "general service" to ensure access for all the people, to a quality service with an affordable price, no matter the social or economic position and geographic location,

The economic reality of the continental Europe, traditionally oriented towards the "virtues" such as: long-term stability, inter-relationships between the economic actors and the non-economic consequences, the care for the individual economic decision, was heavily penetrated by an aggressive Anglo-American financial culture, a net profitability culture, which, among others, contributed to accomplish the changes in the algorithm that founds the international business.

Quality public service is appreciated, in most of the cases, as an extention to meet customers’ expectations. Important in this regard are the following:

- public services opportunities;
- availability of public services to provide continuity;
- the degree of comfort and courtesy displayed by service providers to clients etc;

Because the quality is difficult to be measured and quantified, in the developed countries the institutions that provide services have developed and implemented quality control systems services, which monitor quality in each of the phases of the public service, according to rules and procedures.
In the previous stage of the strategies substantiation, the public service organizations are making market researches, used by the managers to identify clear and objective answers to the following questions:

- What kind of services should be offered on the market? And what is the proper quantity?
- What is the efficiency of the production and delivery of public services?
- Are they sufficiently diversified?
- There is the necessary accommodation for the public services delivery on the markets, as the customers expect?
- There is an improvement or a decrease of the public services quality?
- How the public services satisfy the population’s needs?
- The estimated objectives are accomplished or not?

Of course, in all countries, the introduction of performance indicators for public services was an objective, which has been supported by a legislative framework to enable its application and, on the other hand, by the managerial capacity to implement and improve service organizational mechanisms. From the practical activity of local administrative organizations there are revealed some ideas that could form a challenge to create the human capital able to express and apply an organizational policy really geared to the consumer:

**a. communicate our vision about producing and an excellent product/service to the internal customers** Customers are found among employees of the organization that is why it is important to examine, as they are defined, he standardized values that customers have for the results of the organization. It is of interest in terms of understandable and direct definition what it means providing a product, a good quality service, ensuring that their employees acquire these principles and values, creating an environment where people feel encouraged to provide excellence in what they do.

**b. evaluation of "culture" in our organization.** It is important to examine the organizational culture, whether it is based on values such as trust, quality, respect, integrity, teamwork and if these values are accepted and promoted within the organization and the employees are committed to meet and exceed the consumers’ expectations.

**c. analyse the customers’ messages through our employees.** Dialogue with the employees (particularly with those who have direct contact with customers) and their views about some topics, such as: what expectations they have, what are their major problems, what causes dissatisfaction regarding what products or services? Motivation will lead to the improvement of the quality of their work, emphasizing the details and specific solutions, bringing real benefit to the company business.

**d. Selection of the staff provided with "quality to deal with the customer."** A selection of human capital based on performance standards and current employees involved in the recruitment and in the selection process can clarify if potential employees will fit with the existing team and with organizational values. Certain skills can be acquired by employees through training programs or workshops, but attitudes and personality may not be "assimilated" directly through such programs, so a rigorous selection by standards and defaults it becomes necessary.
**e. recognize and reward.** Results give the positive feedback and encourage the employees so they have extra motivation to perform. Involved in innovation and finding new solutions, in solving direct service tasks, they will have a positive attitude towards their work and organization. Setting high goals and motivate staff in achieving high standards by requiring higher performance targets it may be hard to reach. The staff should be responsible for the achievement of the required quality standards.

Therefore, in the era of globalization, organizations will be to customer oriented and will provide high quality services, in accordance with the organizational values, they must be one step ahead of others in gaining competitive advantage.

Employee career planning of public services is a strategy for development and quality. It is important that the work of career planning to be a coordinated process and to not be left to chance. Career planning may be **voluntary** when it is done by employees through internal assessment and communication opportunities created by the managers, starting from the desire for promotion, career guidance, or it may be **required, necessary** when it is done by employers to avoid layoffs. Sound planning requires a proper system to include all staff. The organizational level (where it is desirable to develop a career plan) must contain a network that connects employees' career plans, including all aspects of their positions and responsibilities they have accomplished once. Professional development plays a significant role in civil servant positions, in addition to other related items in the public organizations offering quality services at a high standard. According to the literature and managerial practice in the field of managing human resources, career planning involves the steps shown in Figure 1:

![Fig. no. 1 –Different stages in planning the organizational career](image)

Planning should take into account the organizational as well as the personal planning. In order to meet the expectations and needs of the society, public services should be aware of evolving a deep and broad development. This development requires the active participation of users / customers / citizens. On their way to provide public services and high quality standards, employed human resources in various types of organizations must be well informed or educated for this activity.

**3. TOOLS.**

An often used tool in strategic planning processes which can be successfully used in career planning is the SWOT analysis (Strengths - Weaknesses - Opportunities - Threats) which focusses on internal and external reality, examining the strengths and weaknesses in the internal environment and the opportunities and dangers coming from the external environment.
Only rarely applied immediately after 1970, now it is currently that SWOT analysis has become a commonly used management tool. SWOT analysis proves to be an useful tool for developing and confirming the strategic objectives. SWOT analysis is the right instrument in the management framework based on values, serving at the beginning of its application for an organizational strategy formulation, is applicable not only in big economic companies but also in small and medium enterprises, and later on even in CVs, enabling to find the correct path to achieve a career goal. The project developed by the University of Bacau has proposed to undertake an analysis of the dimensions associated with the students’ planning of their professional future. The program carries out a study on the role of career life plan. The main research tool in the study is a questionnaire that was applied to 10% of the total number of students, in economics, specialized in Business Administration and Accounting. The respondents are following the daily courses of the Faculty of Economics. The questionnaire was developed and applied in October 2010. It refers, according to the questions, to the perception about a career plan and its level of instrumentation among respondents. The set of questions applied to the respondents was composed of the following items:

11. What is your opinion about a career plan?
   a. It plays a decisive role in your professional life?
   b. It is of no use;
   c. I have another option. What is your other opinion?__________

12. Please indicate three suggestive words reflecting the concept of a career plan.

13. You’ve made a career plan?

14. What have determined you to develop such a plan? I4 was applied only to those who answered yes to I3.

15. Do you have in your future plans a special career? I5 was addressed only to those who responded negatively to I3.

4. RESULTS.

Interpreting the data, 80% of respondents believe that a career plan plays a key role in their working life, 20% of respondents consider that a career plan is of no use for life (15%) or that it plays an important but not decisive role, being rather indicative for the future (5%).
It can be also highlighted that 32% of the interviewed students who developed such a plan are motivated by the interest for a better future, by a desire to advance or to have a more clear vision for their future. Of those who have not made a career plan, 64% intend to make use of this professional tool in the near future, which means that students do not easily treat the possibility to obtain an alternative employment. In the top of key terms associated with the planning career concept the student put the words like money, skills, job. The shared nomination frequency of these terms is shown in Chart I2 :”suggestive for the career plan”.

Putem concluziona că tinerii sunt suficient de receptivi şi de motivați în drumul lor către o viață activă și performantă, în plan profesional. Termenii cheie pe care respondenții îi consideră a fi semnificativi pentru conceptul plan de carieră pot primi diverse interpretări.
5. CONCLUSIONS

Skills - they are required and are involved in any human activity. They form a basal adaptive-instrumental repertoire of each individual, ensuring an optimal adaptation to the networking and to the various environmental conditions. Special skills are those structures of a instrumental personality that ensures an above average performance in some specific areas of professional activity. They are based on native, hereditary assumptions, which are the qualities of any individual subsystems of personality. Special skills are highlighted and give results depending on who handle them and on the activities wherewith are involved and they manifest which.

*The moment of choosing a job* for the career development, according to experts, can be associated with the acquisition of a clear professional identity, achieving integration and adaptation with the initial occupation. A recent study made by eJobs show that, in Romania, half of those already employed do not own or, better yet, make no use of a career plan. In Romania, over half of employees, (54%), say that the company where they work does not offer any career plan, only a quarter of them knowing what are the prospects of promotion to next year. A career plan may show to the employee's his current position within the organization and, perhaps, the future paths. A plan also acts as an additional incentive, in addition to salary package. Unfortunately, in Romania, this happens only in 25% of the companies.

Looking at the everyday life, at the professional implications, at the various media reform, globalization, we conclude that in the contemporary world organizations, public environment, business and labor market needs are constantly changing and human individual must develop and adapt to new challenges. Looking more deeply aware of the issue of quality public services we can see that the professional training and the creation of a personal career plan, adapting and integrating it in the organizational culture of each institution may play a decisive role. Services can be offered only to those who want to reach their desired career, achieving so the necessary quality of working life.

Professional development is consistent with the strategic targets (2000-2010) of the European Union established the European Council Meeting in Lisbon in 2000. It has been established that the general goal of these measures, by 2010, must register the employment increasing to 70%, an overall increase in female employment rate to 60% and 50% among the elderly. In March 2005 the European Council has relaunched the Lisbon strategy by switching the emphasis on economic development and employment growth.

The quality of public services was often a concern raised by most specialists in public administration. According to the personal beliefs we consider that providing good quality public services, claims to develop a continuous performance-oriented training. In this respect, it is useful to draw up a professional career plan, to be continuously adapted to the culture of the organization where the individual is integrated and to face the citizens' requirements, which are the most sensible barometer of the quality of public services.

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APPLICATION OF THE METHOD OF BREAK-EVEN POINT FOR OPTIMIZING THE FINANCIAL CONDITION OF HOSPITAL DEPARTMENTS

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Abstract

In the conditions of chronic deficit of financial resources and continuous increase of requirements towards hospital health entities on behalf of the funding institutions in view of improving the quality of health servicing, the issues for the effective utilization of the available resources and the financial results optimization is of ever greater significance.

Key words: method of break-even point, hospital departments, financial condition.

Politicians in a particular society always faced the issues about the effective healthcare. On the other hand, the continuously increasing healthcare funds present at the attention of the health managers the problem for a more cost-effective distribution and disbursement of healthcare resources. This problem is one of the most important motives for the future development of health economics, says professor St. Gladilov in “Health economics”.

Throughout the reformation process health institutions underwent transformation. From institutions entirely on budget funding, of relatively weak interest in the final result of their activity, and in the conditions of no competition between them, they suddenly turned into legal entities operating at competitive market. This refers in reality to all institutions – starting from the basis of the outpatient aid – the general practitioners and going to hospitals – multi-profiled and specialized.

These institutions’ economy management changed radically. They started implementing the versatile instruments of the scope of business organizations management – financial management, human resources management, marketing research and programs, developing company, strategic and operative plans, business plans, management in terms of goals etc.

Currently the issues of ever greater importance is the one for the effective utilization of the available resources and optimization of the financial results of hospital institutions due to their working in the conditions of chronic financial resources deficit and continuous increase of the requirements towards them on behalf of the Ministry of Health and the National Health-Insurance Fund in view of improving the quality of health servicing. The need is for the managers of the hospital institutions where there should be sought equilibrium between revenues and expenditures in particular department in view of clinical paths prices and the actual expenditures of hospital departments for patients’ treatment.

This issue is also very important for the funding institutions:
- The National Health-Insurance Fund that is still using the clinical paths but funding hospitals on the basis of the basic annual and forecast budgets and
- The Ministry of health subsidizing hospitals on the basis of “Methodology for subsidizing the transformed state and municipal health institutions for hospital aid and treatment institutions for rendering hospital aid with state and/or municipal participation in the capital”.

In order to manage the hospital in effective manner, managers should control its economic condition. One of the measurers in terms of this condition is hospital’s revenues/expenditures ratio. Many works in the field of financial analysis suggest the method of break-even point as effective method for analyzing company’s business.

We are of the opinion that this method described by B. Davidov (2004), after adapting it to some degree, should be included in the scope of instruments of hospital managers and economists.

We performed the research work in the 1st and 2nd surgical departments of Fifth Multiprofile Hospital for Active Treatment - Sofia AD.

**AIMS OF THE RESEARCH WORK:**

This research work aims at developing adapted method allowing for the adequate utilization of the break-even point in the practical financial management of the hospital departments via balancing revenues and expenditures. This requires for the performance of the following important tasks:

1. Analysis of the routine statistical reporting of 1st and 2nd surgical departments of Fifth Multiprofile Hospital for Active Treatment - Sofia AD about the number of left patients (discharged + deceased), number of bed-days, average bed number.
2. Analysis of the accounting data about the fixed and variable costs of the researched departments
3. Developing adapted break-even point method on the basis of statistical indexes and the accounting data about the fixed and variable costs of the surgical departments
4. Assessment of results and preparing suggestion for implementing them in the financial management of hospital institutions via balance of revenues and expenditures.

The expected contribution from developing the mentioned method will have the following applicability in reality:

- Providing the managerial team of the hospital institution with the opportunity to optimize its financial results on the basis of particular data about the actual value of the patients treated in it and establishing their break-even number;
- Creating particular basis for the funding institutions in order to provide adequate funding to the health institutions rendering hospital aid.

**RESEARCH METHODS:**

- Medical-statistical methods
- Documentary method/accounting documentation for revenues and expenditures/
- Method of break-even point
DIRECTIONS FOR OPTIMIZING REVENUES AND EXPENDITURES OF 1st AND 2nd SURGICAL DEPARTMENTS OF FIFTH MULTIPROFILE HOSPITAL FOR ACTIVE TREATMENT – SOFIA AD WORK ON THE BASIS OF THE METHOD OF BREAK-EVEN POINT

On the basis of statistical indexes about the average bed numbers, the number of left patients (discharged + deceased), the average hospital stay and the number of bed-days, as well as the calculations for fixed, variable and total costs, the break-even patients’ number is calculated under which hospital department will be incurring losses and above which it will make profit. Another parameter to be defined is patients’ number resulting in revenues covering the fixed costs of the surgical departments.

This method makes it possible for performing additional calculations in the search for ways to increase profit (or decrease loss), namely via the decrease of fixed, variable expenditures and the average hospital stay.

Below we present you method making it possible to plan the basic economic parameters of the hospital department or the hospital as a whole.

On the basis of calculations from previous years we made the following calculation for the forecast year of 2011 for the 1st and 2nd surgical departments of Fifth Multiprofile Hospital for Active Treatment Sofia AD:

- Number of hospital beds – 70
- Expected average stay per patient – 6.8 days
- Expected number of discharged patients – about 2 600
- Expected number of bed-days – 17 680
- Expected total expenditures of the departments – 1 818 244 BGN, of which:
  - 1 224 314 BGN fixed costs
  - 593 929 BGN variable costs

The calculations in terms of the fixed costs are performed on the basis of the following data:

- Expenditures for salaries and social insurance instalments
  - 1 052 256 BGN.
- Expenditures for materials, fuels and energy, independent services etc.
  - 172 058 BGN.
- Total fixed expenditures:
  - 1 052 256 BGN + 172 058 BGN.

Fixed expenditures on the average per patient:

1 224 314 BGN: 2 600 patients = 470.89 BGN.

The calculations in terms of the variable costs are performed on the basis of the following data:

- 33.60 BGN total cost per one bed-day
Including:
- 3.30 BGN for food – per one food-day
- 20 BGN for medications – per one drug-day
- 10.30 BGN per day for other costs
- 6.8 bed-days x 33.60 BGN per 1 bed-day = 228.43 BGN variable costs on the average per patient.

Total variable costs:
- 228.43 BGN x 2 600 patients = 593 929 BGN.

The calculations in terms of the total costs of the clinics are based on the following data:
- fixed costs + variable costs:
  1 224 314 BGN + 593 929 BGN = 1 818 244 BGN

Total expenditure of the clinics on the average per patient:
1 818 244 BGN: 2 600 patients = 699.32 BGN.

Let’s see what will be the financial result of the surgical departments for the forecast 2011 according to the necessary “price” for covering the expenditures necessary for the treatment of one patient – 700 BGN.

Note:
In order to make the example clearer, let’s accept that in the clinics only one type of hospital service is rendered with the particular economic parameters (expenditures and “price”).
- 17 680 bed-days : 6.8 days = 2 600 patients
- revenues: 2 600 x 700 BGN = 1 820 000 BGN.
- Variable costs: 2 600 x 228.43 = 593 929 BGN.
- Fixed costs: 1 224 314 BGN.
- Total costs: 1 224 314 BGN. + 593 929 BGN. = 1 818 244 BGN.
- profit: 1 820 000 BGN - 1 818 244 BGN = 1 756 BGN.

Mathematical problem:
We would like to define the number of patients that re to be treated in the surgical departments in the forecast year of 2011, under which departments will start incurring losses and over which they will make profit. This is called break-even patients’ number.

Mathematical problem solution
We will apply the formula suggested by G. Petrov (2000)

\[
\text{Break-even patients number} = \frac{\text{Fixed costs}}{\text{“Price” per 1 patient - variable costs per 1 patient}}
\]
Now we replace with numbers the formula designations and we have:

\[
\text{Break – even patients number} = \frac{1224314}{700 \times 228.43} = 2596 \text{ patients}
\]

The patients’ number resulting in sufficient profit for covering fixed costs, is to be established with the following formula:

\[
\text{Patients’ number} = \frac{\text{Fixed costs}}{\text{Revenues from 1 patient}} = \frac{1224314}{700} = 1749 \text{ patients}
\]

This method makes it possible to make additional calculations in the search for profit increase (or loss decrease). We will review two of them.

**A. Decrease of the average stay without decreasing fixed and variable costs**

- 17 680 bed-days : 6.4 days = 2 763 patients
- revenues: 2 763 x 700 BGN = 1 934 100 BGN
- Variable costs: 2 763 x 228.43 = 631 152.09 BGN
- Fixed costs: 1 224314 BGN
- Total costs: 1 224314 BGN + 631 152.09 BGN = 1 855 466.09 BGN
- profit: 1 934 100 BGN - 1 855 466.09 BGN = 78 633.91 BGN

**B. Decrease of fixed costs**

In the case of decreasing variable costs this could affect treatment’s quality. Better option would be to search for ways in order to decrease fixed costs, so that this could result in the decrease of the total expenditures for the hospital activities performance. This could be done via increasing the activity volume and increase of the usage of hospital resources correspondingly – hospital beds and medical personnel – and shutting down the ineffective structures – unoccupied hospital beds.

- 17 680 bed-days : 6.8 days = 2 600 patients
- revenues: 2 600 x 700 BGN = 1 820 000 BGN
- Variable costs: 2 600 x 228.43 = 593 929 BGN
- Fixed costs: 1 168 664 BGN
- Total costs: 1 168 664 BGN + 593 929 BGN = 1 762 593 BGN
- profit: 1 820 000 BGN - 1 762 593 BGN = 57 407 BGN
CONCLUSIONS:

1. We defined the break-even number to be treated in the forecast year of 2011 under which surgical departments will start incurring losses and over which they will make profit. We also defined the patients’ number resulting in the revenues necessary for covering the fixed costs of the reviewed departments.

2. The abovementioned calculations show that:

   With the forecast number of patients 2 600 and average stay of 6.8 days, the profit of 1st and 2nd surgical departments will amount to 1 756 BGN.

3. In the case of only decreasing the average stay from 6.8 to 6.4 days, without decreasing the fixed and variable costs, surgical departments would make profit amounting to 78 633.91 BGN.

4. In the case of only decreasing the fixed costs with 5%, the positive financial result of surgical departments would amount to 57 407 BGN.

This method for establishing the balance between revenues and expenditures is of great significance nowadays because in view of improving the quality of healthcare servicing, requirements towards healthcare institutions are continuously increasing on behalf of the funding institutions.

All this necessitates for shifting the focal point from the financial resources deficit to the effective utilization of the available resource and financial results optimization. In order to optimize the financial results of the hospital institutions, we are to make efforts in two directions: revenues generating and expenditures minimizing.

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THE ECONOMIC ANALYSIS “COST-EFFECTIVENESS” AND ITS ROLE IN THE EFFECTIVE ASSESSMENT OF THE HEALTH MANAGEMENT

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Abstract

The Comparison between the allocated resources and the achieved health results is considered as one of the leading criteria in the contemporary health management.

The economic assessment is determined as comparative analysis of alternatives for action concerning expenditures and achieved results. The analysis “cost – effectiveness” is one of the main instruments for such an assessment.

The paper presents the application of this analysis in the economic assessment of the activities of the health system in Bulgaria during the economic crisis.

Key words: analysis “cost – effectiveness”, financing, health management

The issues of efficient healthcare have always been in the focus of the attention of politicians of all societies. On the other hand due to continuously increasing healthcare expenses, health managers face the problem for economically efficient allocation and disbursement of health resources.

In health management, evaluation of input resources, carried out activities and outcomes is widely applied. Evaluation is made of the structure, organization and management of healthcare and research is carried out on how to improve it.

The evaluation includes comparison of goals to be achieved to a particular model (standard) or comparison of outcomes to the status prior to commencement of the activity.

In the recent years the modern literature on healthcare economy identifies quite often two main approaches for health services research and evaluation.

1. Health Services Research - its methods aim to describe, analyse and evaluate the structure, the process and the outcomes of the healthcare system.

Here the structure refers to accessibility, organization and financing of health programmes and to the demographic, health and social characteristics of the contingents being serviced. The process is connected with the relations between a social insurance payer and a medical care user for the time in which the care is provided. Equity, economic and medical efficiency are considered the outcomes from the process of rendering medical care in terms of the patient's good health and well-being.

2. The political analysis of healthcare aims to ensure the required information about development of health policy and to prepare solid arguments for the transformation of that information into recommendations for government decisions. Its purpose is to provide information service for the implementation of particular programmes of the political parties.
Evaluation underlies both approaches and therefore it is of great importance.

Two types of evaluations in healthcare are identified (Delcheva, E. 1997):

1. **Technical or medical evaluation.**

   It refers to assessing the impact of a given action alternative on the population's health status. Health outcomes are measured in natural indicators: number of identified cases of a specific disease, number of cases with complications, etc.

   The medical evaluation compares the health status of the population or the medical outcome from the treatment of an individual patient to the best possible outcome. Comparisons are made between countries, regions within a country, as well as between individual health establishments and analogical clinics therein.

   *The medical evaluation* underlies every development referring to the future capacity building of health establishments.

   Accreditation of any health establishment in the process of implementing the reform in healthcare includes thorough medical evaluation of outcomes from the activity of the health establishment, accompanied by economic evaluation about the use of the available resources.

2. **Economic evaluation** is defined as a comparative analysis of alternative ways of conduct correlative to costs and outcomes [2].

   Its key objectives include: to identify, measure, assess and compare costs and consequences regarding alternatives subject to evaluation.

   The economic evaluation of healthcare should give an answer to two fundamental questions:

   - Should any health procedure, service or programme be implemented provided that many other activities may be implemented for the public benefit using the same resources?
   - To what extent are we satisfied with how the health resources are disbursed provided that they may be disbursed in another manner?

   To the main elements of the philosophy of conducting evaluation of healthcare should be added the question:

   - To what extent a specific health procedure, service or programme is accessible to all people that may benefit from it? Evaluation of that type is connected with accessibility [3].

   Drummond, M. also states that usefulness and appropriateness for application of any economic evaluation requires that three main questions are answered prior to its performance.

   1. To what extent the relevant programme (medical activity) is feasible, i.e. to what extent it brings more benefits than losses to the society? This question is relevant mainly with the economic aspects of the evaluation.
   2. To what extent the relevant programme (medical activity) is applicable i.e. to what extent it is applicable or efficient in medical aspect for the society? This question is relevant mainly to the medical aspects of the evaluation.
3. To what extent this programme reaches those who need it, i.e. to what extent it is accessible for people who need it? This question is mainly relevant to the accessibility of medical care for the users and is an important element of the evaluation.

4. Further we will add the question: To what extent the evaluated programme (medical activity) is fairly distributed as to volume and quality among all members of the society. This question refers mainly to the fair allocation and must be considered upon the evaluation.

The cost-benefit analysis underlies the economic evaluation. It measures efficiency within its economic meaning and is expressed in value indicators (money). The cost-benefit analysis allows making economic evaluation of individual health programmes and health establishments.

We must underline that in healthcare the economic evaluation shall be always performed in line with the medical outcomes, which are deciding for the final decision.

Another method that allows more precise assessment of health programmes is the cost-effectiveness analysis. This analysis is an economic evaluation of the medical efficiency of a specific health programme or project. The purpose is to identify the most efficient alternative in medical aspect. Provided that two health programmes or two projects will incur quite the same expenses, the one which provides the best medical (health) outcomes shall be selected. For that purpose health effects are measured in programme-specific units of measure - most often natural indicators. For example, for a programme for early detection of neoplasms of mammary gland - the number of detected cases; for a programme for treatment of cardiovascular diseases - decrease in the previous systolic and diastolic pressure (in mmHq), etc.

The competing alternatives shall be compared on the basis of these summarized indicators about the health effect and the alternative, which proves higher number of health effects, should be selected. Results are expressed as costs for a unit of achieved health effect. For that purpose the costs-to-health effects index shall be calculated (CEI).

\[ \text{CEI} = \frac{\text{costs}}{\text{health effects}} \]

The lower index means that the relevant programme (or project) has higher medical efficiency.

In wider context this method of economic analysis may be applied also as an approach to financing, i.e. what kind of resources and how many resources must be disbursed for the achievement of a specific health effect or how shall be directed the resources to achieve specific health outcome.

The purpose is to achieve the classical compliance between disbursed resources, the activity of the health establishments carried out with these resources and the achieved final health outcome.
This approach is mainly implemented by change in the method of financing of health establishments:

<table>
<thead>
<tr>
<th>Method of financing</th>
<th>Source of financing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Financing the structures /money follow health structures/</td>
<td>the budget</td>
</tr>
<tr>
<td>2. Financing activities /money follow the health activities/</td>
<td>a health insurance fund</td>
</tr>
<tr>
<td>3. Financing the outcome /money is directed mainly to the achievement of health outcomes/</td>
<td>- a health insurance fund, - the budget</td>
</tr>
</tbody>
</table>

Initially this approach may be applied upon increase of financed health programmes both for fighting diseases of key social significance and for improvement of the population’s health status.

**Conclusions:**

1. In this phase the best national model for efficient use of resources in healthcare is not contemplated, respectively recommended.
2. The implementation of a new model of outcome-oriented thinking in healthcare would create conditions for the development and improvement of methods of financing the outcomes in the individual fields of medical care.

3. Fundamentally these methods are based on the economic cost-effectiveness analysis reviewed in a wider context and having regard to healthcare financing.

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VIRTUAL LEARNING ENVIRONMENT IN MEDICAL COLLEGE - SOFIA

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Abstract

The advent of social networks as a tool of communication and increasing of information in the global network makes it necessary to systematize it. Virtual training systems allow such organization of information. This paper presents a system implemented in the LAN of the Medical College “Yordanka Filaretova” - Sofia. Using the system as a learning tool allows students to participate more actively in the learning process and breaks the conservative model of teaching.

Key words virtual learning, distance learning, learning/training systems

1. INTRODUCTION

The global network is a great resource of information but in many cases it is unregulated and methodically incomplete or inaccurate. Using the learning management systems allows better structuring of this information.

The introduction of systems of this type in the local network of schools and universities, allows a more efficient organization of teaching process. The students are given the opportunity to engage more actively in learning, from passive listener and observer, they are becoming a major player in setting the pace with which the training will take place. In this sense, WEB - based training systems have a future and the education.. The article presents such a system being built at the Medical College - Sofia.

2. STRUCTURE OF THE SYSTEM

The information system provides tools for organizing the training process at Medical College, covering its features: the structure of the learning content, learning resources, construction of problems and tasks, organization of sessions and groups, review of content, solving test tasks, evaluation and control of students.

Provides opportunity to introduce basic information about:

- disciplines;
- structuring the curriculum in accordance with the technique of Major and taxonomy of Bloom;
- design of problem situations and tasks;
- enter and edit course content;
- dynamic determination of the test;
- storing test results;
• Store information about users / teachers and students / actions in the system.

![Functional model of the system](image)

**Fig. 1.** Functional model of the system.

On Fig.1 is presented a functional model. There are two types of users: teachers and students.

The access of the users to the system is WEB-based - via a standard Web-browser, which need not be installed any specific software. The system can be available through both Intranet (internal access) and Internet (through the firewall - an external access).

3. INFORMATION STRUCTURE

The information is stored in a database and is structured in three main groups:

- **Students** - a list of students, personal information necessary for reporting purposes, information on disciplines, information on the extent to which covered each of the disciplines; company information for inclusion in the system examined subjects, made assignments and test problems solved;

- **Teacher** - teachers registered in the system, personal information, led groups and courses, designed test assignments for each of the disciplines; official information on logging in, review of students setting individual and group tasks, structuring learning content creation and management of learning resources;

- **Educational content** - Ability to manage educational content. Structuring the curriculum, introduced educational resources / documents, video and audio materials, promotional materials / for each of the disciplines, curricula and plans for each discipline;

4. USER RIGHTS

The work organization is provided and administrative control as the validity of information and access to the system. This allows you to organize the roles and regulate the access to certain features of the
system. Administrator can restrict the visibility of information in the system by defining the status of objects in the system.

For each of the users in the system, teachers and students the personal access is provided with unique username and password. Registering of the user record the data in the system, but at this stage the students and the teachers have a limited rights. Full rights the users receive only after the system administrator activates the appropriate profile.

By default, each teacher receives rights to:

- Examine the outcomes of students in his discipline,
- No rights to add problems, to edit cognitive structures, to construct the test.

The additional rights given to the teachers include:

- Add problems in the database;
- Review of issues already introduced;
- Change of cognitive structures;
- Constructing the test and set evaluation criteria.

5. FUNCTIONALITY

The system offers an opportunity for the educational content stored in a structured way. For each of the disciplines introduced cognitive Structures, and any structural problems cognitive tasks. These tasks are later used to generate the didactic tests. The system allows teachers to construct a model curriculum in which learning takes place. This curriculum is determined at which stage of learning what curriculum to review assignments and what problems to solve.

5.1. Problems record

The store of the problems in the database is done in the following algorithm:

1. Select the discipline that is the problem that will be introduced (if more than disciplines that lead trainer).
2. Select the level of the taxonomy of Bloom. According to the methodology that is the level of difficulty of the problem.
3. Select the cognitive structure of the drop-down list is already in place. At this level the user can store a new cognitive structure.
4. Select the type and appearance of the problem. Type can be:
   - optional;
   - free;
   - constructive;

The system allows you to add graphics to questions.
5.2. Test modes

The teachers can construct a didactic testing, the test content is determined dynamically, depending on the number of sections and problems identified by the teacher. Didactic tests can cover both the entire curriculum in certain subjects, or only part of it.

The system supports two forms of solving the test problems:

- **Exam mode** - decided to test and returns results;
- **Training mode** - each of the issues offer additional information. Type of information is determined from the response given by the learner.

After this the following information is recorded to database: the test result, the time for its solution, and given by the student answers. For purposes of statistics and analysis of the learning process the information about errors made in solving of the test is stored to the database.

5.3. Analysis of information

For the purpose of monitoring the training process the following events are registered:

- Input to the system, output from the system, review of educational materials, solving task transmission of individual assignments;
- Introduction of course content, design of test problems, set the individual projects, review of submitted projects and tasks.

The system allows an analysis of the results achieved by students. The following indicators are observed:

- Development of a student in a discipline - This assessment shows how the success over time. Store and process information to solve problems / tests / discipline and type of control, cognitive structures and problems, answers to problems, results, date and duration of problem solving situations. Observe the change in the student success rate in a given discipline.
- Troubled cognitive structures - This analysis determines the degree of difficulty of the curriculum. In this way the teacher can dynamically determine the content and focus on specific sections, and also to correct the curriculum if necessary;
- Frequency of occurrence of problem or group problems - can be made for the following items in the system of student for a group class for discipline;
- Opening of the types of errors - Depends on the type of wrong answer. In the system we suggest the wrong answer SWA and unknown answer UNA. If there is a common SWA this means that something is misunderstood. It can thus be generated and SWA and thereafter submit corrective information;
- Adaptive tests - Design of tests that depend on the results obtained so far. To focus on the vehicle, where there are more errors. If there is introduced burden or complexity of the problem can be dynamically determined the complexity of tasks they can decide learner.

The system allows the enrichment of teaching conducted at the Medical College 'Yordanka Filaretova' Sofia. It ensures an objective and completely impartial evaluation of students' knowledge and the human factor in the evaluation of the teacher is off completely. The system provides opportunities for:
• to prepare students to check their knowledge, to acquire and consolidate them;
• increase efficiency and quality of teaching (knowledge acquired - the criterion for good teaching);
• enhancing the capacities of teachers and students - they will have access to the system both in intranet and the Internet (at any time and without restrictions);
• Web-based system leads to savings in resources - financial and time.

6. ADVANTAGES IN USING THE SYSTEM
Benefits of using IT in teaching at the Medical College are the following:

• The application of information technology in the learning process saves time and effort in training;
• Web-based learning allows students to be active part in their training to improve their qualifications, no restrictions on distance and time;
• Produced more useful information than traditional classical academic training with employment. Improves access to training materials and the image of all participants in the learning process;
• E-learning offers education accountability (feedback), custom and joint training and accessibility.

In general can be formulated following advantages when using the system:

• a more objective evaluation of results;
• electronic system can be manipulated, since each student provides various issues;
• Increase students' knowledge;
• not bound by time and place;
• allows the student individually to plan and manage the learning process depending on the rate of absorption of the material;
• increases the efficiency of the examination process;

As the main deficiencies may be indicated:

• a continuous process of building the system - includes technical realization of the system and constructing a system of questions and corrective information;
• additional technical support;
• long-term maintenance and improvement of the system - is in one constant update issues and corrective information in the system;
7. CONCLUSION

The system provides a good structure of information which in practice is quite chaotic spilled into the global network. The present system allows the enrichment of teaching carried out in Medical College “Yordanka Filaretova” Sofia. It ensures an objective and completely impartial evaluation of students' knowledge and the human factor in the evaluation of the teacher is off completely. This practical implementation of ICT in the education of students is fully in line with European trends in university education.

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THE OPPORTUNITIES OF IMPLEMENTING THE ACTIVITY-BASED BUDGETING PRINCIPLES IN LATVIAN POST’S BUDGETING SYSTEM

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Abstract

The efficiency of company’s activity planning system largely defines its competitive advantage. Budgeting system with an Activity-Based approach can both become a tool for company’s strategic aim achievement and a strategically oriented financial management system of a company on the whole. The relevance of such budgeting system creation grows for multiproduct companies.

In present article, the author considers opportunities of implementing the principles of Activity-Based Budgeting in company’s budgeting system using the joint-stock company Latvian Post (a multiservice company) as an instance. The aim of the given article is the creation of basis for the construction and practical implementation of strategically oriented budgeting system in joint-stock company Latvian Post, which provides an opportunity of efficient financial management both for the business processes and the company in general.

Key words: process-based approach, Activity-Based Budgeting, strategic aim achievement, strategic-oriented model, responsibility centre.

1. INTRODUCTION

There has been a slight transformation of postal services recently due to the change of international economical and social environment and a rapid development of information technologies. In modern postal services environment, a wide spectrum of services is developed along with the traditional postal facilities, including logistics, financial services based on the information technology, cargo carrying, customs agencies, consulting and many more.

Postal services over the whole territory of Latvia are rendered by joint-stock company Latvian Post, with 100% of capital belonging to the state. According to the state postal law, the duties of Latvian Post include the maintenance of postal network and the support of geographically unidentified postal tariff all over Latvia. The network of Latvian Post unites 400 postal departments and 20 delivery points.

At present time Latvian Post is the only commercial enterprise offering traditional postal services - providing national and international posting, national and international parcel collection, handling, transportation and delivery.

Market liberalization and prosecution of postal law, bespeaking geographically unidentified tariff, create an environment in which the rendering of traditional postal services becomes commercially unprofitable, yields losses and pulls down the competitiveness of company providing postal services. Nonuniform density of population and low financial solvency create development obstacles for postal
service enterprises. These are economically unprofitable regions (low population density and solvency), gainless clients with low income (pensioners, physically challenged people, large families with dependent children, the unemployed), profitless services (high prime cost, low demand).

In given situation the significance of cost and efficient company resource control tools grows dramatically. Strategically based budgeting system of Latvian Post can become such a tool as well. The aim of the presented work is the evaluation of the Activity-Based Budgeting (hereafter referred to as ABB) principle application opportunity in Latvian Post budgeting system.

2. ACTIVITY-BASED APPROACH

The objective of every company involved in commercial activities is making profit, in other words, the creation of value. To stimulate the process of value creation, the company must focus on elimination of losses, i.e. detection of activities that do not create added value. This needs such management system that will help to define and accentuate the volumes of company losses, as well as to decrease workloads without reduction in the quality of the output result. It is essential to understand the essence of the necessity for a specific product and its use and to know the requirements of consumers to the final output. (Financial Lawyer, 2008) On the other hand, the company demands such management system that will assist every employee in a better understanding of his job and production processes in which he is involved in and how he can generate the desired product. Activity-based approach meets all the abovementioned requirements.

Functional management often fails to correlate company strategy with the final result. The absence of a clear vision of such interrelation leads to inefficiency of management and cost escalation.

The process of value creation begins with objectives and their achievement strategy definition by company management team. The development of strategy is impossible without conduction of an analysis of customer’s needs, market and competitive environment as well as putting forward proposals about value creation. In the long run, the process of value creation for a customer is a process of creation value for company’s stockholders. Here the problem of the realization of strategic aims arises – the question is how can they be linked to specific types of activity and how can they be expressed by tangible and understandable relatives. Activity-based approach is a method of solving problems of that kind.

The founders of Activity-based conception are two American scientists – Michael Hammer and James Champy. In late eighties – in early nineties they asked the question “Is this or other type of activity actually needed?” instead of asking “How fast, effective and cheap is the accomplishment of tasks?” The results of their activity were published in 1993 in a book named “Reengineering of the corporation: the manifest of the revolution in business”. Conclusions made by Hammer and Champy were considered revolutionary for the time being. The following conclusions have been the basis of their inference:

- The vast majority of operations done in enterprises had no relation neither to customer services, nor to the increase of the added value of products, but related to the maintenance of internal functioning of organization;
- Functional specialists performing their local duties professionally did not have any clue about the quality of products at the output of the chain which they have been a part of (in other words, there have been no persons responsible for the output result);
Internal transactions made most of the time of orders execution: data and work stage exchange departments, adjustment of their results, repeated control and reoperations in cases when the visions of work of one department mismatched the opinion of other department, etc.

Hammer and Champy offered a new insight in the organization – not an assembly of departments but a “business process factory”. (Borovkov, 2008).

Activity-based approach was developed in the eighties of the last century when Activity-based Costing was in use. Activity-based Costing is based on business processes and starting from cost of product includes cost of customer and cost of sales channel (Ivlev, Popova, 2007). The application of Activity-based Costing was expanded in nineties before Activity-based Management or process oriented management whose main task is to increase the profitability of business.

Activity-based management includes detection of factors affecting expenditures. This is the reason why traditional budgeting methods that leave casual connections out of account have been later replaced by Activity-based Budgeting in this conception.

Almost all modern management conceptions are focused on the significance of business processes and their management. It is obvious that company activity consists of processes, so process management means company management. Function management is a lot more complicated. Activity-based management therefore provides a more rapid response to the changes. Along with functional approach, functions do not have obvious casual connection, so the reorganization of such system is more complicated. The activity of subdivisions at functional management is often focused on satisfaction of chief’s demands instead of customer’s demands. Activity-based management aims all employees at the result of business processes (final product or service). The advantages of Activity-based management related to cost saving are obvious, especially if such serious tool as Activity-based Costing is applied.

Functional management approach can be applied in practice for enterprises with a simple organizational arrangement. But cases when entire business process is concentrated within the framework of one structural subdivision (for instance, the whole production cycle of some product is executed by a single structural unit) are more and more seldom. The advantages of process-based approach turn into competitive advantages for modern enterprises with complicated organizational arrangement where the responsibility for final product of service release is divided between many structural subdivisions. Competitive environment makes companies face the necessity for a frequent change of business processes; under such conditions the advantages of process-oriented management become even more palpable. Both management approaches are not necessarily alternative and can be combined easily (certain business processes can be applied with functional approach).

3. ACTIVITY-BASED APPROACH WHEN PREPARING THE BUDGET

3.1. Business processes

Company Latvian Post offers a package of consumer services mentioned below:

- postal services,
- payment services,
- logistics,
- retail merchandizing,
The complex of those service types creates a system of operational business processes in Latvian Post. Additional and auxiliary types of services create the following business processes:

- Personnel management,
- Information management,
- Physical and financial resource management.

The presented classification of business processes can be detailed to the level of subprocesses, if necessary.

3.2. Cost centres

The management system of Latvian Post is based on the organizational structure of the company. As a practical matter, business processes often are beyond the scope of structural subdivisions. When organizing management, it is reasonable to apply such management tool as the financial structure of the company based on the accentuation of financial responsibility centres. Financial structure can become a foundation for the arrangement of management processes, the creation of well-organized system of planning and control. (Savina, 2010). The success of such structure creation largely affects the efficiency of ABB principle application in company’s budgeting system.

Organizational and functional structure of Latvian Post is represented by the following structural subdivisions, in which expenses are formed, and which the author names as cost centres.

- Post offices,
- Production departments,
- Auxiliary workshops,
- Motor-road transport departments,
- Warehouses,
- Philately service,
- Logistics service,
- Payment services,
- International settle service,
- Retail merchandizing services,
- Motor delivery
- General management,
- Management services,
- Security services.
If necessary, cost centres can be detailed considering the specificity of activity. For accentuated cost centres it is possible to define the list of production, works or services rendered to the external customers or the internal structural subdivisions.

3.3. Resources

The resources utilized by Latvian Post can be classified as permanent resources (such as rental payments, remuneration of leaders), that are independent of production volumes, and variable resources (materials, labour of those directly involved in production process), that highly depend on production volumes. The technological process of rendering postal services including the use of certain resources is a base for the accentuation of activity types. Any type of activity starts with the moment of launching and is ended by the final result. (Brimon, Antos, Collins, 2004)

The following resources are considered for the creation of Latvian Post value:

Variable:
- man power;
- vehicles and machinery;
- raw materials;
- transport;

Permanent:
- administrative;
- permanent community charges;
- other (infrastructure, etc.).

Before we get to the further consideration of ABB principle implementation when developing the budget of Latvian Post, the following moments, that limit the scope of the question considered, should be taken into account:

- Latvian Post renders a wide spectrum of services;
- The list of Latvian Post rendered services is quite big (the business process of “Postal services” includes more than 300 products);
- Usually the whole team of consultants (theoreticians) and experts (practical men) works on the implementation of ABB principles;
- The detailed development of model requires modern software (action-based information systems - ABIS-systems and ARIS-technologies).

For these reasons the author of the work will only consider one type of activity or a business process – “Postal services” – within the framework of the given article.

Latvian Post has its own developed strategy aimed on services rendering for legal and physical persons all over Latvian Republic. Herewith, the activity of company is aimed at the boost of high quality service volumes at low corporate expenses. It is commonly known that the essence of ABB approach supposes the specification of enterprise aims and the transformation of them into key performance indicators. The author assumes that one of “Postal services” process key performance
indicators are the volume of processed and delivered correspondence (the monetary value is used). When it is divided by the actual tariff (product value), the real expression of this value can be obtained. In the given work relative figures are used.

3.4. Classification of expenses by activity types

The technological process of rendering “Postal services” consists of collection, transportation, customer service, sorting, issuing and delivery. If necessary, the basic types of activity can be detailed. For instance, sorting can be detailed to sorting and tarification.

The final products, ending the business process of “Postal services”, are letters, postcards, letter packets, small parcels, parcels.

The activity of post office can be described as a combination of two directions. The first direction supposes the direct work with client in the office and the issuance of correspondence. This work is accomplished by operators. The second direction is represented by the collection of correspondence and the delivery of postal items. This work is done by postmen and motorized delivery.

4. BUDGET MODEL BASED ON ABB

As the object of study in the given article is represented by one business process – “Postal services” – we will consider the application of ABB method for the budget development of only one structural subdivision responsible for the expenses – “Post offices”, and its part responsible for customer services in post offices – “Customer service in post offices”. In such a manner the application of ABB model for cost centre “Customer service in post offices” will be considered within the framework of process “Postal services”. In this centre the following types of work are accomplished sequentially:

- Customer services;
- Sorting;
- Issuing.

Post office “Customer service” receives correspondence and after that the received mail is sent to “Sorting” department and is finally delivered to the client by “Issuing” services. Table 1 gives the description of the analysed business process with the final result of activity on every stage of service rendering.

The volume of performed work is measured by the amount of processed correspondence items in pieces. Such indicators can appear very informative when applying additional labour intensity characteristics for the basic types of products.

4.1. Budget plan

In given section of publication the development methods of budgetary plan for a year are considered. The development of budget generally includes the consequential execution of the following calculations:

- the calculation of the general working capacity volume;
- the calculation of working capacity according to the types of activity;
- the calculation of the number of workers;
The information about the predictable activity indicators of business process “Postal services” for “Customer service in post offices” for one year will be used to illustrate the calculations. Suppose the performance indicator of sales volume for business process “Postal service” is set in the amount of 16.2 millions of lats, which is distributed in the following way: letters - 11 813 thousands of lats, postcards - 436 thousands of lats, letter packets - 1 052 thousands of lats, small parcels - 99 thousands of lats and parcels - 2 800 thousands of lats.

<table>
<thead>
<tr>
<th>Business process</th>
<th>Cost center</th>
<th>Activities</th>
<th>Types of basic products</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rendering of post services</td>
<td>Post offices</td>
<td>Customer service</td>
<td>Letter</td>
<td>Accepted letter</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Postcard</td>
<td>Accepted postcard</td>
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<tr>
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<td></td>
<td></td>
<td>Letter packet</td>
<td>Accepted letter packet</td>
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<td></td>
<td>Small parcel</td>
<td>Accepted small parcel</td>
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<td></td>
<td></td>
<td></td>
<td>Parcel</td>
<td>Accepted parcel</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
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<th>Cost center</th>
<th>Activities</th>
<th>Types of basic products</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rendering of post services</td>
<td>Post offices</td>
<td>Sorting</td>
<td>Letter</td>
<td>Processed letter</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Postcard</td>
<td>Processed postcard</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Letter packet</td>
<td>Processed letter packet</td>
</tr>
<tr>
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<td></td>
<td>Small parcel</td>
<td>Processed small parcel</td>
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<td></td>
<td></td>
<td></td>
<td>Parcel</td>
<td>Processed parcel</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Issuing</td>
<td>Letter</td>
<td>Issued letter</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Postcard</td>
<td>Issued postcard</td>
</tr>
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<td></td>
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<td></td>
<td>Letter packet</td>
<td>Issued letter packet</td>
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<td></td>
<td></td>
<td>Small parcel</td>
<td>Issued small parcel</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Parcel</td>
<td>Issued parcel</td>
</tr>
</tbody>
</table>

Table 1. Business process “Postal services” in post office
Performance indicator of sales volumes in natural units (in pieces), subdivided into the basic types of products as a result of uncomplicated calculations, are summarized in Table 2.

In order to achieve the set sales volumes, 42,702,194 correspondence items must be processed (including: 35.8 millions of letters, 1.7 millions of postcards, 3.2 millions of letter packets, 110 thousands of small parcels and 1.9 millions of parcels).

Time necessary for the execution of every operation for production item is defined basing on the corporate system of standards. The calculation of total service labour intensity is shown in Table 3.

### Table 2. Total volume of working capacity.

<table>
<thead>
<tr>
<th>Basic types of products</th>
<th>Performance indicator, Ls</th>
<th>Product price, Ls</th>
<th>Quantity, pcs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Letter</td>
<td>11 813 793</td>
<td>0.33</td>
<td>35 799 373</td>
</tr>
<tr>
<td>Postcard</td>
<td>435 579</td>
<td>0.26</td>
<td>1 675 304</td>
</tr>
<tr>
<td>Letter packet</td>
<td>1 051 489</td>
<td>0.33</td>
<td>3 186 330</td>
</tr>
<tr>
<td>Small parcel</td>
<td>99 138</td>
<td>0.9</td>
<td>110 153</td>
</tr>
<tr>
<td>Parcel</td>
<td>2 800 000</td>
<td>1.45</td>
<td>1 931 034</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td></td>
<td></td>
<td><strong>42 702 194</strong></td>
</tr>
</tbody>
</table>

### Table 3. Working capacity.

<table>
<thead>
<tr>
<th>Activities</th>
<th>Products</th>
<th>Work quota, hours</th>
<th>Work volumes, hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer service</td>
<td>Letter</td>
<td>0.0620769</td>
<td>2 222 314.63</td>
</tr>
<tr>
<td></td>
<td>Postcard</td>
<td>0.0620769</td>
<td>103 997.76</td>
</tr>
<tr>
<td></td>
<td>Letter packet</td>
<td>0.0620769</td>
<td>197 797.58</td>
</tr>
<tr>
<td></td>
<td>Small parcel</td>
<td>0.0620769</td>
<td>6 838.00</td>
</tr>
</tbody>
</table>
Thus, the working capacity (labour intensity of proceeding operations) is 2,97 millions of hours per year.

The planned number of workers is calculated on the assumption of work time fund per year and the set production quota for every type of activity. At the planned found of work time amounts 1 920 hours per year, the number of required workers is 1 545 (see Table 4.).

The required number of workers is 1545.

The given approach provides an opportunity for a further comparison of the physically achieved values and the budget ones, promoting the optimization of all types of activity, efficient application of labour resources and the arrangement of working capacity and the existing resources. Comparison of the real number of workers with the planned amount and the analysis of working capacity in every post office allows the perfection of the process through the rearrangement of working capacity. This also serves as a base for budget value adjustment.

The planned wage fund will be defined basing on the calculation of employee amount and the planned wage rate. It will make 4,6 millions of lats. (Table 5).

<table>
<thead>
<tr>
<th>Activities</th>
<th>Products</th>
<th>Work quota, hours</th>
<th>Work volumes, hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer service</td>
<td>Parcel</td>
<td>0,0684028</td>
<td>132 088,12</td>
</tr>
<tr>
<td>Sorting</td>
<td>Letter</td>
<td>0,0022778</td>
<td>81 543,02</td>
</tr>
<tr>
<td></td>
<td>Postcard</td>
<td>0,0022778</td>
<td>3 815,97</td>
</tr>
<tr>
<td></td>
<td>Letter packet</td>
<td>0,0180833</td>
<td>57 619,48</td>
</tr>
<tr>
<td></td>
<td>Small parcel</td>
<td>0,0180833</td>
<td>1 991,95</td>
</tr>
<tr>
<td></td>
<td>Parcel</td>
<td>0,0180833</td>
<td>34 919,54</td>
</tr>
<tr>
<td>Issuing</td>
<td>Letter</td>
<td>0,0011111</td>
<td>39 777,08</td>
</tr>
<tr>
<td></td>
<td>Postcard</td>
<td>0</td>
<td>0,00</td>
</tr>
<tr>
<td></td>
<td>Letter packet</td>
<td>0,0149167</td>
<td>47 529,43</td>
</tr>
<tr>
<td></td>
<td>Small parcel</td>
<td>0,0159167</td>
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<tr>
<td></td>
<td>Parcel</td>
<td>0,0179167</td>
<td>34 597,70</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td></td>
<td></td>
<td><strong>2 966 583,55</strong></td>
</tr>
<tr>
<td>Activities</td>
<td>Product</td>
<td>Work volume, hours</td>
<td>Quota of work hours per year</td>
</tr>
<tr>
<td>----------------</td>
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<td>-----------------------------</td>
</tr>
<tr>
<td>Customer service</td>
<td>Letter</td>
<td>2 222,314,63</td>
<td>1 920</td>
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<td>103,997,70</td>
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<td>Customer service</td>
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<td>197,797,58</td>
<td>1 920</td>
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<td>1 920</td>
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<tr>
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<td>Parcel</td>
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</tr>
<tr>
<td>Sorting</td>
<td>Letter</td>
<td>81,543,02</td>
<td>1 920</td>
</tr>
<tr>
<td></td>
<td>Postcard</td>
<td>3 615,97</td>
<td>1 920</td>
</tr>
<tr>
<td></td>
<td>Letter packet</td>
<td>57,619,48</td>
<td>1 920</td>
</tr>
<tr>
<td></td>
<td>Small parcel</td>
<td>1,991,95</td>
<td>1 920</td>
</tr>
<tr>
<td></td>
<td>Parcel</td>
<td>34,919,54</td>
<td>1 920</td>
</tr>
<tr>
<td>Issuing</td>
<td>Letter</td>
<td>39,777,08</td>
<td>1 920</td>
</tr>
<tr>
<td></td>
<td>Postcard</td>
<td>0,00</td>
<td>1 920</td>
</tr>
<tr>
<td></td>
<td>Letter packet</td>
<td>47,529,43</td>
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<tr>
<td></td>
<td>Small parcel</td>
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<tr>
<td></td>
<td>Parcel</td>
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<td>1 920</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td></td>
<td>2 906,583,55</td>
<td></td>
</tr>
</tbody>
</table>
The next step of budget planning is the cost planning for the rent of premises. It is worth mentioning that the expenses on rent do not depend on the volumes of production. Within the framework of the given work, it is supposed that the amount of rent includes all expenses on the maintenance of premises. The total floor area of post offices amounts 60 000 square meters, 30 500 of which are given over to the customer service halls. The expected expenses on the maintenance of premises amount 2,1
millions of lats. This value is calculated easily, considering that the rental contracts are closed for a pretty long period of time. Community charges can be calculated basing on the previous period, taking into account the growth of energy material tariffs. The amount of fee for one square meter reaches 35 lats. The stake of “Customer service in post offices” is 1067,5 thousands of lats.

It is rational to divide the rent by the time consumed on every type of activity added with the product specification. (see Table 6).

Table 6. Rent of premises budget

<table>
<thead>
<tr>
<th>Activities</th>
<th>Products</th>
<th>Work hours</th>
<th>volumes,</th>
<th>Rent of premises, Ls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer service</td>
<td>Letter</td>
<td>2 222 314.63</td>
<td>79 9681</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Postcard</td>
<td>103 997.76</td>
<td>37 423</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Letter packet</td>
<td>197 797.58</td>
<td>71 176</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Small parcel</td>
<td>6 838.00</td>
<td>2 461</td>
<td></td>
</tr>
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<td>Parcel</td>
<td>132 088.12</td>
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<td>Sorting</td>
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<tr>
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<td>Postcard</td>
<td>3 815.97</td>
<td>1 373</td>
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</tr>
<tr>
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<td>Letter packet</td>
<td>57 619.48</td>
<td>20 734</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Small parcel</td>
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<td>717</td>
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<tr>
<td></td>
<td>Parcel</td>
<td>34 919.54</td>
<td>12 566</td>
<td></td>
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<tr>
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<td>14 313</td>
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<td>Letter packet</td>
<td>47 529.43</td>
<td>17 103</td>
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<td></td>
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<td></td>
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<tr>
<td></td>
<td>Parcel</td>
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<tr>
<td><strong>Total:</strong></td>
<td></td>
<td><strong>2 966 583.55</strong></td>
<td><strong>1 067 500</strong></td>
<td></td>
</tr>
</tbody>
</table>
In the considered case the working capacity for every employee is equal. After the rearrangement of labour power it appears rational to calculate the hourly rate on every cost budget by means of dividing one employee’s budget stake by the working capacity of every employee.

The same principle serves for the distribution of the expenses on the equipment of post offices. The expenses on office appliances and stationery are planned in the volume of 18,7 thousands of lats, depreciation costs p 1,618 millions of lats, total equipment costs make 1,636 millions of lats. The resulting budget for equipping the post offices is represented in Table 7.

**Table 7. Equipping budget**

<table>
<thead>
<tr>
<th>Activities</th>
<th>Product</th>
<th>Equipment expenses, Ls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer service</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Letter</td>
<td>13 778 359.97</td>
</tr>
<tr>
<td></td>
<td>Postcard</td>
<td>31 236.32</td>
</tr>
<tr>
<td></td>
<td>Letter packet</td>
<td>15 025.74</td>
</tr>
<tr>
<td></td>
<td>Small parcel</td>
<td>835.77</td>
</tr>
<tr>
<td></td>
<td>Parcel</td>
<td>830 178.0</td>
</tr>
<tr>
<td>Sorting</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Letter</td>
<td>30 536.70</td>
</tr>
<tr>
<td></td>
<td>Postcard</td>
<td>1 146.15</td>
</tr>
<tr>
<td></td>
<td>Letter packet</td>
<td>4 385.82</td>
</tr>
<tr>
<td></td>
<td>Small parcel</td>
<td>243.46</td>
</tr>
<tr>
<td></td>
<td>Parcel</td>
<td>21 947.94</td>
</tr>
<tr>
<td>Issuing</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Letter</td>
<td>24 661.81</td>
</tr>
<tr>
<td></td>
<td>Postcard</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>Letter packet</td>
<td>3 617.79</td>
</tr>
<tr>
<td></td>
<td>Small parcel</td>
<td>214.29</td>
</tr>
<tr>
<td></td>
<td>Parcel</td>
<td>21 744.76</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td></td>
<td><strong>1 636 499.43</strong></td>
</tr>
</tbody>
</table>
The budget of low-value equipment and operating materials is developed in accordance with the norms for production units. These norms were defined based on the opinions of experts and the previous experience. Multiplying the norm with the planned amount of units, the sum of expenses on low-value equipment and operating materials is obtained, classified by type of activity (see Table 8). The total sum of the budget for low-value and performance material amounts 192,2 thousand lats.

**Table 8. Budget for low-value equipment and operating materials**

<table>
<thead>
<tr>
<th>Activities</th>
<th>Product</th>
<th>Expenses on production unit, Ls</th>
<th>Amount, pcs.</th>
<th>Low-value equipment and operating materials expenses, Ls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer service</td>
<td>Letter</td>
<td>0,00081</td>
<td>35 799 373,38</td>
<td>28 883,03</td>
</tr>
<tr>
<td></td>
<td>Postcard</td>
<td>0,01746</td>
<td>1 675 304,92</td>
<td>29 257,78</td>
</tr>
<tr>
<td></td>
<td>Letter packet</td>
<td>0,00918</td>
<td>3 186 330,79</td>
<td>29 244,21</td>
</tr>
<tr>
<td></td>
<td>Small parcel</td>
<td>0,26556</td>
<td>110 153,72</td>
<td>29 252,04</td>
</tr>
<tr>
<td></td>
<td>Parcel</td>
<td>0,01693</td>
<td>1 931 034,48</td>
<td>32 683,07</td>
</tr>
<tr>
<td>Sorting</td>
<td>Letter</td>
<td>0,00004</td>
<td>35 799 373,38</td>
<td>1 253,28</td>
</tr>
<tr>
<td></td>
<td>Postcard</td>
<td>0,00043</td>
<td>1 675 304,92</td>
<td>727,75</td>
</tr>
<tr>
<td></td>
<td>Letter packet</td>
<td>0,00222</td>
<td>3 186 330,79</td>
<td>7 079,82</td>
</tr>
<tr>
<td></td>
<td>Small parcel</td>
<td>0,00454</td>
<td>110 153,72</td>
<td>7 108,78</td>
</tr>
<tr>
<td></td>
<td>Parcel</td>
<td>0,00368</td>
<td>1 931 034,48</td>
<td>7 107,49</td>
</tr>
<tr>
<td>Issuing</td>
<td>Letter</td>
<td>0,00001</td>
<td>35 799 373,38</td>
<td>436,72</td>
</tr>
<tr>
<td></td>
<td>Postcard</td>
<td>0,00000</td>
<td>1 675 304,92</td>
<td>0,00</td>
</tr>
<tr>
<td></td>
<td>Letter packet</td>
<td>0,00183</td>
<td>3 186 330,79</td>
<td>5 831,16</td>
</tr>
<tr>
<td></td>
<td>Small parcel</td>
<td>0,05680</td>
<td>110 153,72</td>
<td>6 257,17</td>
</tr>
<tr>
<td></td>
<td>Parcel</td>
<td>0,00365</td>
<td>1 931 034,48</td>
<td>7 044,10</td>
</tr>
<tr>
<td>Total:</td>
<td></td>
<td></td>
<td>42 702 197,29</td>
<td>192 162,12</td>
</tr>
</tbody>
</table>
Finally, the expenditures for communication are calculated. Using the same expert value as the hourly rate of communication expenditures for one employee is it possible to develop the budget for that type of expenditures (see Table 9).

**Table 9. Budget for the communication expenses**

<table>
<thead>
<tr>
<th>Activities</th>
<th>Product</th>
<th>Number of workers</th>
<th>Communication cost rate for one employee, hours</th>
<th>Communication costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer service</td>
<td>Letter</td>
<td>1 157,5</td>
<td>0,02390</td>
<td>53 114,43</td>
</tr>
<tr>
<td></td>
<td>Postcard</td>
<td>54,2</td>
<td>0,02390</td>
<td>2 485,60</td>
</tr>
<tr>
<td></td>
<td>Letter packet</td>
<td>103,0</td>
<td>0,02390</td>
<td>4 727,46</td>
</tr>
<tr>
<td></td>
<td>Small parcel</td>
<td>3,6</td>
<td>0,02390</td>
<td>163,43</td>
</tr>
<tr>
<td></td>
<td>Parcel</td>
<td>68,8</td>
<td>0,02373</td>
<td>3 133,99</td>
</tr>
<tr>
<td>Sorting</td>
<td>Letter</td>
<td>42,5</td>
<td>0,02807</td>
<td>2 288,72</td>
</tr>
<tr>
<td></td>
<td>Postcard</td>
<td>2,0</td>
<td>0,02807</td>
<td>107,11</td>
</tr>
<tr>
<td></td>
<td>Letter packet</td>
<td>30,0</td>
<td>0,02807</td>
<td>1 617,24</td>
</tr>
<tr>
<td></td>
<td>Small parcel</td>
<td>1,0</td>
<td>0,02807</td>
<td>55,91</td>
</tr>
<tr>
<td></td>
<td>Parcel</td>
<td>18,2</td>
<td>0,02807</td>
<td>980,11</td>
</tr>
<tr>
<td>Issuing</td>
<td>Letter</td>
<td>20,7</td>
<td>0,02807</td>
<td>1 116,45</td>
</tr>
<tr>
<td></td>
<td>Postcard</td>
<td>0,0</td>
<td>0,00000</td>
<td>0,00</td>
</tr>
<tr>
<td></td>
<td>Letter packet</td>
<td>24,8</td>
<td>0,02807</td>
<td>1 334,04</td>
</tr>
<tr>
<td></td>
<td>Small parcel</td>
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<td>0,02807</td>
<td>49,21</td>
</tr>
<tr>
<td></td>
<td>Parcel</td>
<td>18,0</td>
<td>0,02807</td>
<td>971,08</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>1 545,1</strong></td>
<td></td>
<td></td>
<td><strong>72 144,77</strong></td>
</tr>
</tbody>
</table>
Now, when the budget for the various type of expenditure is developed, it is time to sum the budget value up in order to obtain the total sum of budget expenditures for every type of activity and the total sum of expenditures for “Customer service in post offices” (see Table 10).

### Table 10. Total budget for the type of activities of „Customer service in post offices”

<table>
<thead>
<tr>
<th>Activity</th>
<th>Work volumes, hours</th>
<th>Wages fund, Ls</th>
<th>Rent of premises Ls</th>
<th>Equipping, Ls</th>
<th>Low-value equipment and operating materials, Ls</th>
<th>Connection expenses, Ls</th>
<th>Total, Ls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer service</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Letter</td>
<td>2222315</td>
<td>3472367</td>
<td>808772</td>
<td>1377836</td>
<td>28883</td>
<td>53114</td>
<td>5830972</td>
</tr>
<tr>
<td>Postcard</td>
<td>103998</td>
<td>162496</td>
<td>20376</td>
<td>31236</td>
<td>29258</td>
<td>2486</td>
<td>245852</td>
</tr>
<tr>
<td>Letter packet</td>
<td>197798</td>
<td>309059</td>
<td>9821</td>
<td>15056</td>
<td>29244</td>
<td>4727</td>
<td>367907</td>
</tr>
<tr>
<td>Small parcel</td>
<td>6838</td>
<td>10684</td>
<td>545</td>
<td>836</td>
<td>29252</td>
<td>163</td>
<td>41481</td>
</tr>
<tr>
<td>Parcel</td>
<td>132088</td>
<td>206388</td>
<td>54153</td>
<td>83018</td>
<td>32683</td>
<td>3134</td>
<td>379376</td>
</tr>
<tr>
<td>Sorting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Letter</td>
<td>81543</td>
<td>127411</td>
<td>32978</td>
<td>50557</td>
<td>1253</td>
<td>2289</td>
<td>214488</td>
</tr>
<tr>
<td>Postcard</td>
<td>3816</td>
<td>5962</td>
<td>748</td>
<td>1146</td>
<td>728</td>
<td>107</td>
<td>8691</td>
</tr>
<tr>
<td>Letter packet</td>
<td>57619</td>
<td>90030</td>
<td>2861</td>
<td>4386</td>
<td>7076</td>
<td>1617</td>
<td>105970</td>
</tr>
<tr>
<td>Small parcel</td>
<td>1992</td>
<td>3112</td>
<td>159</td>
<td>243</td>
<td>7109</td>
<td>56</td>
<td>10679</td>
</tr>
<tr>
<td>Parcel</td>
<td>34920</td>
<td>54562</td>
<td>14316</td>
<td>21947</td>
<td>7107</td>
<td>980</td>
<td>98913</td>
</tr>
<tr>
<td>Issuing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Letter</td>
<td>39777</td>
<td>62152</td>
<td>16087</td>
<td>24662</td>
<td>437</td>
<td>1116</td>
<td>104454</td>
</tr>
<tr>
<td>Postcard</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Letter packet</td>
<td>47529</td>
<td>74265</td>
<td>2360</td>
<td>3618</td>
<td>5831</td>
<td>1334</td>
<td>87408</td>
</tr>
<tr>
<td>Small parcel</td>
<td>1753</td>
<td>2740</td>
<td>140</td>
<td>214</td>
<td>6257</td>
<td>49</td>
<td>9400</td>
</tr>
<tr>
<td>Parcel</td>
<td>34598</td>
<td>54059</td>
<td>14184</td>
<td>21745</td>
<td>7044</td>
<td>971</td>
<td>98003</td>
</tr>
<tr>
<td>Total</td>
<td>2966584</td>
<td>4635287</td>
<td>1067500</td>
<td>1636499</td>
<td>192162</td>
<td>72145</td>
<td>7603593</td>
</tr>
</tbody>
</table>
The final stage of the work on budget lies in the development of plans and budgets by all business processes and every type of activity within the framework of the business process, as well as by all types of activity of cost centres. The coordination of types of activity happens during the process of business process budget reconciliation. In such a manner, the budget indicators are compared to the strategic aims, the compromises between planned values and costs are evaluated. The so-developed experimental version of budget should be accentuated for administration representatives on three levels:

- Business process as a multitude of all types of activities, uniting different cost centres;
- Separate cost centre;
- Administration of all business processes.

In order to do this, the company is advised to create workshops and the budget committee of permanent action. The so-developed budget will enable the opportunity to evaluate the types of activity and business processes, to monitor the excessive, redundant and inefficient ones, as well as factors affecting the expenditures. Besides all that, it will help to understand whether the work on the type of activity should be continued or it should better be restructured.

4.2. Financial controlling scheme

The processes of budget planning appears incomplete in case it is not supported by a system of current process efficiency evaluation. The first step towards this is the report preparation concerning the working results of activity. As the budget is developed on the level of activity types, the reports on the assimilating of monetary funds must be done on the same level. The values must illustrate the rate of return, working capacity, costs and volumes. The tools of the traditional budget control are specified by the trends of the past, i.e. the analysis of the obtained results. In such situation there is no opportunity to adjust budget values and introduce any changes in the process or type of activity, if necessary. It is useful to use reports concerning the real working results of activity applying the tools of advance (outrunning) control. Table 11 shows the form of budget report by “Customer service in post offices” for the first week of January. The total sum of budget amounts 158,4 thousands of lats (1/36 part of the annual budget without the consideration of seasonality).

The comparison of real working and budget values does not present the broad picture of the running processes. Let us use the specific rate of budget costs of the so-called budget rate by the type of activity (see Table 12) and calculate the volume of assimilated monetary funds for every type of activity by means of multiplying the real volume of work by every type of activity and the budget rate.

**Table 11. Report by “Customer service in post offices”**

<table>
<thead>
<tr>
<th>Types of costs</th>
<th>Budget, Ls</th>
<th>Real amount, Ls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wage fund</td>
<td>96 568</td>
<td>119 589</td>
</tr>
<tr>
<td>Rent of premises</td>
<td>22 240</td>
<td>22 240</td>
</tr>
<tr>
<td>Equipping costs</td>
<td>34 094</td>
<td>34 094</td>
</tr>
<tr>
<td>Material costs</td>
<td>4 003</td>
<td>4 484</td>
</tr>
<tr>
<td>Connection costs</td>
<td>1 503</td>
<td>1 668</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>158 408</strong></td>
<td><strong>182 074</strong></td>
</tr>
</tbody>
</table>
Table 12. Budget rate of costs by type of activity

<table>
<thead>
<tr>
<th>Activities</th>
<th>Volume</th>
<th>Total budget, Ls</th>
<th>Budget rate, Ls</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Customer service</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Letter</td>
<td>35 799 373</td>
<td>5 830 972</td>
<td>0,1629</td>
</tr>
<tr>
<td>Postcard</td>
<td>1 675 305</td>
<td>245 852</td>
<td>0,1468</td>
</tr>
<tr>
<td>Letter packet</td>
<td>3 186 331</td>
<td>367 907</td>
<td>0,1155</td>
</tr>
<tr>
<td>Small parcel</td>
<td>110 154</td>
<td>41 481</td>
<td>0,3766</td>
</tr>
<tr>
<td>Parcel</td>
<td>1 931 034</td>
<td>379 376</td>
<td>0,1965</td>
</tr>
<tr>
<td><strong>Sorting</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Letter</td>
<td>35 799 373</td>
<td>214 488</td>
<td>0,0060</td>
</tr>
<tr>
<td>Postcard</td>
<td>1 675 305</td>
<td>8 691</td>
<td>0,0052</td>
</tr>
<tr>
<td>Letter packet</td>
<td>3 186 331</td>
<td>105 970</td>
<td>0,0333</td>
</tr>
<tr>
<td>Small parcel</td>
<td>110 154</td>
<td>10 679</td>
<td>0,0969</td>
</tr>
<tr>
<td>Parcel</td>
<td>1 931 034</td>
<td>98 913</td>
<td>0,0512</td>
</tr>
<tr>
<td><strong>Issuing</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Letter</td>
<td>35 799 373</td>
<td>104 454</td>
<td>0,0029</td>
</tr>
<tr>
<td>Postcard</td>
<td>1 675 305</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Letter packet</td>
<td>3 186 331</td>
<td>87 408</td>
<td>0,0274</td>
</tr>
<tr>
<td>Small parcel</td>
<td>110 154</td>
<td>9 400</td>
<td>0,0853</td>
</tr>
<tr>
<td>Parcel</td>
<td>1 931 034</td>
<td>98 003</td>
<td>0,0508</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td>42 702 197</td>
<td>7 603 593</td>
<td></td>
</tr>
</tbody>
</table>
The volume of assimilated monetary means amounting 193,6 thousands of lats is compared to the real working costs amounting 182,1 thousands of lats. The deviation makes 11,5 thousands of lats in favour of the real costs (see Table 13).

### Table 13. Budget report by „Customer service in post offices“

<table>
<thead>
<tr>
<th>Actions</th>
<th>Budget rate, Ls</th>
<th>Amount according to the budget, pcs</th>
<th>Total budget, Ls</th>
<th>Real amount, pcs</th>
<th>Assimilated volume, Ls</th>
<th>Real costs, Ls</th>
<th>Deviation Ls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer service</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Letter</td>
<td>0,1629</td>
<td>745 820</td>
<td>121 479</td>
<td>916 026</td>
<td>149 202</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Postcard</td>
<td>0,1465</td>
<td>34 902</td>
<td>5 112</td>
<td>44 016</td>
<td>6 459</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Letter packet</td>
<td>0,1155</td>
<td>66 382</td>
<td>7 665</td>
<td>80 060</td>
<td>9 244</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small parcel</td>
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<td>864</td>
<td>2 576</td>
<td>0 70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parcel</td>
<td>0,1965</td>
<td>40 230</td>
<td>7 004</td>
<td>46 051</td>
<td>0 224</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serving</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Letter</td>
<td>0,0060</td>
<td>745 820</td>
<td>4 469</td>
<td>916 026</td>
<td>5 418</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Postcard</td>
<td>0,0052</td>
<td>34 902</td>
<td>111</td>
<td>44 016</td>
<td>228</td>
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<td>0,0333</td>
<td>66 382</td>
<td>2 208</td>
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<td>2 081</td>
<td>46 051</td>
<td>2 465</td>
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<td>0,0229</td>
<td>745 820</td>
<td>2 176</td>
<td>916 026</td>
<td>2 673</td>
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<td></td>
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<td>0</td>
<td>44 016</td>
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<td>80 060</td>
<td>2 196</td>
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<tr>
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<td>2 042</td>
<td>46 051</td>
<td>2 313</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total:</td>
<td>889 629</td>
<td>165 410</td>
<td>1 089 629</td>
<td>193 666</td>
<td>182 074</td>
<td>-11 630</td>
<td></td>
</tr>
</tbody>
</table>

Budget control system is a great tool for planning and improvement of efficiency. The increment of growth of the processed correspondence items varies between 17 and 26 percents, which appears to be a quite a substantial growth of workload to be managed by the existing amount of workers (see Table 14).
Table 14. Analysis of budget report.

<table>
<thead>
<tr>
<th>Activities</th>
<th>Amount according to the budget, pcs</th>
<th>Real amount, pcs</th>
<th>Growth %</th>
<th>Work performance time according to budget, hours</th>
<th>Real work performance time, hours</th>
<th>Growth, hours</th>
<th>The required number of workers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Customer service</strong></td>
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<td></td>
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</tr>
<tr>
<td>Letter</td>
<td>745 820</td>
<td>916 026</td>
<td>23%</td>
<td>46 298</td>
<td>56 864</td>
<td>10 566</td>
<td>264,1</td>
</tr>
<tr>
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<td>34 902</td>
<td>44 016</td>
<td>26%</td>
<td>2 167</td>
<td>2 732</td>
<td>566</td>
<td>14,1</td>
</tr>
<tr>
<td>Letter packet</td>
<td>66 382</td>
<td>80 060</td>
<td>21%</td>
<td>4 121</td>
<td>4 970</td>
<td>849</td>
<td>21,2</td>
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<tr>
<td>Small parcel</td>
<td>2 295</td>
<td>2 576</td>
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<td>142</td>
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<td>46 951</td>
<td>17%</td>
<td>2 752</td>
<td>3 212</td>
<td>460</td>
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<tr>
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<td>26%</td>
<td>80</td>
<td>100</td>
<td>21</td>
<td>0,5</td>
</tr>
<tr>
<td>Letter packet</td>
<td>66 382</td>
<td>80 060</td>
<td>21%</td>
<td>1 200</td>
<td>1 448</td>
<td>247</td>
<td>6,2</td>
</tr>
<tr>
<td>Small parcel</td>
<td>2 295</td>
<td>2 576</td>
<td>12%</td>
<td>42</td>
<td>47</td>
<td>5</td>
<td>0,1</td>
</tr>
<tr>
<td>Parcel</td>
<td>40 230</td>
<td>46 951</td>
<td>17%</td>
<td>727</td>
<td>849</td>
<td>122</td>
<td>3,0</td>
</tr>
<tr>
<td><strong>Issuing</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Letter</td>
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<tr>
<td>Postcard</td>
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<td>44 016</td>
<td>26%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0,0</td>
</tr>
<tr>
<td>Letter packet</td>
<td>66 382</td>
<td>80 060</td>
<td>21%</td>
<td>990</td>
<td>1 194</td>
<td>204</td>
<td>5,1</td>
</tr>
<tr>
<td>Small parcel</td>
<td>2 295</td>
<td>2 576</td>
<td>12%</td>
<td>37</td>
<td>41</td>
<td>4</td>
<td>0,1</td>
</tr>
<tr>
<td>Parcel</td>
<td>40 230</td>
<td>46 951</td>
<td>17%</td>
<td>721</td>
<td>841</td>
<td>120</td>
<td>3,0</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td>889 629</td>
<td>1 089 629</td>
<td>22%</td>
<td>61 804</td>
<td>75 562</td>
<td>13 758</td>
<td>344,0</td>
</tr>
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</table>
It is obvious that in the rush hours temporary personnel was invited or the staff was paid extra money for overtime work. The sum of those costs amounts 23 thousands of lats (see Table 1). The expenditures on such unforeseen situations can be covered in budget and illustrate the levels or working capacity in peak and fall periods. Reports developed that way give a clear understanding of the real situation on the level of business process and the type of activity. Having such tools of advance control it is possible to provide the prevention of problems as they are detected instantly while performing the work, when the vast majority of accounting tools are available to apply in the end of the month only to display the negative deviation. This may appear too late to arrange measures to adjust the process.

Activity-based approach will appear incomplete, if it is not supported by cost keeping according to types of activity (Activity-Based Costing, hereinafter referred to as ABC). Production cost and other specifications of the product are defined basing on the types of activity. ABB system can serve as the base for ABC method implementation, because business processes, types of activity and products are already identified. In practice it all appears vice versa: ABC method becomes the first step in Activity-Based approach, and then the transfer to ABB is accomplished. Latvian Post employs ABC method to calculate the production cost of services, so the basis for ABB system development already exists.

CONCLUSION
The necessity to apply new approaches, tools and technologies, especially in the processes of activity planning, material and financial resource management within Latvian Post is obvious under the circumstances of dynamic business environment.

Latvian Post faces the need to implement a modern and efficient budgeting system and has the necessary potential for it.

The application of ABB principles will offer the following advantages in budgeting process:

- Will allow to build a rigid connection between the development strategy of company and budget planning, as well as will promote an efficient management of business processes and types of activity;
- Will allow to evaluate the contribution of every unit of Latvian Post in the achievement of final goals;
- The application of tools of advance control presents an opportunity of timely prevention of problems while performing the work, not waiting until the end or report period, when it may appear too late to arrange the measures of process adjustment.

In order to apply the principles of ABB in budget system of Latvian Post successfully and efficiently, the following is required:

- The development of financial structure of Latvian Post basing on financial responsibility centres. The elaboration and implementation of such structure allows to personalize the responsibility for the achievement of the planned budget rates;
- The accentuation of all budgeting objects and the simultaneous structuring of the activity of Latvian Post by business processes. This will allow to define the impact of business processes on the achievement of company’s strategic aims;
The creation of the budget structure for Latvian Post, consisting of the budgets for financial responsibility centres, as well as total budgets;

The development of budgeting system for Latvian Post, rigidly connected to the strategic aims of an enterprise and allowing the definition of the role of every business process in the aims achievement.

In conclusion, it is important to note that the implementation of ABB system in the process of budget development in Latvian Post can improve competitive advantage of the enterprise, as the given system is based on the modern, precise and highly efficient tools of accounting, analysis and management. The presented system will provide the enterprise with the fullest information necessary to reach relevant managerial decisions, which basically means the minimization of irrelevant decisions.

REFERENCES


FRONTIER REGIONS OF ASIAN PART OF RUSSIA: GENERAL
AND SPECIAL FEATURES FOR PROGRAMS OF ECONOMIC DEVELOPMENT

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Novosibirsk, Russian Federation

Abstract
Frontier regions are strategic important for the whole of country. Each of these regions has specific characteristics, different potential and level of economic development. Borders with other countries influence these regions. Some of them have continental borders, other have marine (ocean) borders. It is important too. Also we can classify borders at strategic and new. It depends from time of their formation. Generalization and analysis of existent approaches shows that all frontier regions have general features. They are: close connecting with regions of neighboring states, interpenetration of economic activities, frontier trade, migration of human recourses, low level of infrastructure, problems with customs and legal rules, necessity to keep balance between intensifications integration and conservation of territorial integrity of country.

Key words: Asian part of Russia, frontier regions, economic development, integration

Currently, the role of Asian part of Russia is growing and attention to this territory is also increasing. This situation is connected with drastic development of near-border countries, especially China. Economy of this country is the second in the world and this position was reached in the short time.

High importance of Asian regions of Russia in country’s economy is pointed by representatives of all power levels and domestic as well as foreign scientists.

«…growth of Russian economy depends on development of Asian part. The role of resources… and economic-geographical location continues to be decisive» as marked in [5].

Near-border regions of Asian part of Russia are interested very much in connection with economic, politic, demographic location of this regions. They must play a key role in the integration processes with frontier territories of border countries, firstly, and secondly - in conservation and in invariance of The Russian Federation borders.

In this research we consider some near-border regions of Asian part of Russia: Omskaya, Novosibirskaya oblast, Altay territory, The Republic of Altai, Tuva, Buryatiya, Zabaikalski krai, Amurskaya oblast, Jewish Autonomous Region, Khabarovski and Primourski krai.

These regions border with different countries. They are The Republic of Kazakhstan, China, Mongolia, DPRK. Their Development’s pace and interstate relations character are various [4].

Along with the high significance, this territory has some problems. These are low population density, low level of socio-economic development in most regions. While listed regions are included in the thirty largest in Russia for the area (with the exception of the Altai Republic, which occupies 35th place, and the Jewish Autonomous Region – 60th place), in terms of population and gross regional
product per capita most regions are ranked below 30th (with the exception of the Khabarovsk Krai - in terms of gross region product occupies 25th place).

Greater length and variety of boundaries determine the necessity of their classification.

By the time of emergence borders could be divided into new and strategic [5].

New borders were formed after disintegration of Soviet Union. This processes had as positive as negative effects.

Omskaya, Novosibirskaya oblast, Altay territory, The Republic of Altai are new near-border regions. All of them have a border with Kazakhstan. The main problem for this segment of boundary is that production chains broke with the collapse of the Soviet Union and the proclamation of an independent republic of Kazakhstan. For example, The Altai ore-dressing and processing enterprise in Gornyak within the borders of the Soviet Union was part of the East Kazakhstan metallurgical production cycle together with Zheskentski ore-dressing and processing enterprise, lead-zinc and titanic-magnesium enterprise in Ust-Kamenogorsk and Irtysk copper smelter. With the collapse of the Soviet Union (in 1991) Ministry of Non-Ferrous Metallurgy in Kazakhstan transferred to the Ministry of the Russian Altai company. Drop the Altai Mining from a single production cycle and the inability to self-adapt to market conditions - is one of the main reasons for stopping this city-forming enterprise for the Gornyak.

If regions are grouped according to the classification Bezrukov [1] on the continental and oceanic (marine), then the group ultra continental (distanced from the sea border from 1000 to 2000 km) are: Omskaya, Novosibirskaya oblast, Altay territory, The Republic of Altai, Tuva, Buryatiya, Zabaikalski krai

the group continental (from 200 to 1000 km) are: Amurskaya oblast, Jewish Autonomous Region, Khabarovski krai

Khabarovski krai has an outlet to the sea, but because of the large surface area refers to the continental type.

the group marine ( from 0 to 200 km) are: Primourski krai.

This classification is very important for evaluation of economic potential.

Continental and ultra continental position of most near-border regions of Asian part of Russia also defines a necessity of integration intensification with frontier regions of neighboring countries, because distance between them is less (for most situations) than distance to the economic center into our country. Continental position determines the increase in transport costs, delivery time, and, consequently, the final cost of goods transported.

There are a lot of problems connected with near-border position. It are low level of infrastructure development including transport infrastructure (roads, frontier crossing), institutional problems, connected with legal rules legal rules of crossing the border, the implementation of cross-border trade and so on. Despite the establishment of the Customs Union and the adoption of the Customs Code, there are still many unresolved aspects of cross-border cooperation. These are environmental, political and other problems.

In the research we examine the Altai region - conjoint Altai territory and The Republic of Altai. We do not discuss the administrative association of these subjects of Russian Federation. We use it only for
analytical purposes due to the common history and the close economic connection between the Altai territory and The Republic of Altai.

Altai region is located in south-eastern Siberia.

Altai region has unique geographical position. Borders pass from Altai territory with three countries: Kazakhstan, China, Mongolia.

This region is continental.

Border with Kazakhstan is new, borders with China and Mongolia are strategical.

Land area is 261,5 thousand square kilometers (Altai territory – 168,9 thousand square kilometers and 92,9 thousand square kilometers – The Republic of Altai).

The population (in 1 January 2010) is 2701,4 thousand people (Altai territory – 2490,7 thousand people and 210,7 thousand people – The Republic of Altai).

This region is an active participant of international relations including international trade.

Foreign trade turnover is 1,26 million dollars, export is 0,77 million dollars, import is 0,493 million dollars.
Table 1. The main international trade results of Altai territory 2007 – 2010 years (bln. $)

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign trade turnover</td>
<td>1,29</td>
<td>1,97</td>
<td>1,12</td>
<td>1,26</td>
</tr>
<tr>
<td>Export</td>
<td>0,95</td>
<td>1,34</td>
<td>0,76</td>
<td>0,77</td>
</tr>
<tr>
<td>Import</td>
<td>0,34</td>
<td>0,63</td>
<td>0,36</td>
<td>0,49</td>
</tr>
<tr>
<td>Trade balance</td>
<td>0,61</td>
<td>0,70</td>
<td>0,40</td>
<td>0,28</td>
</tr>
</tbody>
</table>

The main country-partners are Kazakhstan (this country’s share in the foreign trade turnover of the Altai territory is 34%), China (6-9%) and Mongolia (1,5%). The main partner for The Republic of Altai is Mongolia (48% for export), this country has second place for import (13,6%).

Table 2. Turnover with the main country-partners of Altai Territory

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost, billion dollar USA</td>
<td>Percentage, %</td>
<td>Cost, billion dollar USA</td>
<td>Percentage, %</td>
<td>Cost, billion dollar USA</td>
</tr>
<tr>
<td>Total</td>
<td>1,29</td>
<td>100,0</td>
<td>1,97</td>
<td>100,0</td>
</tr>
<tr>
<td>Kazakhstan</td>
<td>0,44</td>
<td>34,39</td>
<td>0,56</td>
<td>28,47</td>
</tr>
<tr>
<td>China</td>
<td>0,07</td>
<td>5,57</td>
<td>0,10</td>
<td>5,23</td>
</tr>
<tr>
<td>Mongolia</td>
<td>0,02</td>
<td>1,56</td>
<td>0,03</td>
<td>1,49</td>
</tr>
</tbody>
</table>

The main exports are coke and coke breeze, timber and lumber, steam boilers, equipment, machinery, cars and spare parts; flour from soft wheat.

The main imports for Altai territory are goods of boilers, machinery and mechanical appliances, parts, machine tools for working wood, vegetable products, products of plastic and articles thereof.

The Altai Republic exports pharmaceutical products, mineral fuel and import wood and its products, prepared meat.

Altai territory has some problems. There are 11 frontier points including 4 for rail transport, 6 for motor transport and 1 for air transport. But these frontier points have a low level of infrastructure and low throughput, which don’t allow an increase in trade flows between border regions. Moreover not
all frontier points are international. This makes impossible transit traffic. This problem is the most acute for frontier point Tashanta (border with Mongolia).

Extension of throughput will allow the realization of transit potential, which could stand for the important advantage of this territory.

Strategic direction is to develop relations with near-border of China. This way raises a lot of discussions in academic and government circles, but some projects in this way are designed, for example, straight road which will connect China and Russia through The Republic of Altai.

Also important task is a renewal and intensification of industrial communication with Kazakhstan.

Near-border position and active interconnection with neighbor countries define the research problem. It is evaluation of international trade growth influence on Altai region economy, neighbor regions of Siberian federal district and Russian Federation economy in the whole.

We use static variant of optimization intersectoral and inter-regional model with 38 sectors and 19 regions as an instrument for confirmation of this hypothesis.

This model gives opportunity to predict region’s development and the same time it is taking into account inter-region ties and how changes influence the economy of district and the whole country.

Figure 2. Directions of intensification integration for Altai territory [4]

Calculations are done for the 2015 year and for two variations. First of them suggests a moderate tendency of development. Second of them assume extension of «south» direction of international trade with Kazakhstan, China and Mongolia from Altai region.
Calculations showed that extension of this direction and realization of transit potential of frontier states offers better prospects for the Altai region economy, together with accelerating the Siberian federal district and Russian Federation economic development.

Table 3. Change in economic performance with an increase in foreign trade with Kazakhstan, China, Mongolia

<table>
<thead>
<tr>
<th>Region</th>
<th>Rates of production output, %</th>
<th>Growth rates of transport, %</th>
<th>Transit, billion roubles</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Tomsk region</td>
<td>0.10</td>
<td>1.81</td>
<td>22</td>
</tr>
<tr>
<td>6. Kemerovo region</td>
<td>0.51</td>
<td>-3.13</td>
<td>150</td>
</tr>
<tr>
<td>7. Novosibirsk region</td>
<td>0.05</td>
<td>2.90</td>
<td>-1</td>
</tr>
<tr>
<td>8. Altai territory</td>
<td>2.90</td>
<td>5.46</td>
<td>8</td>
</tr>
<tr>
<td>9. Krasnoyarsk territory</td>
<td>0.24</td>
<td>1.69</td>
<td>55</td>
</tr>
<tr>
<td>10. The republic of Altai</td>
<td>0.79</td>
<td>14.45</td>
<td>9</td>
</tr>
<tr>
<td>13. The Republic of Khakassia</td>
<td>-0.31</td>
<td>10.94</td>
<td>-1</td>
</tr>
<tr>
<td>Russia in total</td>
<td>0.23</td>
<td>0.55</td>
<td>996</td>
</tr>
<tr>
<td>Siberian federal district</td>
<td>0.29</td>
<td>0.60</td>
<td>70</td>
</tr>
</tbody>
</table>

Growth of final consumption for Russia in total is 10 billion roubles, 0.13 billion roubles for Altai territory and 0.01 billion roubles for The Republic of Altai compared with basic, First, variant.

Growth rates of production output increase for Russian Federation, Siberian state district, Altai region.

We pay attention on transport and transit. In result we got growth of transport for Russia by 0.55 pc, for Altai territory by 5.5 pc, for The Republic of Altai by 14.45 pc. Unfortunately we have slight decrease for Novosibirskaya oblast and Kemerovskaya oblast, caused by redistribution of some freights.

As compared with base variant transit for Russia grows by 996 billion roubles, for Siberian state district by 70 billion roubles, for Altai territory by 8 billion roubles and 9 billion roubles for The Republic of Altai.

This calculation confirm original hypothesis. It makes reasonable to seek the ways of strengthen trade ties with Kazakhstan, China, Mongolia. But firstly we need to develop transport, frontier, custom infrastructure.

Example of prognosis of Altai region development shows opportunity for intensification integration with neighboring frontier territories for other regions of Asian part of Russia. Simultaneously we should take into consideration specificities of each region, their transit potential level and economy specialization.
REFERENCES


FORECASTING EURO AREA ECONOMIC GROWTH
BY COMBINING ECONOMETRIC MODELS

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Abstract
This paper outlines the importance of combining econometric methods in order to obtain the final forecast of euro area economic growth, as we can never rely on one single technique. A Dynamic Factor Model (DFM) should be the starting point in forecasting the economic growth, as it can quantify the influence of many macroeconomic variables, surpassing the degrees of freedom problem.

Key words: Forecasting, Economic growth, Euro area, Dynamic Factor Model, Regression.

1. INTRODUCTION
Predicting the future path of the economy has always been a tremendous challenge for professional forecasters. In the past decades, economists have tried different models and methods in forecasting real GDP evolution, from univariate models to Vector Error Correction (VEC), Vector Autoregression (VAR) or Dynamic Factor Models (DFMs). Different models had different forecasting performance depending on their specification, estimation technique and variables used. Economists usually use one model in forecasting the economic growth and compare the results with other types of models. This paper outlines the importance of combining forecasting methods in order to obtain the final prediction, as we can never rely on one single technique.

2. FORECASTING
The development of time series econometrics permitted specialists to test the forecasting performance of different models, univariate or multivariate. The models provided different in-sample and out-of-sample forecasts depending on their specification and the variables used.

The most popular multivariate models used in econometric forecasting are the Vector Autoregressive Model (VAR) and the Vector Error Correction Model (VEC). In May 2007, the National Bank of Romania (NBR) presented the “Short-term forecasts on inflation and GDP. Aspects of NBR forecasting process and the analysis and medium-term forecast model”. According to the presentation, NBR uses VEC models in order to predict the performance of different GDP components. The economic growth forecast is obtained by adding the individual forecasts taking into consideration their weights. Unfortunately VARs and VECs have an important disadvantage. They use only a limited number of macroeconomic variables, usually six or eight, due to the degrees of freedom problem.

Therefore, economists passed to univariate models and then combined the individual forecast in order to obtain the final prediction. John Kitchen and Ralph Monaco (2003) forecast the GDP for the U.S. Treasury combining certain predictions. They select specific variables that are considered to be very important in forecasting GDP and make regressions with GDP and each key indicator. Finally,
Kitchen and Monaco calculate the GDP forecast using an average of each separate forecast weighted by $R^2$ (the coefficient of determination). Barhoumi, Brunhes-Lesage, Ferrara, Pluyaud and Rouvreau (2008) forecast the GDP of France using an autoregressive-distributed-lag (ADL) bridge model. Zheng and Rossiter (2006) forecast the GDP of Canada using an ADL bridge equation. This approach permits the use of much more variables, the major disadvantage being the fact that the macroeconomic variables are used in a rather scattered way, and therefore important information could be lost.

“The history of macroeconomic forecasting has been an uneasy coexistence of structural and time series models”, according to James H. Stock and Mark W. Watson’s presentation at the Far Eastern Meeting of the Econometric Society in Beijing in 2006. In the past, economists were not satisfied in making predictions using only expert judgment, so they tried to combine statistical methods with economic theory in order to obtain reliable forecasts. Simple regressions seemed to be surpassed by the high complexity of modern economics, so people needed sophisticated models.

Dynamic Factor Models (DFMs) represent an important discovery in econometrics, as they can quantify the influence of dozens of macroeconomic variables using only several factors. Jörg Breitung and Sandra Eickmeier (2005) consider that DFMs surpass the degrees of freedom problem, eliminate idiosyncratic movements, which possibly include measurement errors and local shocks and do not rely on tight assumptions regarding the economy. DFMs are very useful in situations where the number of variables used exceeds the number of observations. Those important advantages transformed DFM into a widely used model today.


3. THE DATABASE

The forecasts of euro area economic growth for the last three quarters of 2011 are obtained using a Dynamic Factor Model with 71 monthly variables that quantify the evolution of industrial production, constructions, domestic trade, consumer confidence, foreign trade, foreign exchange, interest rates, stock market and raw materials. The data span the period from January 1999 through March 2011. The series were transformed to obtain stationarity. A detailed description of the series and their transformation is presented the tables bellow. The transformation codes are: 1 – first difference; 2 – log differencing. As the indicators presented above are available monthly, I transform them into quarterly ones using the arithmetic mean of their monthly evolutions.
## Table 1. Industry indicators

<table>
<thead>
<tr>
<th>Nr.</th>
<th>Indicators</th>
<th>Indicator codes</th>
<th>Transformation codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>IP-Capital goods</td>
<td>capital</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>IP-Consumer goods</td>
<td>consumer</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>IP-Durable consumer goods</td>
<td>durable</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>IP-Electricity, gas, steam and air conditioning supply</td>
<td>electricity</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>IP-Energy</td>
<td>energy</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>IP-Intermediate and capital goods</td>
<td>inter2</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>IP-Intermediate goods</td>
<td>inter</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>IP-Manufacture of basic metals</td>
<td>metals</td>
<td>2</td>
</tr>
<tr>
<td>9</td>
<td>IP-Manufacture of chemicals and chemical products</td>
<td>chemicals</td>
<td>2</td>
</tr>
<tr>
<td>10</td>
<td>IP-Manufacture of electrical equipment</td>
<td>electrical</td>
<td>2</td>
</tr>
<tr>
<td>11</td>
<td>IP-Manufacture of food products and beverages</td>
<td>food</td>
<td>2</td>
</tr>
<tr>
<td>12</td>
<td>IP-Manufacture of machinery and equipment</td>
<td>machinery</td>
<td>2</td>
</tr>
<tr>
<td>13</td>
<td>IP-Manufacture of motor vehicles, trailers and semi-trailers</td>
<td>vehicles</td>
<td>2</td>
</tr>
<tr>
<td>14</td>
<td>IP-Manufacturing</td>
<td>manufac</td>
<td>2</td>
</tr>
<tr>
<td>15</td>
<td>IP-Mining and quarrying</td>
<td>mining</td>
<td>2</td>
</tr>
<tr>
<td>16</td>
<td>IP-Non-durable consumer goods</td>
<td>nondurable</td>
<td>2</td>
</tr>
<tr>
<td>17</td>
<td>IP-Total Industry</td>
<td>ip2</td>
<td>2</td>
</tr>
<tr>
<td>18</td>
<td>IP-Total Industry (excluding constructions)</td>
<td>ip</td>
<td>2</td>
</tr>
<tr>
<td>19</td>
<td>Assessment of export order-book levels</td>
<td>indass1</td>
<td>1</td>
</tr>
<tr>
<td>20</td>
<td>Assessment of order-book levels</td>
<td>indass3</td>
<td>1</td>
</tr>
<tr>
<td>21</td>
<td>Assessment of stocks of finished products</td>
<td>indass2</td>
<td>1</td>
</tr>
<tr>
<td>22</td>
<td>Employment expectations for the months ahead</td>
<td>inde</td>
<td>1</td>
</tr>
<tr>
<td>23</td>
<td>Industrial confidence indicator</td>
<td>indconf</td>
<td>1</td>
</tr>
<tr>
<td>24</td>
<td>Production expectations for the months ahead</td>
<td>prodexp</td>
<td>1</td>
</tr>
<tr>
<td>25</td>
<td>Production trend observed in recent months</td>
<td>prodtrend</td>
<td>1</td>
</tr>
<tr>
<td>26</td>
<td>Selling price expectations for the months ahead</td>
<td>prods</td>
<td>1</td>
</tr>
</tbody>
</table>

## Table 2. Constructions indicators

<table>
<thead>
<tr>
<th>Nr.</th>
<th>Indicators</th>
<th>Indicator codes</th>
<th>Transformation codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>27</td>
<td>Construction volume index</td>
<td>const</td>
<td>2</td>
</tr>
<tr>
<td>28</td>
<td>Buildings volume index</td>
<td>buildings</td>
<td>2</td>
</tr>
<tr>
<td>29</td>
<td>Civil engineering volume index</td>
<td>civil</td>
<td>2</td>
</tr>
<tr>
<td>30</td>
<td>Building permits residential buildings</td>
<td>buildp</td>
<td>2</td>
</tr>
<tr>
<td>31</td>
<td>Construction confidence index</td>
<td>constconf</td>
<td>1</td>
</tr>
<tr>
<td>32</td>
<td>Assessment of order books</td>
<td>constass</td>
<td>1</td>
</tr>
<tr>
<td>33</td>
<td>Trend of activity compared with preceding months</td>
<td>consttrend</td>
<td>1</td>
</tr>
<tr>
<td>34</td>
<td>Employment expectations for the months ahead</td>
<td>conste</td>
<td>1</td>
</tr>
<tr>
<td>35</td>
<td>Price expectations for the months ahead</td>
<td>constp</td>
<td>1</td>
</tr>
</tbody>
</table>
Table 3. Domestic trade indicators

<table>
<thead>
<tr>
<th>Nr.</th>
<th>Indicators</th>
<th>Indicator codes</th>
<th>Transformation codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>36</td>
<td>Domestic Trade</td>
<td></td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>Retail trade, except of motor vehicles, motorcycles and fuel</td>
<td>retail</td>
<td>2</td>
</tr>
<tr>
<td>37</td>
<td>Retail Confidence Indicator</td>
<td>retailconf</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 4. Consumer confidence indicators

<table>
<thead>
<tr>
<th>Nr.</th>
<th>Indicators</th>
<th>Indicator codes</th>
<th>Transformation codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>38</td>
<td>Consumer Confidence</td>
<td>cconf</td>
<td>1</td>
</tr>
<tr>
<td>39</td>
<td>Financial situation over the last 12 months</td>
<td>cfin12</td>
<td>1</td>
</tr>
<tr>
<td>40</td>
<td>Financial situation over the next 12 months</td>
<td>cfin12n</td>
<td>1</td>
</tr>
<tr>
<td>41</td>
<td>General economic situation over the last 12 months</td>
<td>gen12</td>
<td>1</td>
</tr>
<tr>
<td>42</td>
<td>General economic situation over the next 12 months</td>
<td>gen12n</td>
<td>1</td>
</tr>
<tr>
<td>43</td>
<td>Major purchases at present</td>
<td>major</td>
<td>1</td>
</tr>
<tr>
<td>44</td>
<td>Major purchases over the next 12 months</td>
<td>majorn</td>
<td>1</td>
</tr>
<tr>
<td>45</td>
<td>Price trends over the last 12 months</td>
<td>price</td>
<td>1</td>
</tr>
<tr>
<td>46</td>
<td>Price trends over the next 12 months</td>
<td>pricen</td>
<td>1</td>
</tr>
<tr>
<td>47</td>
<td>Savings over the next 12 months</td>
<td>s</td>
<td>1</td>
</tr>
<tr>
<td>48</td>
<td>Statement on financial situation of households</td>
<td>st</td>
<td>1</td>
</tr>
<tr>
<td>49</td>
<td>Unemployment expectations over the next 12 months</td>
<td>une</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 5. Foreign trade indicators

<table>
<thead>
<tr>
<th>Nr.</th>
<th>Indicators</th>
<th>Indicator codes</th>
<th>Transformation codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>Foreign Trade</td>
<td></td>
<td></td>
</tr>
<tr>
<td>51</td>
<td>Extra-Euro area-16 Exports</td>
<td>expe</td>
<td>2</td>
</tr>
<tr>
<td>52</td>
<td>Extra-Euro area-16 Imports</td>
<td>impe</td>
<td>2</td>
</tr>
<tr>
<td>53</td>
<td>Intra-Euro area-16 Exports</td>
<td>expi</td>
<td>2</td>
</tr>
<tr>
<td>54</td>
<td>Intra-Euro area-16 Imports</td>
<td>impi</td>
<td>2</td>
</tr>
</tbody>
</table>
### Table 6. Financial indicators

<table>
<thead>
<tr>
<th>Nr.</th>
<th>Indicators</th>
<th>Indicator codes</th>
<th>Transformation codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>54</td>
<td>EUR/USD</td>
<td>eurusd</td>
<td>1</td>
</tr>
<tr>
<td>55</td>
<td>EUR/JPY</td>
<td>euryen</td>
<td>2</td>
</tr>
<tr>
<td>56</td>
<td>EUR/GBP</td>
<td>eurgbp</td>
<td>1</td>
</tr>
<tr>
<td>57</td>
<td>ECB nominal effective exchange rate, broad group of currencies against euro - Index</td>
<td>fxn</td>
<td>2</td>
</tr>
<tr>
<td>58</td>
<td>ECB real effective exchange rate CPI deflated, broad group of currencies against euro - Index</td>
<td>fxr</td>
<td>2</td>
</tr>
<tr>
<td>59</td>
<td>ECB real effective exchange rate producer price deflated, narrow group of currencies against euro - Index</td>
<td>fxrn</td>
<td>2</td>
</tr>
</tbody>
</table>

#### Interest rates

<table>
<thead>
<tr>
<th>Nr.</th>
<th>Indicators</th>
<th>Indicator codes</th>
<th>Transformation codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>3-month interest rates (average)</td>
<td>r3m</td>
<td>1</td>
</tr>
</tbody>
</table>

#### Stock Market

<table>
<thead>
<tr>
<th>Nr.</th>
<th>Indicators</th>
<th>Indicator codes</th>
<th>Transformation codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>61</td>
<td>Dow Jones EURO STOXX Broad</td>
<td>djeuro</td>
<td>2</td>
</tr>
<tr>
<td>62</td>
<td>Standard &amp; Poor's 500 - Index</td>
<td>sp</td>
<td>2</td>
</tr>
<tr>
<td>63</td>
<td>Dow Jones Industrial Average</td>
<td>dji</td>
<td>2</td>
</tr>
</tbody>
</table>

### Table 7. Raw materials indicators

<table>
<thead>
<tr>
<th>Nr.</th>
<th>Indicators</th>
<th>Indicator codes</th>
<th>Transformation codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>64</td>
<td>Oil price</td>
<td>oil</td>
<td>2</td>
</tr>
<tr>
<td>65</td>
<td>World market prices of raw materials Index, Total excluding energy Euro</td>
<td>raw1</td>
<td>2</td>
</tr>
<tr>
<td>66</td>
<td>World market prices of raw materials Index, Total - Euro</td>
<td>raw2</td>
<td>2</td>
</tr>
</tbody>
</table>

### Table 8. Other indicators

<table>
<thead>
<tr>
<th>Nr.</th>
<th>Indicators</th>
<th>Indicator codes</th>
<th>Transformation codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>67</td>
<td>Euro area number of unemployment persons</td>
<td>u</td>
<td>2</td>
</tr>
<tr>
<td>68</td>
<td>Euro area Business Climate Indicator</td>
<td>bci</td>
<td>1</td>
</tr>
</tbody>
</table>

#### US Indicators

<table>
<thead>
<tr>
<th>Nr.</th>
<th>Indicators</th>
<th>Indicator codes</th>
<th>Transformation codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>69</td>
<td>Industrial Production Index, Manufacturing - Index</td>
<td>us_ind</td>
<td>2</td>
</tr>
<tr>
<td>70</td>
<td>Money Stock M2</td>
<td>us_m</td>
<td>2</td>
</tr>
<tr>
<td>71</td>
<td>Unemployment according to ILO definition - Total</td>
<td>us_u</td>
<td>2</td>
</tr>
</tbody>
</table>
4. THE DYNAMIC FACTOR MODEL

A Dynamic Factor Model can be written in the following form:

\[ X_t = \Lambda F_t + e_t \]

where \( X_t \) is the vector of macroeconomic variables, \( N \times 1 \), \( f_t \) - unobserved factors, \( q \times 1 \) (dynamic factors) and \( N > q \), \( \lambda_i(L) \) - common component, \( \lambda_i(L) \) - lag polynomial (“dynamic factor loadings”), \( e_t \) - idiosyncratic disturbances (possibly serially correlated). \( E e_t \eta_{-k} = 0 \).

According to Stock and Watson (2010), DFM can be written in a static form:

\[ X_t = \Lambda F_t + e_t \]

\[ \Phi(L)F_t = G\eta_t \]

where \( X_t \) represents the vector of dozens of macroeconomic variables introduced in the model, in this case 71, while \( F_t = (f_t', f_{t-1}', ..., f_{t-p}') \) is an \( r \times 1 \) vector of factors. \( \lambda_i \) is an \( N \times q \) matrix of coefficients and \( \Lambda = (\lambda_0, \lambda_1, ..., \lambda_p) \). \( \Phi(L) \) and \( G \) represent matrix of 1’s and 0’s. \( r = \dim(F_t) = \) number of static factors.

As the number of variables used is very big, I use the principal components analysis to estimate \( F_t \) as suggested by Stock and Watson (2002). The principal components estimator can be obtained as the solution of the following:

\[ \min_{F_1, F_2, ..., F_r} V_r(\Lambda, F) \]

\[ V_r(\Lambda, F) = \frac{1}{T} \sum_{t=1}^{T} (X_t - \Lambda F)'(X_t - \Lambda F) \]

\[ \Lambda' \Lambda = I_r \]

\( \hat{\Lambda} \) = first \( r \) eigenvectors of \( \sum_{X_t} \), \( \hat{F}_t = \hat{\Lambda}'X_t \) = first \( r \) principal components of \( X_t \),

I have selected six factors to explain the evolution of the macroeconomic variables. After I have estimated them, I use six regressions, each correlating euro area economic growth and the estimated factor as following:

\[ ez_t = \alpha_i f_{i,t-1} + e_t \]

\( ez_t \) - euro area real GDP growth as compared to the same timeframe last year, \( f_{i,t-1} \) - factor \( i \) obtained from DFM estimation.

The regressions, estimated by Ordinary Least Squares (OLS) method, supply six different forecasts for each quarter. The final forecast is obtained as a weighted arithmetic mean taking into consideration the
coefficients of determination of each regression, the method being similar to the one implemented by Kitchen and Monaco (2003) at the Treasury Department of the United States.

\[ ez_{final} = \sum_{i=1}^{6} \omega_j ez_i \]
\[ \omega_j = \frac{R_j^2}{\sum_{i=1}^{6} R_i^2} \] (5)

5. RESULTS

In most of the papers, the factors obtained from the estimation of the DFM are introduced in one single regression in order to obtain the final forecast of a specified macroeconomic variable. I decided to introduce six regressions, each having a lagged factor as independent variable and the economic growth as dependent variable. The six factors have different explanatory power for revealing the future path of euro area GDP, according to the coefficients of determination. Although in certain regressions, \( R^2 \) is very low, I still used the results, as I considered that dropping the individual forecasts supplied would have meant renouncing to information. The model can be transformed in order to incorporate the latest available information in the economy, as in the model implemented by Aruoba, Diebold and Scotti (2008). Further research should also combine a higher number of models and techniques in order to forecast the economic growth. The forecasts are presented in the table below.

<table>
<thead>
<tr>
<th>Table 9. Economic growth forecasts for Euro area 17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real GDP growth (%) year/year</td>
</tr>
<tr>
<td>1.4 %</td>
</tr>
</tbody>
</table>

6. CONCLUSIONS

Combining econometric models can improve the economic growth forecasts, as each technique presents advantages and disadvantages. Recent research revealed that factor models provide better predictions as compared to other models, so DFM should be the core model in forecasting real GDP growth. The estimated factors of a DFM should be introduced in different models in order to obtain different forecasts. The models could be univariate or multivariate, estimated by different techniques from Ordinary Least Squares (OLS) to Bayesian techniques. A certain weight should be attributed to each individual forecast, depending on the in-sample forecasting performance or other criterion. The final prediction should be a weighted arithmetic mean of the forecasts obtained from different models.

REFERENCES


THE ROLE OF THE “COST – EFFECTIVENESS” ANALYSIS IN THE MANAGEMENT OF PRIMARY HEALTH CARE IN THE REPUBLIC OF BULGARIA

Tihomira Zl. Zlatanova
Medical University – Sofia, Faculty of Public Health, Department of Health Economics, 1527 Sofia, Bulgaria. E-mail: drzlatanova@abv.bg

Abstract

In the terms of financing for primary health care by the National Health Insurance the problem of assessing the economic performance of GPs becoming more topical. The article presents the role of the analysis “cost – effectiveness” in the management of primary care in order to streamline the income and expenditure, and ultimately the financial survival of GPs in the market of health services.

Key words: GP, primary health care, analysis “cost – benefit”, financing, management

The reform in the primary health care placed the focus in the healthcare system on rendering quality, adequate and productive medical services distributed on fair basis. First of all attention is paid to patient’s needs from medical point of view. The detailed analysis of the contemporary social-market criteria shows that needs are only one of the factors defining the demand for medical aid [6,13]. The needs of medical aid are always surpassing the available resources at outpatient level /primary and specialized/, as well as at hospital level. This necessitates the application of various ways for regulating the healthcare services demand. In the field of primary health care in our state the applicable method is the utilization of regulative standards such as financial controlling mechanism and the consumer fees as method for defining the expenditures.

Three basic mechanisms for paying the medical services providers in the outpatient care are applied internationally:

- Fixed budget/salary,
- Service fee (freely defined or fixed fees) and
- Capitation payments.

The international practice overview shows that almost all EU member-states use combination of the three payment mechanisms in the outpatient care in various ratios [12]. Bulgaria is no exception.

Payment for primary health care in Bulgaria is performed on the base of combination between capitation, payment for the performed activity and consumer fee.

Funds are distributed in the interest of capitation payment. It is about 60 % of the total structure of expenditures for primary medical aid. The other 40% comprise payment for the activities performed by the general practitioners (including prophylactics and monitoring of patients with chronic diseases).

Capitation is the monthly payment for the provider of the primary health care provided by the National Health Insurance Fund on the basis of registered patients. It is differentiated depending on the age of the health-insured people that are registered at the general practitioners. It is believed that this
mechanism creates incentives for fair access to the services. Via the capitation system, the outpatient service provider regularly receives payment no matter whether the patient was rendered any services during the particular month. The capitation payments adaptation according to the patient profile on the basis of objective features such as age and sex to some degree decrease the risk from loss occurrence resulting from the usage fluctuations.

Capitation’s key aspect is that payment is not connected with the resources used by the providers or the volume of services offered by them. Consequently particular financial risk for the loss occurrence is transferred from the funding institution to the medical aid provider. If factual expenditures surpass the capitation budget, the provider is responsible for them. Correspondingly, if it has achieved particular effectiveness level, for example maintenance of registered patients’ good health, it could accumulate funds for reinvestments. Patients’ good health maintenance is possible to be achieved via adequate and timely prophylactic checks and early diagnostics of socially significant diseases. Here we are also witnessing the application of the “cost – effectiveness” method for optimizing population’s health status.

Funding for the performed activity is monthly payment for the performed activity in the various directions, included in the minimal package (regulated with Ordinance №40/24.11.2004) [2] and the performance of the priority programmes of the ministry of health. In the case of this method, doctors are compensated directly for the rendered services and for the worked-out hours. The application for activity payment as the only payment method should be avoided because this increases the expenditures in a way that could not be controlled via other incentives. Nevertheless it is believed that the trend towards over-supply of services in the case of this mechanism could be easily limited via price limits or activities volume limits. This is done via defining ceilings for the total value amount of services or contracting the volume in the framework of the budget ceilings.

In Bulgaria there is regulation concerning medical activities (ceiling of the number of the issued medical referrals for specialized medical aid and medical-diagnostics activity).

Additional funds are paid on the basis of the specific terms and conditions concerning medical services rendering to patients living in the regions defined as unfavourable for servicing.

Consumer fee complements funding and is defined on the basis of per cent of the minimal salary in the state /1%/ - 2.40 BGN.

Table 1. presents the funds that were paid out of the budget of the National Health-Insurance Fund for primary health care for the period 2007 – July 2010.
Table 1. The paid of the budget of the National Health-Insurance Fund for primary health care for the period 2007 – July 2010.

<table>
<thead>
<tr>
<th>PRIMARY HEALTH CARE</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010 /до 31 юли/</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per capita payment</td>
<td>72 288 732</td>
<td>73 176 751</td>
<td>77 304 868</td>
<td>52 627 834</td>
</tr>
<tr>
<td>Persons from 0 to 18 years</td>
<td>16 737 123</td>
<td>16 238 008</td>
<td>16 093 907</td>
<td>11 058 236</td>
</tr>
<tr>
<td>Persons from 18 to 65 years</td>
<td>36 905 393</td>
<td>38 423 897</td>
<td>42 569 938</td>
<td>28 699 357</td>
</tr>
<tr>
<td>Persons over 65 years</td>
<td>18 646 216</td>
<td>18 514 846</td>
<td>18 641 022</td>
<td>12 870 240</td>
</tr>
<tr>
<td>ACTIVITY BY PROGRAM “CHILD HEALTH”</td>
<td>12 842 718</td>
<td>13 120 674</td>
<td>13 794 421</td>
<td>9 865 873</td>
</tr>
<tr>
<td>Prophylactic examinations of persons from 0 to 1 year</td>
<td>2 875 350</td>
<td>3 070 413</td>
<td>3 317 475</td>
<td>3 015 366</td>
</tr>
<tr>
<td>Prophylactic examinations of persons from 1 to 2 years</td>
<td>961 501</td>
<td>1 023 107</td>
<td>1 104 659</td>
<td>1 015 607</td>
</tr>
<tr>
<td>Prophylactic examinations of persons from 2 to 7 years</td>
<td>2 271 589</td>
<td>2 363 917</td>
<td>2 534 071</td>
<td>2 196 702</td>
</tr>
<tr>
<td>Prophylactic examinations of persons from 7 to 18 years</td>
<td>4 794 197</td>
<td>4 672 312</td>
<td>4 780 102</td>
<td>2 353 667</td>
</tr>
<tr>
<td>Immunizations of persons 0 to 18 years</td>
<td>1 940 081</td>
<td>1 990 925</td>
<td>2 058 114</td>
<td>1 284 531</td>
</tr>
<tr>
<td>ACTIVITY BY PROGRAM &quot;MATERNAL HEALTH&quot;</td>
<td>41 055</td>
<td>38 467</td>
<td>46 684</td>
<td>20 456</td>
</tr>
<tr>
<td>Activity by dispensary observation</td>
<td>12 991 708</td>
<td>13 142 975</td>
<td>14 285 326</td>
<td>9 217 866</td>
</tr>
<tr>
<td>Prophylactic examinations of persons over 18 years</td>
<td>13 375 883</td>
<td>15 239 200</td>
<td>14 338 885</td>
<td>9 194 085</td>
</tr>
<tr>
<td>Occasional visits to the LHSI from other health regions</td>
<td>150 705</td>
<td>155 853</td>
<td>159 427</td>
<td>79 650</td>
</tr>
<tr>
<td>Adverse conditions</td>
<td>2 249 012</td>
<td>3 744 015</td>
<td>3 568 210</td>
<td>2 313 356</td>
</tr>
</tbody>
</table>
Expenditures structure (Figure 1) is comparable with the structure of the number of activities provided by the general practitioners.

**Fig. 1.** Structure of payments for primary medical care for 2009. / by the NHIF budget / in percentage

In Decree № 304 dated the 17th of December 2010 for the acceptance of the volumes, prices and methodologies for valuation and payment for the medical aid in terms of article 55, paragraph 2, point 2 of the Law for Health Social Insurance [3] attachment №1 contains table for the volumes and prices for the activities in the scope of the primary health care /Table 2./.

**Table 2.** Volume and prices of activities in primary health care for 2011

<table>
<thead>
<tr>
<th>Code</th>
<th>Nomenclature</th>
<th>Volume</th>
<th>Prices /in BGN/</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Per capita payment</td>
<td>6 535 482</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Persons from 0 to 18 years</td>
<td>1 353 529</td>
<td>1,26</td>
</tr>
<tr>
<td>2</td>
<td>Persons from 18 to 65 years</td>
<td>3 886 855</td>
<td>1,05</td>
</tr>
<tr>
<td>3</td>
<td>Persons over 65 years</td>
<td>1 295 098</td>
<td>1,37</td>
</tr>
<tr>
<td>II</td>
<td><strong>ACTIVITY BY PROGRAM “CHILD HEALTH”</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Prophylactic examinations of persons from 0 to 1 year</td>
<td>686 446</td>
<td>8,00</td>
</tr>
<tr>
<td>5</td>
<td>Prophylactic examinations of persons from 1 to 2 years</td>
<td>230 520</td>
<td>8,00</td>
</tr>
<tr>
<td>6</td>
<td>Prophylactic examinations of persons from 2 to 7 years</td>
<td>492 895</td>
<td>8,00</td>
</tr>
<tr>
<td>7</td>
<td>Prophylactic examinations of persons from 7 to 18 years</td>
<td>739 320</td>
<td>8,00</td>
</tr>
<tr>
<td>8</td>
<td>Immunizations of persons 0 to 18 years</td>
<td>1 248 300</td>
<td>4,00</td>
</tr>
</tbody>
</table>
### ACTIVITY BY PROGRAM "MATERNAL HEALTH"

<table>
<thead>
<tr>
<th></th>
<th>Activity Description</th>
<th>Cost (BGN)</th>
<th>Rate (per unit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>III</td>
<td>Activity by dispensary observation</td>
<td>3,300,000</td>
<td>7.50</td>
</tr>
<tr>
<td>IV</td>
<td>Prophylactic examinations of persons over 18 years</td>
<td>2,200,000</td>
<td>8.00</td>
</tr>
<tr>
<td>V</td>
<td>Immunisations of persons over 18 years</td>
<td>400,000</td>
<td>4.00</td>
</tr>
<tr>
<td>VI</td>
<td>Occasional visits to the LHSI from other health regions</td>
<td>32,089</td>
<td>5.00</td>
</tr>
<tr>
<td>VIII</td>
<td>Adverse conditions</td>
<td>1,067</td>
<td>5,000,000 BGN/annual value</td>
</tr>
<tr>
<td>IX</td>
<td>1. Pay for ensuring the continued non-stop access to medical care for LHSI, including rescue cabinets under Ordinance № 40 of 2004 for determining the basic package of health services guaranteed by the budget of the National Health Insurance Act (promulgated, SG. 112 2004, amended. and supplemented. No.. 61, 102 2005; 88, 2006, issue. 2 and 60 of 2009 pcs. 45 and 62 of 2010)</td>
<td></td>
<td>9,000,000 BGN/annual value</td>
</tr>
<tr>
<td></td>
<td>2. Per capita payment in paragraph 1</td>
<td></td>
<td>0.11</td>
</tr>
</tbody>
</table>

Via the comparison of table 1 and table 2 we could conclude that the difference is in 2011 for the first time funds were provided for the immunizations of people under 18-years-old, i.e. activities number is increased for which the National Health Insurance Fund is paying the general practitioners. In addition to this, it is the first time since health social insurance was introduced, resources are provided /0.11 BGN/, even if being quite insufficient, for ensuring continuous 24-hour access to medical aid for the health-insured people. This demonstrates that the fact a person /the general practitioner/ cannot work 24-hours, 7 days a week was realized.

Still the issue of home visits remains unsolved for which family doctors spend the greatest deal of time and funds, for now not being compensated in any manner.

Certain part of the contemporary methods for increasing healthcare system effectiveness and in particular the primary outpatient medical aid effectiveness are based on economic analysis [7,9].

The “cost-effectiveness” analysis is form of comprehensive economic assessment in which case both expenditures as well as the results from healthcare programmes are being researched.

The analysis is the economic assessment of the medical effectiveness of particular healthcare programme or project. In this case, having approximately equal expenditures for two healthcare programmes or two projects, we are striving for the one providing the best medical results.

The index of the expenditures to healthcare effects is calculated:
IEE = \text{expenditures} / \text{Healthcare effects}

The programme /or project/ of higher medical effectiveness is the one of lower index.

Example: healthcare effects are measured in measure units specific for the programmes – most often natural indexes.

- in the case of programme for early diagnostics of the mammary gland tumour – number of the newly diagnosed cases;
- in the case of programme for treatment of the cardio-vascular diseases – decrease in mm Hg of the preceding systolic and diastolic blood pressure;

In the field of the primary outpatient medical aid in our state, the method “cost-effectiveness” could be applied for comparing the package of prophylactic checks in 2010 and the package for 2011 and assess their adequacy.

According to the volumes and prices provided for in decree 304/Table 2./ for 2011 17 600 000 BGN are released for prophylactic checks of 2 200 000 compulsory health-insured people. For about 3 000 000 compulsory health-insured people no funds are provided for prophylactics.

In addition to this, according to the regulative standards for prophylactic checks, testing sums are quite insufficient demonstrated by another survey of ours [1].

Consequently, the application of the method “cost-effectiveness” will provide argumentation for the need of providing more funds for prophylactic testing, because the early diagnostics of the risk factors for the cardio-vascular diseases /increased cholesterol and triglycerides values/ and for diabetes /increased blood sugar values measured early in the morning before eating/, could terminate the development of these diseases and the subsequent lifelong and costly treatment. There are no reasons for the change introduced in terms of the prophylactic checks of blood sugar, cholesterol and triglycerides in the prophylactics package for 2011 [2,5] – only in the case of men aged over 40 and women aged over 50 and once in every 5 years. What are we providing prophylactics for with these limitations. Young people subjected to permanent stress and busy and unhealthy lifestyle remain outside the scope of this prophylactics.


Mammary gland carcinoma is the most frequent malignant tumour in women in our state and in the majority of the developed countries (25 % of all malignant tumours) and it ranks second among the mortality due to cancer diseases.

The newly diagnosed cases are of highest number in North America and Western Europe (85- 110/100 000) and nearly 6 times lower than in the majority of the Asian and African states (12 – 17/100 000). For the women aged 40 to 55 the mammary gland cancer is leading reason for mortality. Breast cancer is developed in 1 out of 8 Americans, 1 out of 15 Western European women and 1 out of 22 Bulgarians. The newly diagnosed cases increase in the majority of the states on the average with 1- 2 % per annum or 1 000 000 women annually worldwide develop mammary gland cancer [10].

The cases of mammary gland cancer in Bulgaria according to the data provided by the National Centre of Health Informatics in 2009 amounted to 607.2/100 000 [11].
We should note that in half of the women that have developed breast cancer, no risk factors are found, indicating that the measures for prevention (prophylactics) should be aimed not only at the groups of increased risk, but also at the whole population. Consequently according to statistical data, the mammary gland cancer grew younger, i.e. funds should be supplied for mammography of younger women.

Conclusions:

1. The application of the method “cost-effectiveness” would give good idea about the use of the additionally provided funds for prophylactic checks and testing.

2. The early and timely diagnostics of the risk factors for the socially significant diseases /cardio-vascular diseases, diabetes/ and the early diagnostics of the malignant diseases would result in the decrease of the disease cases and the consequent costly treatment.

3. The greater number of people enjoying good health in the patients list of every general practitioner demonstrates that he/she maintained particular effectiveness level and he/she should accumulate funds to be reinvested.

Capitation payment has potentially positive effect – expenditures limitation as well as potentially negative effect for decreasing the quantity and quality of the necessary services. That is why it is combined with payment for activity as guarantee that resources were utilized for providing access to services of the necessary volume and quality. We suggest the implementation of indicators system for assessing the results, whose reporting should be mandatory prerequisite for payment, and monitored results should turn into future prerequisite for the introduction of financial incentives concerning the quality and the final results from the services rendered by the primary medical aid providers. This indicators system work-out should be performed on the basis of assessing the data received as a result of the application of the “cost-effectiveness” method for more effective management of the primary health care.

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3. Ordinance № 40 of 11/24/2004 laying down the basic package of health services guaranteed by the NHIF budget [in Bulgarian]


5. Appendix № 15, R & D 2011, "Activities of GPs in immunophrophylaxis, the " Child Health ", screening of ZZOL over 18 years, the formation of risk groups in LHSI over 18 years and the " Maternal Health [in Bulgarian]


THE FORM OF PUBLIC-PRIVATE PARTNERSHIP "EQUITY PARTICIPATION" AS THE DEVELOPMENT LINE OF THE SOCIAL INVESTMENT

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Abstract
At the present stage the principles of social investment are turning into an integral part in the strategic objectives' development for commercial organizations. In connection with this the form of public-private partnership "equity", which involves private sector participation in the state enterprise capital will promote social investment development both from the state and of enterprises.

Keywords: social investment, public-private partnership enterprise.

1. INTRODUCTION
The Russian Federation is a social state; its policy is aimed at creating conditions for an adequate life and free man’s development.

All sectors of the social sphere are constantly in the spotlight of the state in Russia. State stimulation of public-private partnerships’ development is embedded in the program documents of the state economic and social development with a view to overcome negative trends in that sphere.

The Government of Russia officially announced organizing an effective system of social responsibility as a key instrument while implementing top national projects. In this regard, organizations began to participate more actively in the socio-economic development of territories and in the implementation of social programs.

Health care, education and culture are considered to be main branches of the social sphere in Russia. Business started to take interest in participating in these social projects.

Thus, the mechanism of public-private partnership will effectively solve many problems by combining private and public sectors. In general, this partnership is regarded as a mutually beneficial cooperation of these structures in the social projects’ implementation.

2. PPP DEFINITIONS
There are many different definitions of public-private partnership. The World Bank gives the most general definition: "Public-private partnership is an agreement between public and private parties on the production and delivery of infrastructure services, concluded with a view to attracting additional investment and also as a mean of effectiveness increase of budgetary funds".
In the U.S., public-private partnership is understood as an "embodied in treaty form the agreement between the government and a private company, allowing the latter to participate in the agreed form of state ownership and perform the functions traditionally belonging to the sphere of public authorities. Such an agreement usually requires a contract between the relevant state agency and a private company, the subject of which are reconstruction and construction of public property asset and / or its operation, management and so on."

In recent years in the EU a lot of documents that touch on issues of public-private partnership. In the Green Book the term "public-private partnership" is defined as a form of cooperation between public authorities and business that serve the purpose of providing financing, construction, modernization, management, operation of infrastructure or rendering services.

Russian scientist Dynin EA treats public-private partnership as an unification of society’s tangible and intangible resources and the private sector on long-term and mutually beneficial basis for the purpose of public goods’ creation or public services’ rendering.

Varnavsky defines public-private partnership as a strategic, institutional and organizational alliance between government and business created in order to implement socially significant projects and programs in a broad range of industries and R&D, up to the services sector.

The Public-Private Partnership Center operating under the State Corporation "Bank for Development and Foreign Economic Affairs (Vnesheconombank) formulated the most adequate definition of public-private partnership in respect to the social sphere: public-private partnership is an engaging of the private sector on a contractual basis by the authorities for a purpose of meeting the targets more effectively and qualitatively, targets related to the public sector of the economy on the terms of expenses’ recovery, risk, commitment and competence sharing.

PPP involves a contract between a public-sector authority and a private party, in which the private party provides a public service or project and assumes substantial financial, technical and operational risk in the project. In some types of PPP, the cost of using the service is borne exclusively by the users of the service and not by the taxpayer. In other types (notably the private finances initiative.

The private finance initiative is a way of creating "public–private partnerships" by funding public infrastructure projects with private capital. Capital investment is made by the private sector on the strength of a contract with government to provide agreed services and the cost of providing the service is borne wholly or in part by the government. Government contributions to a PPP may also be in kind (notably the transfer of existing assets).

In general, public-private partnership is regarded as a mutually beneficial cooperation between the state and private business in the social projects’ implementation.

3. FORMS OF PARTNERSHIP

The forms of partnership between the state and the private sector vary in types of services and manufactured goods according to the methods used and the legal status. Nevertheless, they submit to a number of general principles aimed at forwarding public interests:

- equality of the parties’ interests and discretion is the equality of all economic agents in the access to the services that are provided by private companies and it’s also the equality of all private companies in their right to contract PPP and freedom for the partners to choose forms and methods of achieving their goals;
both stability of the public-private partnership contract and potential to change and adapt it;

- responsibility for the execution of the contract;

- competitiveness is evident at the stage of the competition for the contract signing, this principle allows the state to choose an impactful partner;

- transparency and feedback: the civil society should have an access to the full information concerning the enterprise’s condition, its financial, economic and other indicators;

- state’s non-interference into the area of responsibility of private business: after signing the PPP contract the government has no right to interfere into the company’s economic and administrative activities;

- incentives and guarantees: the state uses different incentives in order to attract companies; these are co-financing, budget subsidies, preferential taxation, loan delivery and purchase guarantees, etc.;

- onerousness: upon the contract termination spearheaded by the state, the private partner is compensated his investments and non-derived income;

- equitable relationship to foreign companies.

4. MAIN GOALS

The main aim of public authorities when carrying out PPP projects is to create greater add value for public service rendering. This goal is achieved by providing cheaper public services rendered by private business and aimed at the exact result by using the modern methods of planning and the ability to innovate faster and to increase efficiency.

Another state’s objective in the context of public-private partnership is to pass private investors the risks connected with construction, design, financing and planning of the object itself.

The main goal of the private sector is to achieve top profit from the projects within the cooperation with state and municipal authorities.

Business is realizing that public-private partnership is not an another state’s attempt to infringe on the right, and one of the best opportunities to implement large, strategically important for the country investment projects amid market.

At the present stage his principles of social investment are turning into an integral part to the commercial organizations when setting strategic objectives.

The Center of Vnesheconombank Public-Private Partnership and the Institute of the Public Administration and Municipal Management of State University – «Higher School of Economics» has conducted the research to assess the readiness of the regional authorities and businesses to partner in the investment activities at the public property facilities, by studying the level and the main infrastructure challenges of the market development and the public private partnership in Russia.

As a result of this research, it was found that the social infrastructure is one of the leading areas, which involve the public-private partnerships (Figure 1). Also, the monitoring results, explaining the attitude of the regional executive authorities to the developing of the public-
private partnerships demonstrate that it is needed to organize the systematic work for the institutional provision of the interaction between government, business and civil society.

In connection with this the form of public-private partnership "equity", which involves private sector participation in the capital of the public enterprise through funding or establishing joint ventures with parties’ participatory interest, will contribute to the development of social investment both on the part of the state and businesses.

Mixed enterprises’ feature is the presence of co-ownership, which operates in the same region of the founders of the region. The purpose of the joint venture is to use the potential of each party as well as the most advantageous effects from their activities.

Negative feature of “equity” for business is that the state participates practically in all activities of the organization, and this limits the autonomy when making management decisions.

There are many joint stock companies with state equity in the Russian economy. LTD Gazprom, LTD Rosneft, LTD Sberbank and LTD Russian Railways are among the largest joint stock companies with a high share of state participation.

Unlike other forms of public-private partnership in which the state does not interfere into the current investment, production, administrative and economic activities, in joint stock companies with state participation the state representatives are always involved.

![Fig. 1 Participation PPP – projects in various economic sectors.](image-url)
Thus, when public participation in the capital of the private sector has a lower degree of autonomy and freedom in making investment, administrative, economic and other decisions.

4. EXAMPLES

Let’s consider the scale and the level of social responsibility of the largest corporations LTD Gazprom and LTD Rosneft in terms of some concrete examples.

LTD Gazprom is one of the largest energy providers in the world. Its main business dimensions are exploration, production, transportation, storage, processing and marketing of hydrocarbons and also the production and sale of electricity and thermal energy. Gazprom’s mission is to provide an effective and well balanced gas supply to consumers in the Russian Federation and also to execute long-term gas export contracts with a high confidence level.

Gazprom’s range activity represents the strategic importance for the country’s economic development and affects the interests of a large number of people. It follows a number of key principles of the Gazprom Group: to treat carefully the interests of the society, to contribute to the socio-economic development of the Russian regions, to create a favorable business climate in them, to maintain decent working environment, social and emotional well-being.

Gazprom’s social activities are aimed at supporting culture, sports, education, science and represent itself an integral part of the company.

The program “Gazprom to children” is a key social project of the company aimed at supporting children and teenagers. In the framework of the program Gazprom builds and reconstructs some sport facilities and also finances sport events throughout the country. Since 2007 till the present time, Gazprom has been providing more than 9.3 billion rubles for its implementation.

The main objectives of the program:

- to provide conditions for the harmonious emotional and physical development of children and teenagers.
- to attract as many children as possible to the sport, art and self-activity clubs.

To meet these objectives Gazprom:

- builds and reconstructs sport complexes and off-street multipurpose sports grounds;
- attracts coaches and trainers, purchases equipment which is necessary for organizing sport, art and self-activity clubs;
- organizes festivals and sport competitions across the country.

The program “Gazprom to children” is all-Russian. It covers 67 regions of the country. 33 Gazprom’s associated companies and organizations, as well as all regional gas companies, which are parts of the Mezhregiongaz structure.

Today under the program “Gazprom to children” 624 sport facilities including health complexes, stadiums, football fields, swimming pools, playground and camps have already been built. 54 more sport facilities are being built now.
In 2007-2010 under the program “Gazprom to children” they allocated more than 630 million rubles for the purpose of organizing children’s clubs. Now more than 200000 children are engaged in Gazprom’s sport and creative clubs.

Gazprom also pays great attention to culture and sport. The company traditionally supports country’s Olympic teams, represents the main sponsor of the Russian football club Zenit, a partner of the Russian Association of Rhythmic Gymnastics and supports various national sport federations, sport teams and individuals (both successful and newcomers).

Within the cooperation with Russian and foreign partners Gazprom is implementing cultural and charitable projects aimed at supporting creative teams, performers, musicians and artists; establishing cultural contacts between the countries. The company pays special attention to the children who are in need of social support.

Since 2003 they regularly organize the festival for bands and performers named "Torch/ Fakel”. The employee of Gazprom’s associated companies and organizations participate in this these events. Various sport competitions help Gazprom’s employees to keep fit. The company regularly organizes special sport competitions (“Spartakyada”), where company’s employees can demonstrate their personal achievements in a variety of sports including volleyball, table tennis, swimming and running. International football tournaments within European gas companies have become an outstanding tradition.

Anyone who is good at writing can take part in the competition "literary torch" also organized by Gazprom. This competition dates 2003 when the first literary publicist almanac was published by "Gas oil press. Contestants write about all facets of the spiritual life of a modern human.

In 2011 Gazprom, together with foreign gas companies set up Energy delta Institute (EDI) for those who want to acquire new information and develop professional skills. People attending this Institute are the employees of Gazprom, Shell, Gasunie and other companies; they undergo a number of specialized trainings in the Netherlands.

NK Rosneft LTD is the leader of the Russian oil industry and one of the largest public oil and gas companies worldwide. Oil and gas exploration and production, petroleum products and petrochemicals production, their further marketing are the principal activities of Rosneft. The company is included in the list of strategic enterprises of Russia. Its principal shareholder (75.16% share) is of Rosneftegaz, 100% owned by the state.

Rosneft follows a policy of high social accountability towards its employees, their family members, people in the regions in which it operates and towards the society in whole.

The company has a number of significant social and charitable projects aimed at providing safe and comfortable working conditions, solving the housing problem, improving living standards for its employees and their families, giving professional training, proving material aid for veterans and pensioners and also at developing regional social and economic spheres.

Rosneft’s social policy is an integral part of the strategic development of the company, its main activities tune in the national projects which are being implemented by the Government of the Russian Federation: "Affordable Housing", "Education" and "Health". In 2009 the company allocated 15, 9 billion rubles for social programs’ implementation, and it matches with the social costs of major world oil corporations.

Rosneft constantly upgrades the level of its social programs and monitors their implementation effectiveness. Being one of the leading Russian companies Rosneft strives not only to achieve high
operating and financial results, but also to make a significant contribution to the country’s development and prosperity.

Oil Company Rosneft treats charity as one of the principle stands of their social policy. The company is guided by corporate regulations when it comes to rendering some assistance. Rosneft also pays great attention to the revival of the Russian spiritual heritage and strengthening of the society’s moral principles. The company is building a temple “Spas Nerukotvorniy” in Usovo village situated in Odintsovo district of Moscow region. In 2009 the company allocated 480 million rubles for this project realization. Within the development of the strategic partnership with the People’s Republic of China Rosneft allocated 6 million rubles for reconstruction of another temple (Uspeniya Presvyatoy Bogoroditsy) situated onsite the territory of the embassy of Russia in Beijing. In a number of associated companies belonging to Rosneft LTD young experts assist children from orphan asylums.

Young employees of Irkutsknefteprodukt Company, for instance, prepared New Year gifts (clothes and toys) for the children living in Irkutsk orphan asylums within the charity event called «There is no greater joy than to give children miracles». In 2009 the employees of Tambovnnefteprodukt Company rendered assistance to the children with abnormalities from a special orphan asylum. This orphan asylum faces serious financial obstacles and can’t provide the children with means of transportation. In 2009 in order to solve this problem the employees of the company collected financial assets that were enrolled to the asylum’s fuel card petrol card.

Sport development is one of the strategic fields of concern of the social activities carried by the oil company Rosneft. The company considers health of its employees, the members of their families and the population of regions depends on sports’ developments and promotion of a healthy way of life that is why sports’ development support is one of the most important spheres of cooperation between the Company and the regions. Special attention is paid to children's sports. The company also supports professional sports. According to the agreement concluded by the company and the government of Khanty-Mansiysk - Ugra, Rosneft supports the organization of the World Cup Biathlon final. Associated companies sponsor the local sport competitions: both professionals and amateurs. Tambovnnefteproduct became an official partner of the autocross championship. Much attention is paid to the sport infrastructure. Yuganskneftegaz LLC allocated money for the reconstruction of the hockey court. In 2009 the region's largest water sports complex including two swimming pools for adults and a smaller one for children was built thanks to the company’s financial support in the oil town of Okha, located 850 kilometers north to Yuzhno-Sakhalinsk.

5. CONCLUSIONS

Thus, we can conclude that the form of public-private partnership "equity" is a reliable and effective mechanism for economic growth, which promotes the introduction of higher management standards of the private sector into social services.

Their cooperation based on public-private partnership leads to material benefits and employment growth in the contest of crisis, instability of the economic and financial state of enterprises and budgetary situation.
REFERENCES


EFFICIENT HOSPITAL MANAGEMENT DURING FINANCIAL AND ECONOMIC CRISIS

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Abstract

Hospital is a basic pillar in healthcare system, as entrusted society expectations for delivering of medical care, but still deliver and some social care for the population. The hospital is a significant factor in social and political aspect. Economic and financial crisis creates challenges towards efficient hospital management, with it’s access to limited financing of delivered care and its efficient spending, aiming preservation of the quality of the delivered medical product, which enhance the step by step loosing of its dominant role and to switch over from hospital financing of structure through financing of activity to financing of outcome.

Key words: hospital; hospital financing; role of hospital in healthcare; financial and economic crisis

1. THE HOSPITAL FOR ACTIVE TREATMENT IN THE HEALTHCARE SYSTEM IN BULGARIA

The healthcare system in its entirety is a dynamic, complex, probable open system, characterized by numerous elements and highly branched structure with indefinite behavior. The systematic approach and analysis suggests the concrete case to be considered in its environment. Some researchers in the field of management (Borisov, V., Gladilov, St., Ranchov, G., and others 1, 2, 9, ) examine the system as an aggregate of resources which enter through its entrance, circulate, change inside and leave it. The society in almost all countries accept the hospital as a basic pillar in the healthcare system and assign great society expectations for fulfilling its role of delivering of medical care. This means that the hospital was, is and be in the future a significant in political and social aspect. In almost all countries the hospital system is an important resource for delivering high professional and vital necessary healthcare services for the population. Of a financial point of view the hospital system is concerned as the most important categories of expenditures in the whole healthcare system. Probably no other forces burden too much the economy nowadays as the efforts to influence the expenditures and increasing of healthcare value. Or said more simply the healthcare expenditure and the burden for the result value upon consumers are increasing significantly, but the country yet is behind in comparison with the quality services delivered by other countries. The healthcare expenditures all around the world and in Bulgaria increase more rapidly than the growth of GDP.

Looked at organizational point of view, the hospital dominated and still dominates over the other elements of the system. In the future the hospital shall loose its dominant role through withdrawal of part of its activity towards outpatient care, increasing of health promotion and prevention and gradually withdrawal of its social function (consuming a significant resource) and remaining only the pure medical care for active treatment. Frequently especially in Central and South-Eastern Europe and Bulgaria the hospitals are important employer and their restructuring lead to perturbations to local labor market – that happened in Bulgaria in the beginning of 2010. According current legislation in
these countries and in Bulgaria of course, closing of hospitals proved to be mission impossible and reforming very difficult. In Bulgaria tried through the instrument NHIF, via restricted delegated budgets, as the legislative frame was developed by the amendments and supplements of the Law on health insurance, the law on budget of Bulgaria and respectively the law on the budget of NHIF for 2010. The only discussion for reduction, privatization, concession, or closing down of the local hospital is perceived as a very vulnerable theme from political point of view including the themes for reform of hospital status (debates in the National Assembly, the slipping of the National Health strategy, National health Master plan, protests of local authorities and local medical society). Finally

Table1. Hospital expenditure on the basis of main financing resources for the period 2003-2008 by The National Statistic Institute of Bulgaria 2011 in thousands BGN

<table>
<thead>
<tr>
<th></th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total healthcare expenditures</td>
<td>1 697 681</td>
<td>1 769 112</td>
<td>2 008 604</td>
<td>2 022 530</td>
<td>2 373 322</td>
<td>2 830 812</td>
</tr>
<tr>
<td>% of GDP</td>
<td>4.8%</td>
<td>4.6%</td>
<td>4.7%</td>
<td>4.2%</td>
<td>4.2%</td>
<td>4.2%</td>
</tr>
<tr>
<td>NHIF</td>
<td>777 039</td>
<td>881 634</td>
<td>1 069 408</td>
<td>1 317 526</td>
<td>1 459 195</td>
<td>1 696 318</td>
</tr>
<tr>
<td>Current total healthcare expenditures</td>
<td>967 100</td>
<td>1 063 600</td>
<td>1 307 490</td>
<td>1 340 790</td>
<td>1 528 470</td>
<td>1 875 430</td>
</tr>
<tr>
<td>From governmental governance</td>
<td>891 760</td>
<td>950 301</td>
<td>1 144 990</td>
<td>1 129 800</td>
<td>1 292 620</td>
<td>1 567 690</td>
</tr>
<tr>
<td>Including NHIF and NII</td>
<td>221 730</td>
<td>334 310</td>
<td>504 160</td>
<td>728 670</td>
<td>879 580</td>
<td>1 023 450</td>
</tr>
<tr>
<td>Including households</td>
<td>75 330</td>
<td>111 140</td>
<td>161 020</td>
<td>209 490</td>
<td>234 870</td>
<td>306 310</td>
</tr>
</tbody>
</table>

Relative share of governmental expenditure from the current total hospital expenditures in %

|                         | 92.2%   | 89.3%   | 87.6%   | 84.3%   | 84.6%    | 83.6%    |
| Including NHIF in %     | 22.9%   | 31.4%   | 38.6%   | 54.3%   | 57.5%    | 54.6%    |

Relative share of households expenditures from the current total hospital expenditures in %

|                         | 7.8%    | 10.4%   | 12.3%   | 15.6%   | 15.4%    | 16.3%    |
international available statistics and patient dissatisfaction in the country as well regarding morbidity as mortality. The problem in Bulgaria is as well quality as quantity of delivered medical care services, but its not relevant to the money which Bulgarian citizen spend for health, but is mainly related with the way of structuring of human mutual relations in a complex and large as social system—that of healthcare. Bulgarian healthcare legislation review shows that few participants are stimulated to deliver medical care services at a good level with possible low costs. This as comes clear if we consider the word “healthcare” as health protection through prophylaxis and health promotion on one hand and recovering of already lost health on the other. As the first is related to the person himself regarding healthy way of life, which of course is a matter of money and these money are spent by this very person. Many times the society accepts these persons, who otherwise pay regularly their 8% health insurance, as people who have and give money for health. As regarding a keen look at the second aspect of the word healthcare—outpatient and inpatient (hospital) care—i.e. the treatment itself in Bulgaria shows that nobody in the system do not receive whatever stimulus for his efforts in achieving maximal results of medical activities at an appropriate possible lowest price. Even on the contrary, only sanction are present for not covering in details the algorithm of the certain “clinical path” by NHIF and expenditure for this remains as passive for the legal entity, for example. This forces the hospital to find other way to cash its services through unnecessary excessive hospitalizations or reporting in another more expensive “clinical path”. This is one of the ways NHIF limited budget is drained. Almost no responsibility for quality treatment from economic aspect is present, because the fact of monopoly of NHIF and the fact that the money they spend are not their own money but money of the patients. From here the stimuli are different when own money are spent for own needs and some ones needs. Decreased income from fewer health insured individuals because of loosing their jobs in the crisis, because of unwillingness, but in that or another way more than 1 million Bulgarians are no health insured nowadays, which leads to limitation of expenditure by fiscal reasons. In that way the healthcare system is burdened unnecessarily and as a result quality falls. The governmental attempts to incriminate non payment of health insurance contributions are only temporary measures and in no case duress. Explanations with the crisis are lawful to certain extent, as a method to discipline the system, but this leads to something dangerous – delegated or fixed budgets and a risk of the system to be return a decades back. Diffident efforts by Ministry of health, mainly verbal for introducing of DRG as panacea in 2012, compared with the experience of the other EC member states are directly groundless. Even more, the lack of a legislative framework to secure the activity on one hand and the lack of intention or negligence of the government for beginning of building of corresponding organizational structure and institutions for the purpose on the other, or even to start political debate in and outside of the Assembly. The attempts for closing small municipal hospitals through duress by NHIF and contracting contracts on the basis of levels of competence, defined by Ministry of health are groundless as well as escapism of introduction of official co-payment by the patients themselves or through private health insurance institutions. Infusing of money to certain structures—hospitals owned by the state with 51-100% shares distorted the system and in that way concentrated the inflow, something dangerous and inherent to Semashko medicine. As the lack of integrated information system between provider, payer and regulator, as well patient access to certain levels in the system is a serious obstacle. Even more the functioning of the hospital system is embarrassing by the ongoing economic crisis.
2. ECONOMIC AND FINANCIAL CRISIS

In the beginning of this millennium in USA a huge amount of available money searched good investments. But where to find this – the interests were funny, stocks uncertain, the only well balanced quay with attractive profits appeared to be real estates. This automatically increased of prices, too many precarious credits for “poor” Americans. Investment banks bought up more and more mortgages, packing them, Wall Street proclaimed them as secure (this was the magic). Politicians, regulators, medias by their side in USA neglected this (because they confess the maxima that the market has the right and why not the Americans to buy their dreamed house). The process went outside of US and become global, and too many people willing to do so. There was a need of too many mortgages. Greedy and irrational Wall Street began to lust after risk buy back. Credit derivate contract appeared (Wall Street magic wand). As in each fairy tale everything else was boring, betting for solvency of others began as an attractive place for money – nobody knew who, whom, when should save, but the interests began to increase, the people started not to refund their mortgages and finally the balloon broke down, which lead the investors nerves to explode. How can someone propose that Lehman Bros. will bankrupt? Then everyone was frightened, no loans, and of course welcome to the crisis. In Bulgaria this happened with certain delay. In spite that the crisis began to be perceived in the beginning of 2009, the politicians, regulators, media, and healthcare system were undisturbed. NHIF paid, no limitations, politicians spoke that we were an island of security and the crisis would not strike us. Alas! The crisis fell down on us with its full range from the end of 2008 and beginning of 2009 at least this was confessed officially. The political elite chanced as government and data became obvious that several governmental budget holes were present, and of course tough measures were anticipated to struggle with this. NHIF stopped paying regularly, decreased the total value of payment to hospitals. NHIF Began to postpone payments which lead to run unto debts to providers and contractors. Business climate worsened in the system of healthcare. There were even stopping of deliveries of medical devices medicines in certain hospitals in order to force these certain hospital to pay regularly even not the whole sum. Disturbances in medical society began. Bankrupts of some small municipal hospitals began at the end of 1010 and beginning of 2011, because of reduced number of clinical paths in their contracts with NHIF and incapability for maintaining costs. Fifth multi-profile hospital for active treatment Sofia was not excluded from the crisis. In order to adapt adequately during the crisis we consider that there were a need for a change mainly in the stimuli for the employed and of course a different style of management as a beginning. As we convinced ourselves with the correctness of anticipated by us direction, we decided why not to share our experience as a way for optimizing of healthcare system later on.

3. THE CHANGE DONE IN FIFTH MHAT REGARDING MANAGEMENT DURING FINANCIAL AND ECONOMIC

3.1 Real time planning in hospital for active treatment in an environment of fast changing economic circumstances.

In today’s dynamic and unpredictable world economy, the traditional strategic planning, characterized with the approach of centralized planned and controlled management seem to us that it is loosing its basis. Managers should react faster then ever to the dynamic circumstances and to utilize the entire potential of all people in the organization. Strategic planning is too weak and inflexible in order to help us the managers to respond to fast changing circumstances and is too hierarchical to allow a broad circle of employees to participate in the process of decision making. That is why we faced real time planning, as a conquering new alternative of strategic planning. This planning started in the 90s
of last century in USA and continues nowadays all over the world and Europe. This innovative concept puts strategic responsibilities and strategic tools in small and self governing teams, moving together towards common strategic direction. Strategic improvising or real time planning is faster, less risky and provides more flexible response to the uncertain environment through empowering the individuals in the organization. This team based approach:

- Creates stronger feeling for accountability in the organization
- Promotes creativity through creating ideas by everyone in the organization
- Keeps open in real time the flow of crucial information to the team members
- Encourages the lateral communication in the whole organization
- Enhances the rapid change of roles in order to achieve the strategic goals.
- Specifies the tools helping the organization to develop team based strategic capacities.
- Puts instrument in the managers’ hands to do their crucial activities to respond the unpredictable fast changing business environment circumstances for active treatment hospitals.

As it is well known the strategic planning was dominant up to the late 90s in USA, as well all over the world and in Europe and this continues until the year 2000, but in some countries as Bulgaria is dominant and in the moment, but fast changing global economy and the beginning of the world economic and financial crisis creates many unpredictable economic circumstances for all including active treatment hospitals in particular. These functioning circumstances were too complex, too dynamic, and too unpredictable, that all companies including Fifth MHAT Sofia EAD could not look from aside and to leave our destiny in the centralized planned and controlled model of management (strategic planning or management). We introduced in Fifth MHAT the alternative of strategic planning – called by Lee Tom Perry, Randall J. Stott and W. Norman Smallwood (10) real time planning or strategic improvising. It was created to meet the challenges of fast moving unpredictable economic and financial reality. Concept fundamental ideas are:

- It assumes that the strategic responsibility needs wide diffusion throughout whole organization
- It puts the stress on giving strategic instruments in the hands of self guiding team members.
- Promotes team based activities and knowledge, which support strategic goals.

Real time strategy refreshes strategic thinking through incorporating IT in real time in the strategy context. The method is more effective, because of at least minimum two reasons:

- Provides working tools (introduced in many different of size and field business organizations)
- Points out the self guided team members how to use tools together as a means for improvising of operational strategies.

According authors cited above there are three distinctions between strategic improvising and traditional strategic planning (10):

1. Strategic decisions within strategic improvising are taken at all organizational levels with no exceptions, including that of top management. Strategic improvising is team
orientated not like the approach from top to the bottom as it is with the strategic planning. The strategic responsibilities are for the team closest to the action.

2. The approach of strategic improvising is with high frequency with typical low impact, as the approach of strategic planning is with low frequency and high impact. Strategic improvisers launch many strategic thrusts with the idea for reaching high average result in the target group, as the strategic planners agonized on every launched strategic thrust hoping to reach few target group numbers.

3. The most important distinction is that strategic plans are defined beforehand and respectively the top manager first of all plan and acts after that. Strategic planning originates in real time. Top-managers acts, before they plan, considering the fact that action informs strategic thinking.

3.2 Team strategic thinking

Strategic improvising works only when to self-managing teams are obliged strategic responsibilities. Two types of teams were formed with us, management team and wards and departments as unit teams. Management team had the task to bring in one the strategy of Fifth MHAT with the concept of strategic improvising, and on this basis to define clear and focused business strategy. Used strategic tools by management team are those of high rate, used for defining the strategic direction. In fact, in the beginning the management team resisted intentionally to the development of detailed policies and procedures for improvisational operative strategies. Many of our employees accepted that improvisations in our hospital are tactical not strategic. It is easily explained when taking in consideration that the thinking is not defined on the organizational level where it occurs. The tactical thinking of the executive director is not strategic one as the tactical thinking of the unit teams is not their strategic thinking. Even more that what seems to be tactical for the management team could be strategic for the certain unit team members, if defines the dictatorial success and vitality of their ward or department. According James Brian Quinn (11) professor in Tuck School of business administration in Dartmouth USA: tactic is a short time, adaptive action - interaction orientated rearrangement in which opposite forces are used for reaching of limited goals after thief first contact. Strategy defines basis for arranging of these adaptations towards broader accepted goals (11). We were guided by the concept that organizational designers (especially those dealing with social technical system models) are organizations which change their design in the context of self managing teams. We consider that in most of these circumstances for change, the teams burden themselves with implementing, but not with formulation of competitive strategies and we intend to avoid this. This is something very serious, since as without rights for simultaneously implementation and formulating of strategies, the teams are very restricted in their scope of action. We found on the basis of our unpretending experience, that if we deprive strategic responsibilities from the self managing teams, they usually missed the task. The most important what we learned from our experience is that it is not enough to put strategic tools in the hands of the self managed teams. The team members before accepting the responsibilities for strategic improvising need training and coaching for using of these tools. This was the responsibilities for the management team with obligation to coach people not to manage them. Instead of executing of power over people, we expected from those managers to train their teams of usage of strategic improvising tools and to guide them to turn to self managing. Professor Alfred Chandler of Harvard Business School, and widely accepted not only in USA proposes that the art of strategic science is too vital and complex that requires specialized guidance for top management. Professor Chandler named these managers “few key persons in each organization” (13). On that basis we consider and this was proves in practice that strategic planning is a function of top management and represents the figure 1A.
Detailed corporative strategic plans gave the basis for the detailed business strategic plans, which together almost eliminates the freedom of acting on operational level. In the contrary our experience showed that another model for management is possible – figure 1B below.

Our unpretending experience shows that few key individuals are necessary for clearing of strategic direction on corporative and business level, but on the lower levels of team members could accept important strategic responsibilities if they were given strategic tools and were trained and coached how to use them. Strategic improvising invites self managing team members to execute considerable freedom in implementation of operative strategies within the frame of limited form granted by the corporative or business strategies.

3.3 High frequency strategies.

The strategic improvising includes continuous fast exhaustion of strategic ideas within the frame of strategic direction. It is proved that almost all organizations are limited in usage of their own resources the promptness of strategic thrusts affects their intensity, which inevitably leads to difference. Real time planning or strategic improvising confesses the theory of small victories. The goal is to accumulate maximal understanding of fast changing business environment and as soon as possible to create low budget, fast acting successful approximations. In the contrary strategic planning is low frequency with high impact. It comprises saturated policies, competitive benchmarking and analysis of healthcare as an industry-for example to increase chances for success and receiving a great impact from each strategic idea.

In our Fifth MHAT the total success is due to collected together contributions of many individual strategic thrusts. Teams on every level in our structure were involved in the process since there are more teams on the level of each department or ward than on business level most of strategic ideas are created by certain teams in the hospital departments and wards. The absolute volume of strategic thrusts, not their diversity characterized strategic improvising. High frequency strategies create more advantages for the business. When many teams on many levels act in one direction they generate many ways to learn many things. This is a confirmation of this thesis said 3000 years ago by Sun–Tzu, ancient Chinese strategist, who noticed it and wrote in “The art of the war”. It is of important sense.
when placing the army the enemy not to discover its arrangement. Then even neither deepest introduced spies could not discover it, nor most wise men to prepare plans against this placement (9) and according this placement I prepare victorious plans, but most could not understand how. Even that everyone could see the outside aspects, nobody could understand the way in which I create victory (9) or said in another way it means that people could recognize the tactics, when the strategist conquer, but that which nobody could see is the strategy with which each victory is bound. Then when each high frequency strategies are in one and the same direction there is one mighty advantage that is it is easier for teams to learn from each others. The goal of our strategic real time planning is to promote success not failure. Of course when failure inevitability comes the strategic improvisers are ready and they wish to take lesson from this failure. That is why we do not relay only on one strategy and never feel locked in a good sounding idea, when things go worse.

3.4 Real time strategy

According Andrew Groove, chief executive director of Intel (14, 15)-“people formulate strategy with their fingertips”. In his thinking Groove did not suppose that formulation of strategy is a useless activity, but supposed that this strategy reflects what people are doing in the organization. Some strategist discussed the time as a source of competitive advantage. As more strategists shorten the time between formulation and implementation of the strategy, the latest is the information which they include in their strategies. So when strategies are formulated and implemented in real time then the strategies use information in real time. Since the business environment is permanently changing target, real time planning strategists afford significant advantages over anachronistic strategic plans.

3.5 Real time planning summary

Strategic planning and real time planning could be compared with symphonic orchestras and jazz groups. Thus the strategic planning as with the symphonic orchestras are with centralized control,(from the top down), music and activities are beforehand stipulated and most important is that the training of a symphonic orchestra for a symphony for example as well as a strategic planning requires serious investments of resources and time(low frequency and high impact). With real time strategic planning (strategic improvising) and jazz groups improvisation are events on team basis, high frequent and in real time, usually with low investments in resources and time. Strategic planning as we already stated is with beforehand stipulated parameters as it is with symphonic orchestras, where everything depends on the conductor and he had defined the role of each musician in the orchestra, defining him detailed musical instructions. This is the same with strategic planning. Usually the business defines the strategic direction for directing of strategic improvisation. This is like the main list in standard jazz compositions, ensuring crucial specifications -melody line, key and basic form – necessary for improvisations by single jazzman. The strategic direction proposes similar invitation for improvisation, since it shows business where to go, but not how to reach there. Our experience reveals two common conceptual misunderstanding regarding strategic planning:

1. Most managers think about themselves as calculating systematic planners, not for improvisers. Here we should remind that managers always improvise for not important things in their activities and that the image of rational manager is a product of the efforts of generation of management scientists to rationalize manager’s job. Managers are activity orientated and they do not like thinking activities. Managers react in real time to the stimuli, preferring to act then to delay action.(11)

2. Experience proposes that strategy and improvisation are fundamentally incompatible, i.e. strategic improvising is oxymoron. Strategy proposes for most people hierarchical (from top
down), planned and controlled management approach, but improvising is not classic non strategic answer. Improvising includes the freedom executed in the form and not in limited freedom.

Strategic planning is not oxymoron. Instead of this it is a process in which one strategic direction gives the limited form necessary for improvisation on team basis. Strategic improvising promotes high frequency with low impact strategic ideas which are more effective then low frequency with high impact strategic planning for acquainting of the fast changing business environment. Considering unpredictability of today’s global economy, strategic improvising is more then wished alternative in real time to beforehand charged strategic thinking. The main differences between organizations practicing strategic improvising and organization practicing strategic planning are that strategic improvisers are more participating and more responsible, as well as that most of them have lateral communication than strategic planners.

4. PRESENTATION OF FIFTH MHAT

Fifth multi-profile hospital for active treatment Sofia EAD is a hospital with 120 years of history, it is owed on 100% by Sofia municipality and Sofia town council. It started 120 years ago as surgical hospital, founded by princes Klimentina, after that passed as general hospital, hospital for workers (during socialism), and finally since 2003 as multi-profile hospital for active treatment.

The hospital provides the following activities:

- Diagnosing and treatment of diseases when the medical goal can not be met in the outpatient care.
- Rehabilitation
- Corneal grafting and amniotic membrane grafting
- Collection, preservation and supply of blood and blood ingredients, heamotrasfusion surveillance
- Diagnosing and consultations required by dentist from another medical establishment.
- Clinical trials for medicines, medical equipment, according country current legislation
- Teaching and scientific activities

The hospital is providing services for 25 medical specialties in:

- 15 wards with beds (6 of them II national level and 9 with III level) with total 424 beds and 8 haemodyalis units.
- 4 ward without beds (3-III level and 1 – II level);
- 4 clinical –diagnostic laboratories (2-II level and 2 – III level);
- OPD comprising of 38 medical rooms (23 admission and consulting and 15 functional diagnosing and medical images);
- Hospital pharmacy;
- Administration and business departments and sterilization unit;
Medical expertise commissions – general and ophthalmologic;

Permanent placement of four ambulances for emergencies for all North-Western region of Sofia with total population of more than 400,000 inhabitants;

The personnel comprise of 167 doctors (148 with acquired specialty, 19 with out of them 12 are in the process of acquiring, 57 doctors are with 2 and more acquired specialty, 2 professors, 3 associated professors, 12PhD. Nurses are 275, pharmacists are 4 and 212 are with non medical education.

The management of Fifth MHAT realized the first signs of forthcoming economic and to lower extend financial crisis in Bulgaria at the end of 2008 and beginning of 2009, when economic indicators hinting at the beginning of the crisis, as well as the warnings for the thread by leading Bulgarian economists. In this way those economists opposed to official statements by the politicians at that time, stating that there was no crisis or if it is global it will bypass us. Those statements were supported by regulators and media. On the basis of our instincts and knowledge, relying on the prognoses of our leading economists who had predicted too early the thread to us by the global economic and financial crisis, we took a decision for economic and organizational chance. The aim of this was to withstand as possible to forthcoming crisis with preserving and if possible to improve the quality and quantity of provided by us services through optimizing the expenses, preserving the biggest capital we had – qualified personnel and to prepare the hospital to cope with the crisis taking in mind the presumption that only those hospitals will survive which are prepared. This will let us to increase our market share after the crisis and will make us more compatible in the period after the crisis. We staked on that the crisis would not only hit us, but this would be heavier for us as a country as our economy started to slip and went backwards, but the statements by the politicians and regulators that they were clear about with the situation and that the crisis would no happen to us. Even more the furious national 2008 budget surplus spending at the end of 2008, respectively the NHIF budget as increasing expenses for healthcare, increasing of hospitalizations determined or not determined were accepted at that time as positive activity. The same was and during 2009, but after the change of government in August 2009, the things became painfully clear that the budget is totally leaky and drastic measures were expected to minimize the harms of this. These measures included the dragon measures for cutting the NHIF budget especially for hospitals, changes in Law on health insurance at the end of 2009, restrictions in the new frame contact for 2010 for hospital not covering the requirements stipulated in it.

This affected about 20 small municipal hospitals, which did not have the necessary resource as human personnel, material basis and conditions to cover the standards for good medical practice and the algorhythms of clinical paths. In order to withstand adequately to these processes we the top management anticipated a change in the way we managed the hospital and in this way preparing it for easier toleration the hits and effects of the economic and financial crisis. Of course we were guides by the concept for change, that it is an emotional trip with its drops and ascendants and at the same time it is well structured process, which could be managed and this happened with us. Of course we understood that the succeeding realization of the change is based on:

1. careful preparation, which we have done very carefully and precisely;
2. we have created and fulfilled a concrete plan with clear time schedule and comprehensive communicated responsibilities;
3. contiguously and systematically fulfillment of the plan.

For that process we applied the theses presented by Michael Light from Boston Consulting group in Dusseldorf, Germany, on change as a change and we adapted it for our hospital and its management.
Of course on the basis of this guidance stated by Light, we created the first stage of the change agenda, argued the change, formulated clearly the vision, strategy, culture of behavior, as well as ensuring the synchronous of activities and obligations of the leaders, who we had defined before that. We strictly defined human, operative and financial dimensions of the change. On the second stage we mobilized the hospital for doing the change through training the leaders. We created management with people and groups from the whole team who moved and are moving the change at present. We have tried to inspire people for doing the change and we consider that we have succeeded. We communicated openly to all people involved about its aims and tasks, strategy, expected results as we put stress on the vulnerable spheres for personnel to be proud that it is working in this hospital and is involved in this change. Of course there was opposition, since the hospital is a rigid structure in its nature, and this is a secure mechanism against not proved and risky perturbations. The same is valid for hospital personnel as well as for the surrounding environment. The fist turn of the wheel was the heaviest. After that the machine of change grazed and thing went in the expected direction. In that period we synchronized when necessary the organizational model and accountability, adapted infrastructure and management aiming good performance and reaching of the set goals. Of course we bound the concrete obligations and initiatives in called by us road maps. We traced and are tracing at the moment the initiatives we anticipated as well as the programs we had created on the basis of discipline and exactingness. We gave and continue to give to management clearness for expected financial results – lowering the losses inherited from previous years – from loss of 775 000 BGN at the end of 2008 through lowering the loss to 386 000 BGN in 2009, return to the level of 2008 loss in 2010, and in perspective to stop generating losses in 2012. Of course the employees income increased in twice, total increase with 20% at the end of 2008 and in 2009, it was a positive signal, never the less that the crisis was present, but this stopped the leakage in big numbers of the personnel to another structures of healthcare in the country (university hospitals, private hospitals), outside of the country to countries with higher salaries. This attracted some qualified personnel from other hospitals, and nevertheless the crisis with doctors and nurses on the Bulgarian market, our hospital succeeded in keeping them in the hospital and still the hospital is with sufficient trained personnel. Of course we are not differing from the ongoing process worldwide, Europe, America, Australia – aging personnel, lack of young replete orientation of nurses to other types of jobs, different of medical, immigration, considering that the job of a nurse is not prestigious, the mistakes done in planning of the number needed for doctors in certain specialty and nurses to replace the retired. The best thing of the crisis is that some of these factors turn in favor of the hospitals and especially for the Fifth MHAT, for example some nurses came back from immigration to counties with higher material stimulation, because of reduction of foreign personnel in corresponding country and policy of domestic working force protection. On the other side recession lead to reduction in economy and many nurses who had chosen another type of job came back in the medical labor market, because of the stagnation in the other sectors of economy. In spite the fact that we are in financial and economic crisis and its forcing to cut or to postpone the expenses for IT, we with the help of our owner – Sofia municipality, concentrated on this, as we confess the concept that lowering the expenses of the hospital, increasing the income, increasing the quality of the services provided, as well as improving the compatibility we have focused on labor force –human resource, integration of doctors, methods of payment, IT and planning of capital in real time.

In spite of crisis we structured the current knowledge aiming permanent training in the hospital for all categories personnel. We do not make abrupt changes in hospital financial sector, especially on the top financial level with the presumption that such change is big financial expenditure and the fact that there are few numbers appropriate qualified individuals ready to meet the challenges of the financial management of a big hospital in particular Fifth MHAT. This forced us to study and to use in maximum the personnel abilities for the change, and where we found small gaps, we compensated it.
with corresponding additional training. Of course we put the stress on continuous improvement of qualification of the personnel for meeting the challenges of developing medical science and implementation of good medical practices of medical technologies including IT. How did we done this? Through communicating – strategically and with constancy (something which is not widely spread with the hospital managers in Bulgaria) creating, observing and adapting our communicational strategy. We formulated our messages according concrete needs of every unit, after thorough studying by us beforehand we determined the risks (also something not typical for Bulgarian hospital managers) to corresponding respondents. We have tried to prepare our managers on second and third level to be efficient communicators, which frankly said was very difficult, because of cumulating with years negative trends for non-transparency and hiding of what we are doing.

Our attention was mostly focused on our efforts not to fail, because such undertaking easily fails because of:

- statistical data from change researches show very sound that only 20% of all changes in the organization are successful;
- we have considered 10 known to us reasons how not to fail by avoiding or minimize the risk of their negative action leading to failure.

We supported and we are supporting formulated 10 reasons to fail by the international leader consultant Mark Sanborn, president and founder of Sanborn & Associates Ink., which are:

1. Bad start. The change could stumble since from the beginning, when it is prepared by especially non competent consultants. We recommend the careful selection of consultant and what is more important then that the top manager to be well grounded and to be confident in what he wants to do, how to reach it, how to communicate it, how to control it etc.  

- The change is inconsiderately introduced – the manager has to be confident that this is the right time, considering the environment including legislation frame and mutual relations between concerned players that there is a need of this and this will be well accepted.

- The change is implemented without enough engagement, which is dangerous if there is no motivation, no interest or not willingness for the people who will move the change.

- The failure on the start is deadly to the trust for the management. Here we want to stress that hospital managers must be absolutely confident in what there are doing, to have the support of the owners and decision making persons.

2. The change is a matter of choice. When management decides to do make the change, message must be “the change is not a matter of choice”. Usually worldwide and in our country it is “we would like to make a change, we beg you to change, please change, etc.” Here we must stress that when people have a chance or a right to choose to change or not to change they will choose not to change. This should not be considered as command administrative approach, but on the contrary it should be accepted as democratic because the nature of the human beings is that he is resistant to changes. For example can be seen everywhere – initiative and willingness lead to excellent results and vice versa the unwillingness and fear of change lead to dragging on the queue for ever it is.

3. Focus is put only on actions – action is more significant then results, the leader
could immersed on planning and managing the process that they could miss visible results. In order to avoid this we have gathered a small group of people, mainly managers on second and third level, focusing on controlling of this and next reasons.

4. Focus is put only on results – this mistake is based on the popular maxima that the end justifies the means and that hospital management underestimates or ignores the human side of the change. This non sensitivity to human emotions not only obstructs the change, but destroys the people ethics and loyalty to the hospital.

5. In the process of change are not involved those people whom we expect to realize it. Up to us hospital personnel should participate by two modes. First at the time of planning their proposals must be required obligatory and second after the plan is ready, they must be involved obligatory in defining the modes and routs for realization. The message from the management here should be “this must happen, how should be done it in the best way according to you?”

6. The change is delegated to people outside of the organization. The change is a job of the hospital, external consultants could give only advises and ideas, but hospital people must take the responsibility for the change. We as management have done this.

7. Salary system remains unchanged. Very dangerous if after the change salaries remain on the same levels from before, the people automatically will give as mush as before even lower. Here again the popular saying I am working as much as I am paid. That’s why we adapted the salary system in such a way that we legated it with the involvement with the change and of course with the results, those who resisted and did not have results, remain on the old levels without stimuli.

8. Messages and actions of the management are not one and the same. We considered and assumed, and this is recommended by the consultants all the people of the organization to be engaged in order the change to happen. Of course the management was the first to make the first steps and these steps to be clearly visible and transparent. The change will never succeed if the top management do not show and demonstrate the same concern and participation as expected by the subordinates.

9. Extend of change is inappropriate. We considered extend with the capacity of our hospital, as we tried neither to underestimate nor to overestimate our capacity. We were guided by the concept that the change will not succeed if the extend is too large in order to be done or too small to be accepted as substantial by the participating hospital personnel. The same is valid for the planned goals i.e. each good goal should neither be too easy nor too difficult to be met and implemented.

10. The change did not come to the end. We consider that even the best and genius plan is useless if it is not realized, controlled and gone to the end. We must notice here that we took special attention to the responsibilities of everyone. We defined them clearly in such a way that the process should be timely, penetrative and steady.

The advanced crisis and connected with this decrease of income from the NHIF with the introduced by NHIF fixed budgets and monthly limits, together with the decrease of financing by Sofia municipality and Ministry of health we have done:
We have done this mainly with change in:

- Management;
- Optimization of expenses;
- Investment in personnel

The process of change has not finished yet. It is still in process. The results are encouraging. The management is confident that we shall not fail, we shall succeed.

5. CONCLUSION

Well prepared hospitals for future usage of contemporary planning methods (real time planning) focus on motors of change and considering the probability of many scenarios develop corresponding initiatives on the basis of values. Although that concept can sound too easy, the real process of implementation of the vision into action is one of the biggest challenges for the hospital managers. Considering that few numbers of hospital managers will oppose the implementation of the vision into action, pointing out lack of personnel or lack of owners’ support, insufficient capacity to drive the desired initiatives as well as the existing gaps between long term initiatives and everyday activities we propose the following:
First: Ensure support to your vision in your organization, a key precondition for charging of your hospital for strategic initiatives namely:

- Create a feeling of emergency for identifying the strategic options and be after the key initiatives;
- Communicate to the Board and the owner, to managers and to the personnel Of course and the extend of the challenges driving the need of chance;
- Create consensus with the leader for necessary initiatives;
- Communicate proactively and permanently with the communities in the hospital in order to share the healthcare challenges and goals.

Second: Position the hospital as innovator on the basis of values with long term power. Focus initiatives on lowering of expenses together with the driving force for efficacy and quality as:

- Develop a vision for improving efficacy and quality;
- Communicate key initiatives on the healthcare services market as a tool for positioning of the hospital as innovator to long term challenges. Develop strategic approach to cost management impregnating the hospital vision
- Invest in the capacity of the personnel to work smartly.

Third: Use perspective data of the market intelligence, in order to be well informed for the existing reality. The best decisions are based on the analysis and reflection of the changing trends, namely:

- Accept and favor the evolution of traditional personnel and professional roles, reflecting the reality of changing labor market and development of the technologies and process of the care;
- Review the importance of the types of services provided, use a broad set of presumptions for the future of the surrounding environment in order to estimate their importance to the mission and its vitality.
- Study the key basic initiatives for the impact on the care for the patient.

Facing the economic difficulties, stagnated payment for the provided medical services and increasing needs of new offered medical services, the nowadays hospitals for active treatment realize that they are in an important time for preparation for the future, offering value in provided medical services and must be ahead of industrial change. We consider that this will be a benefit for those hospitals which face these challenges and work out their agenda for change. This what confirms our unpretending experience in done and continuing change, usage of real time planning as an alternative to strategic planning, prognoses and results of different studies (mainly foreign) showed that hospital managers who kept an eye the future, will be best positioned to realize the possibilities for improving of hospital medical care today and tomorrow.

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NATIONAL SPECIFICS OF COMPETITIVE BENCHMARKING INTEGRATION ON RUSSIAN ENTERPRISES

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Abstract

The author analyses the national specifics that impede the efficient integration of benchmarking on Russian enterprises and also offers the model of the competitive integration benchmarking process. The second part of the paper is devoted to competitive benchmarking strategies. In the competitive benchmarking strategies of approaching the standard are considered as marketing strategies. This article contains a detailed description of the marketing strategies of approaching the standard from a company's three possible market roles: leader, pretender and follower. The author deals with the problem of choice of the effective strategy using the method of complex multivariate comparative estimate which allows to assess the adequacy of the alternative strategies to the standard one, the expected efficiency and to choose the best marketing strategy for a company under the circumstances.

Key words: benchmarking, competitive strategies, collaboration, benchmarking process.

1. INTRODUCTION

Modern methods and business dealing processes are exposed to constant changes: that recently was the best achievement will become a standard or even will fall low more. Therefore it is necessary to regularly check the efficiency of achievements received before. Hence, the competitive-integration benchmarking is a process, but not a single action. It can't be the short-term single project; otherwise the reached competitive advantage will be quickly surpassed by competitors. The benchmarking should anticipate all actions for increase competitiveness of the company, i.e. on constant goods, services and the processes improvement, covering all the activity and all workers of the organization. That is why the benchmarking regular evaluation of used receptions and methods of work, and transferring them to new levels corresponding to advanced achievements and standards is necessary. Corresponding process is a cycle of a systematical and ordered work on constant organization's activity and personal perfection improvement. This is the way of maintenance of consecutive, continuous and gradual improvement for the sake of quality achievement as complex concept.

Nowadays, during the era of business globalization, the companies realize the necessity of all-round and detailed studying and subsequent use of the best competitors' achievements for an aim of own survival. The benchmarking became the worldwide movement as search of standards for studying and experience introduction. The long-term experience of benchmarking application in the USA has been picked up and was widely extended in Europe. But intensity of introduction of a benchmarking in Asian-Pacific region became especially impressing. Benchmarking distribution has occurred to some backlogging the countries of Southern and Central America and in Canada. Moreover, the beginning of a new institutional stage of benchmarking development within the scope of which contacts to other
organizations concerning gathering of the information and benchmarking carrying out in whole have considerably become simpler in 90s of 20-th century.

On the institutional stage of benchmarking development the acquisition of competitive edges must be organized as the new business strategy of enterprise, based on a collaboration and co-operation: a customer must be converted into a business partner, and achievements of more successful competitors and leading organizations from different industries, mainly international front-rank experience, must be studied on the basis of competitive-integration benchmarking, which arrives the aim - effective voluntarily exchange by front-rank experience between the different subjects of economic activity. Thus it is necessary to understand the analysis of competitors' activity, based on co-operation and collaboration, with the purpose of association and forming high-quality of new business processes based on the experience of front-rank international organizations of this industry for the improvement of competitive edges at an international level should be understood as the benchmarking competition-integration.

This way a new making element in the concept of benchmarking competitive-integration included is co-operation, allowing to promote the own activity results, leaning against the already having attained competitors’ results.

2. ESSENCE OF COMPETITIVE-INTEGRATION BENCHMARKING

Competitive-integration benchmarking, at which abandonment from a rivalry in behalf on collaboration takes place, is possible to consider motive force in the change of modern business philosophy. Thereon "guru" of modern management Edward Demming accents: "competition - someone wins, someone loses, collaboration - all win".

Many world successful campaigns work exactly on collaboration.

The Russian industrial enterprises are just starting inculcating such instrument of marketing in the activity as benchmarking, the necessity of using which is caused by the increase of requirements to the producible product; by the strengthening of globalization processes that results in more hard competition on branch markets. In search of successful experience of enterprise first of all competition benchmarking use is comparing of own products and business processes to analogical positions of direct competitors. Opened and voluntarily information exchange between competitors on the base of competition-integration benchmarking is possible within the professional associations (e.g., the Union of industrialists and businessmen of Russia, the system of commercial and industrial chambers of Russian Federation), and also the specialized subjects of benchmarking (The Russian club of benchmarking is "Business perfection", system of regional centers of benchmarking). However these institutes of benchmarking still aren't developed not enough. Therefore the basic role is played by specialists-analysts, who analyze price-lists, special offers of competitors during the study of competitors.

In addition, there is a row of factors which from one side hinder to use of benchmarking on the Russian enterprises, especially on small and middle ones, however from the other hand are incentive reasons to application of competition-integration benchmarking based on co-operation and collaboration of competitive enterprises in an exchange, as well by the front-rank experience, as during exposure and adaptation of international experience in industry. The results of analysis of direct and indirect obstacles, executed D. V. Maslov and E. A. Belokorovin (Maslov, Belokorovin, 2007) jointly with "EVA Consulting Group" company, allow to generalize the obstacles, getting up toward
the Russian enterprises during decision-making about realization of competitive benchmarking, and to range them on the degree of meaningfulness, as it is shown on figure 1.

As it is seen from the picture, the closeness of partner companies and own complex of “black-out” is a major barrier for initiation of benchmarking research for many Russian enterprises. It has folded so in Russia, that not everyone is ready to give information about the enterprise.

By the investigation of inaccessibility of opened information for comparison and experience exchange is a lack of development of benchmarking infrastructure in Russia. In the west and economically developed countries of Asia there is a whole network of organizations which conduct the special researches, watch and collect the best practices, there are “clubs” for the search of benchmarking partners, benchmarking programs, internet portals by means of which it is possible to compare itself to other companies, financed by the state, to exchange information or to buy a report on interesting subjects. In these terms enterprises must realize, that exactly a collaboration and co-operation in the process of comparative competition analysis will allow to get exceptional confession them at national and pestilent level. The competition-integration benchmarking must become the effective marketing instrument of this co-operation.

Fig. 1. Obstacles in application of competitive benchmarking on Russian enterprises

(Maslov, Belokorovin, 2007)

The conception of relation of consent within the framework of competition-integration benchmarking is built on a well-organized front-rank information exchange, creation and communicating and contacts with benchmarking partners and it is sent to continuous enterprise activity perfection and increase of it's competitiveness by an orientation on higher achievements in all the functional spheres.

The basic maintenance of competitive-integration benchmarking concludes with studying and adaptation to the terms of front-rank, mainly foreign, experience to own enterprise, via exposure of standard organizations, attaining considerable successes in the investigated functional areas on the base of partner relations. Partner relations reflect the natural process of intercompany relations and are social relations, supposing synergies and efforts of the parties incorporated by general interests. This way, competitive-integration benchmarking supposes active co-operation of partners' information
share about business processes of own enterprises, and also mutually beneficial collaboration with by competitors or other subjects of institute of benchmarking for a joint study and mastering of foreign front-rank experience.

The most widespread delusion in competitive-integration benchmarking perception consists of its' examination as a process of imitation of stranger behavior, but not as instrument for creation own one. However the central question, decided in the benchmarking process, is determination not that, what job of strange organizations performances to consider successful, but that, which one actions resulted in the receipt of similar results. For instance, for the estimation of effectiveness of organizational processes, related to realization of productive technology, the different models of estimation of productive efficiency are used. However even with the high indexes of productive efficiency job of company performances can strongly differ from job of the most successful competitors' performances. The reason can appear the ineffectiveness of organizational structure of enterprise. As a result, there is a necessity of studying of organization's methods of productive processes for enterprises-competitors. And in such cases the use of traditional mathematical models for measuring of efficiency can appear impossible. The use of benchmarking becomes an alternative as a method of exposure and comparison of not only quantitative but also the organization’s high-quality parameters of work (Sokolova, 2007).

The active bringing-in of stranger experience allows to accelerate own progress, shorten expenses, promote an income and optimize the dynamics of structure and choice of strategy of activity of enterprise. Therefore, the aim of competitive-integration benchmarking is an exposure in the company of such areas, at affecting which it is possible to change the model of doing business, or looking for such methods of management, which would assist realization of strategic changes on an enterprise. In other words the primary objective of competitive-integration benchmarking process consists in perfection of business and increasing competitiveness of enterprise due to studying and application of front-rank experience. The aim of benchmarking carries strategic character for an enterprise and gives benchmarking status of a competent instrument of management.

For the benchmarking being formed in the civilized method of determination of the market position at the branch market in the Russian business area, it's necessary to work its clear out, stage-by-stage process, exposing basic maintenance of competitive-integration benchmarking, which will take the Russian specific into account. Therefore for effective realization of competitive-integration benchmarking it's necessary to work out the clear chart of implementation, consisting of successive steps. The mechanism of competitive-integration benchmarking process is based on a model, which consists of the stages of planning, search, analysis, adaptations - a "wheel of benchmarking" (Danilov, 2005), is analogous to the model with the administrative cycle of PDCA (plan-do-check-act cycle, Vasilevskaya, 2005), but is presented by the sequence of the stages of audit, planning, supervision, analysis, adaptation and co-ordination (fig. 2).

This way, the benchmarking is not only front-rank technology of competition analysis. Firstly, the benchmarking is a conception supposing natural development at the companies of aspiring to continuous perfection, and, secondly, a process of perfection. It is a continuous search of new ideas, their adaptation and subsequent use in practice. It is necessary to understand that a comparative analysis of competitive edges and realization of necessity of changes are the not final stages of benchmarking process. The major component of benchmarking conception is in-house technologies doing business.
Management of companies, applying benchmarking conception, must foresee the permanent track after that the conducted policy was understood and supported by all employees of company. The responsibility for successful realization of the conception must be up-diffused between all the personnel of company, executing work, having influence on the level of quality the produced commodities. Therefore the methodology of the marketing monitoring of the best methods of business processes realization must be based on principles of benchmarking such as reciprocity, analogy, measuring, authenticity, concentration on quality etc. It will allow the organization, using this marketing instrument, to attain the put aim consisting in the increase of competitiveness and increase of income through a decision and realization of basic tasks of benchmarking in a full degree.

Finally, the main value of benchmarking shows up in that it is the optimal variant of the anti-recessionary marketing of a company, allowing to realize the administrative tasks of company quicker and more effectively, and also to resist to the crisis phenomena in world and home economies successfully.
3. STRATEGIES OF COMPETITIVE BRANCH ENTERPRISES APPROACHING THE STANDARD AND ESTIMATION OF THEIR EFFICIENCY

In the competitive benchmarking the strategies of approaching the standard are considered as marketing strategies.

It is natural that the strategy development begins with the external analysis, the analysis of factors which are beyond the company’s management control and can affect its strategy. The main purpose of the external analysis is to determine and understand the current and future opportunities and threats as well as to define the strategic alternatives (Vashko, 2006).

Marketing strategy is that aspect of strategy which is concerned with how to allocate an enterprise’s resources and efforts so as to get better results and strengthen its competitive advantage which inevitably leads to the standard adequacy. Marketing strategy is said to be more efficient as a part of corporate strategy that describes the way the company should find and deal with its consumers, opportunities and competitors in this particular segment of the market.

Marketing strategies of approaching the standard first of all focus on the defining of the company’s market position: leader, pretender or follower.

Market leader has the largest market share for the certain product. To strengthen its domination leader should aim at market expansion on the whole by attracting new consumers and finding new methods of its products consumption and usage. To maintain its market share leader uses the strategies of positional, flank and mobile defense, warning blows and attack beating off strategies and the strategy of forced reductions. Most market leaders aim at depriving its competitors of any opportunity to assume the offensive. Finally leader can attempt to expand its market segment. Such strategy is only worthwhile if it increases the profitability and the risk is minimized.

In competitive-integration benchmarking leader’s position is close to the ideal state and is assumed as the standard one.

Pretender deals leader a blow, it can wage price war, reduce the production costs, produce prestige goods, expand its product range, develop new products, improve the channel of distribution, increase service quality or undertake the intensive advertising campaign.

The offensive on leader’s positions is quite risky but potentially the most effective strategy. First of all pretender should study consumers’ needs and the degree of their satisfaction. A large market segment which is not served by leader or consumers is not satisfied with the quality of leader’s goods or services is a fine object to attack. The alternative strategy involves taking over leader’s market segment through absolutely new product. Rival companies of similar size which don’t meet consumers’ needs, have difficult financial situation and which goods are not in demand because of their low technical specifications or high prices can be attacked too.

Having defined clear goals and its chief competitor a company must choose one of five offensive strategies.

The frontal attack means that the competitor’s products, advertising and prices are under attack.

The flank attack takes place when the strongest parts of the defending party are concentrated on the proposed directions of the offensive blows of the front. In such cases the power is concentrated against the weakness. The flank attack can be carried out in two directions - geographical and segment. The
geographical attack involves the offensive party activity in the regions where its rival is passive. The other flank strategy involves defining consumers’ needs which are not met by the market leader.

The attempt to surround the rival involves offensive actions simultaneously in several directions: on the front, flank and in the rear when the offensive party offers exactly the same products as its competitor does but only on a little larger scale. The attempt to surround is only worthwhile when the offensive company has enormous resources and is sure that sudden attack will not meet the proper resistance.

Turnaround strategy is aimed at attacking more accessible markets and resulting in the company resource base expanding. We mean the companies which seeking leadership carry out scientific research, develop new technologies and attack removing the front line on the territories where they have an apparent advantage.

The strategy of guerrilla warfare (Klayner, 1998) involves a lot of actions such as selective price cuts, intensive blitz sales promotion campaigns and as an exception some legal acts by small forces throughout the territory occupied by the competitor.

All mentioned above strategies give only the general direction of a company’s actions. In practice we should change the general strategy into a number of particular actions allowing expanding the market share. A company seeking leadership can set lower prices that its competitor. As a rule this particular method becomes the strategy background for retailing chains. The effective discount strategy requires three conditions: a company convinces consumers that its goods and services are as qualitative as leader’s; consumers are sensitive to differential cost and are not hurt when the supplier changes; market leader keeps the prices up not paying attention to the rival’s attack.

In addition to these pretender’s strategies the following strategies are expedient for retailers to apply:

1) the strategy of prestige goods: pretender offers higher-quality goods and at higher price than market leader, and after a while the company using the goodwill of its trade brand expands the production at the expense of cheaper goods;

2) the strategy of product diversification: pretender provides customers a wide range of products;

3) the strategy of innovation: pretender constantly puts on the market new kinds of products;

4) the strategy of increased service level: pretender offers its clients new or higher-quality services;

5) the strategy of distribution innovation: pretender should create new distribution channels;

6) the strategy of heavy advertising: some pretenders attack leader by increasing their publicity costs, although the increased publicity costs are only worthwhile when pretender produces really competitive product or its advertisements are better than the leader’s.

Follower is a company which tries to maintain its market share. Followers should keep strategies aimed at maintaining and increasing market share. Follower can act as a repeater, a clone, an imitator or a timeserver:

1) repeater duplicates leader’s product and packaging and sells the goods on the illegal (black) market through doubtful distributors;

2) clone copies its rival’s product, distribution system, advertising campaign right up to a tiny bit changed brand name;
3) imitator copies something but keeps the differences in packaging, advertising, prices: its actions do not disturb leader until imitator takes more aggressive actions. Moreover it is imitator who helps leader to avoid monopoly in particular industry;

4) timeserver modifies or improves leader’s goods.

The company operating in the niche serves small market segments. Nowadays the niche strategy is used not only by small businesses but by giants too. They choose one or several spheres of specialization:

1) the specialization in final customers;
2) the vertical specialization: a company specializes in certain vertical production and distribution levels or value creation chain;
3) the specialization in clients’ sizes: a company serves small, medium-sized or big clients;
4) the specialization in special clients: a company only serves one or several consumers;
5) the geographical specialization: a company sells its products across particular area or region;
6) the product specialization: a company only manufactures one product or commodity line;
7) the specialization in individual customer service;
8) the service specialization: a company provides one or some services not provided by other firms.

However the company should “keep to the niche principal” and multiple niches are more preferable than single one.

Whatever role the company plays on the market trying to approach the standard it keeps the following marketing strategies:

1) innovative marketing strategies;
2) marketing strategies of growth and development.

Innovative marketing strategies are used by companies developing new products and using innovative models of business conducting. They are divided into strategies of companies- pioneers, falling behind companies and taking the second place companies.

Marketing strategies of growth involves company development and expansion.

The development includes the following strategies:

1. The strategy of strengthening market positions: an enterprise does all possible to win the best positions with this certain product in this particular market; to realize this strategy the company should apply big marketing efforts.
2. The strategy of market development which means looking for new markets for existing product.
3. The strategy of product development: growth is achieved through new product production and its sale on the developed market.

The company expansion with adding new structures (the strategy of integrated growth) is mainly used when a company has strong business but it cannot use the strategy of concentrated growth while the strategy of integrated growth does not contradict its long-term goals. There are two main kinds of integrated growth strategies:
1. The strategy of backward vertical integration aimed at company expanding by winning or strengthening control over suppliers as well as by creating affiliated supplying companies.

2. The strategy of forward vertical integration involves company expansion by getting or increasing its influence on the final customers.

The strategies of diversified growth are only used when the company cannot develop with this particular product in the market of the particular industry. They are:

1. The strategy of centralized diversification levied on seeking and using additional business opportunities to produce new goods.

2. The strategy of horizontal diversification means seeking opportunities to expand on the market at the expense of new goods requiring different technology. The new product should be designed for the main product consumers so it should be adequate to the qualities of already produced goods.

3. The strategy of conglomerate diversification means that a company expands by producing new goods technologically different from existing ones and are sold in the new markets. It is one of the most difficult strategies of development to be accomplished.

4. The strategy of reduction is used when it is necessary to re-allocate the powers after the long period of growth. The realization of these strategies is often very hurtful.

The main factor affecting the company’s marketing strategy choice is definition of the efficiency indicators and their substantiation.

Business strategy should be very effective according to the principals of enterprise operating. The efficiency indicator is a figure which allows estimating the degree of the goal obtainment (Fursov, 2002).

In practice we can face the difficulties choosing one or another efficiency indicator. The efficiency indicator should:

1) be adequate to the goal of business strategy and has clear physical meaning;

2) be universal;

3) be sensitive enough to the changes of any parameters.

Complicity and multiplicity of business strategies do not allow choosing one integer result indicator from a number of summarizing ones.

In competitive-integration benchmarking it is reasonable to choose the single strategy of approaching the standard during estimation of the criteria of the strategy efficiency. The main problem of calculation is to justify the choice of indicators of the strategy efficiency and probable estimate of the environmental uncertainty. At the same time one of the main conditions of estimating is the quantitative commensurability of different criteria. That’s why their significance should be expressed in relative units.

The choice of the alternative comes from minimizing of capital and risk expenditures and maximizing the outcomes. But in practice such alternatives are rare. So the methods of complex multivariate comparative estimate based on the method of distance are used. The method of distance takes into account not only absolute values of each strategy indicators but also the degree of their closeness or distance to the standard strategy indicators. Thus we should express the co-ordinates of compared strategies in shares of adequate co-ordinates of the standard strategy taken as a unit.
The standard strategy is a nonexistent strategy which is characterized by the best indicators. Each compared alternative is a point in nth measured Euclidean space: the co-ordinates of the point are quantities of indicators used as a measure of comparison. Then the distance of one point (one alternative) from the standard which co-ordinates are considered as the best figures of each indicator in aggregate will determine the place of this strategy among the many compared ones. The indicator of the strategy efficiency can be shown as:

\[ R_i = \sqrt{\sum_{j=1}^{m} \sum_{j=1}^{n} k_j \times (1 - x_{ij})^2} \]

where \( R_i \) is a complex estimate of i strategy (the distance of the i strategy point to the standard strategy); \( j \) is a number of factors of the complex estimate; \( k_j \) is a coefficient of comparative significance of j factor (0≤\( k_j \)≤1); \( i \) is a number of alternative strategies; \( x_{ij} \) is co-ordinates of i strategy in nth-measured space. Co-ordinates \( x_{ij} \) are comparative figures because the best indicator is used as a background for comparing (standard):

\[ x_{ij} = \frac{a_j}{\max_j}, \]

where \( x_{ij} \) is the significance of indicator of j factor standard; \( a_j \) is the significance of indicator of j factor in i strategy.

The results of complex estimate of the marketing strategy efficiency are given in Table 1.

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Factors of complex estimate taking into account the coefficient of comparative significance</th>
<th>Complex estimate</th>
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<tbody>
<tr>
<td></td>
<td>The volume of sales (( k_1 ))</td>
<td>The economic outcome (( k_2 ))</td>
</tr>
<tr>
<td>C_1</td>
<td>( X_{11} )</td>
<td>( X_{21} )</td>
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<tr>
<td>C_2</td>
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<td>Эталон</td>
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The optimal strategy will be that one which has the least significance of the complex estimate and therefore has minimum differences from the standard strategy.

So the choice of effective strategy of approaching the standard should be based on the complex multivariate estimate of the strategy efficiency. This method shows how much each real strategy is
different from the standard strategy. Besides it is levied on complex multivariate approach to the estimation of such difficult phenomenon as business strategy. It takes into consideration possible achievements of all alternative strategies and the degree of their approaching the standard strategy. The offered method gives quantitative assessment of the strategy efficiency using objective criteria and this allows to avoid subjectivity and to estimate the strategy efficiency more accurate. It involves calculating of the expected strategy efficiency and also helps choose the most efficient strategy.

REFERENCES


GOAL PROGRAMMING IN ECONOMICS
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Abstract
Some of applications in economics involve problems whose natural formulation does not even resemble a linear programming model. In such cases the problems can be reformulated to fit linear programming. Two cases are considered. One called nonpreemptive goal programming, is where all of the goals are of roughly comparable importance. The other, called preemptive goal programming, is where there is a hierarchy of priority levels for the goals, so that the goals of primary importance receive first-priority attention, those of secondary importance received second-priority attention. In this paper we describe some of the most useful formulation techniques and present some applications in economics. By formulation technique we convert such a problem into the linear programming format.

Key words: operations research, goal programming, auxiliary variables

1. INTRODUCTION
The most important part of the solution of many problems in economics is building the model. Some of applications involve problems whose natural formulation does not even resemble a linear programming model. In practice often it is required to achieve more than one goal. For example such as maximizing total profit and minimizing total costs. However, this willingness is not always realistic. In fact, corporations frequently focuses on a variety of other objectives – e.g., to maintain stable profits, increase (or maintain) one’s share of the market, diversify products, maintain stable prices, improve worker morale, maintain family control of the business, and increase company prestige. This description leads into the key topic of goal programming, where the single objective that is characteristic of linear programming is replaced by several goals toward which we must strive simultaneously. In such cases the problems can be reformulated to fit linear programming. In this paper we describe some of the most useful formulation techniques and present some applications in economics.

By formulation technique we convert such a problem into the linear programming format. A fairly similar problem, where there are several objective functions and the one with the smallest value is to be maximized. Another formulation technique is introduced to show us how to restore the linear programming format in this case.

2. GOAL PROGRAMMING
The basic idea of goal programming is to establish a specific numeric goal for each of the objectives, formulate an objective function for each objective, and then seek a solution that minimizes the (weighted) sum of deviations of these objective functions from their respective goals. There are two
One call nonpreemptive goal programming, is where all of the goals are of roughly comparable importance. The other, called preemptive goal programming, is where there is a hierarchy of priority levels for the goals, so that the goals of primary importance receive first-priority attention, those of secondary importance received second-priority attention, and so forth (if there are more than two priority).

2.1. NONPREEMPTIVE GOAL PROGRAMMING

We shall illustrate the algorithm by solving the shortest-route problem in situation of planning process.

**Model problem 1.** A company is considered three new products to replace current models that are being discontinued, so their O.R. Department has been assigned the task of determining which mix of these products should be produced. Management wants primary consideration given to three factors: long-run profit, stability in the work force, and the level of capital investment that would be required now for new equipment. In particular, they have established the goals of (1) achieving a long-run profit (net present value) of at least 125 000 000 € from these products, (2) maintaining the current employment level of 2 000 employees, and (3) holding the capital investment to less than 55 000 000 €. However, they realize that it probably won’t be possible to attain all of these goals simultaneously, so they have discussed their priorities with the O. R. Department. This discussion has led to setting penalty weights of $3$ for missing the profit goal (per million euros under), $4$ for going over the employment goal (per hundred employees), $2$ for going under this same goal, and $5$ for exceeding this capital investment goal (per million euros over).

Each new product's contribution to profit, employment level, and capital investment level is proportional to the rate of production that currently established. These contributions per unit rate of production are shown in Table 1, along with the goal and penalty weights.

**FORMULATION.** The company problem includes all three possible types of goals: a lower, one-sided goal (long-run profit), a two-sided goal (employment level), and an upper, one-sided goal (capital investment). Letting the decision variables $x_1, x_2, x_3$ be the production rates of products 1, 2, and 3, respectively, these goals can be stated as

\[
15x_1 + 9x_2 + 12x_3 \geq 125 \quad \text{(Profit goal)}
\]

\[
4x_1 + 3x_2 + 5x_3 = 25 \quad \text{(Employment goal)}
\]

\[
8x_1 + 7x_2 + 5x_3 \leq 35 \quad \text{(Investment goal)}
\]

Note that these three relationships are not constraints. It is not even expected that all of them can be satisfied simultaneously.

The right-hand sides are not fixed constants with no flexibility. Instead, they are managerial goals to be approached as closely as possible. More precisely, given the penalty weights in the last column of Table 1, the overall objective becomes

\[
\text{Minimize } Z = 3(15x_1 + 9x_2 + 12x_3 - 125)^- + 4(4x_1 + 3x_2 + 5x_3 - 25)^+ + 2(4x_1 + 3x_2 + 5x_3 - 25)^- + 5(8x_1 + 7x_2 + 5x_3 - 35)^+
\]
Table 1. Data for Model problem 1.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Unit contribution Product</th>
<th>Goal</th>
<th>Units</th>
<th>Penalty weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long-run profit</td>
<td>15</td>
<td>9</td>
<td>12</td>
<td>≥ 125 (million of euros) 3</td>
</tr>
<tr>
<td>Employment level</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>= 25 (hundreds of employees) 4(+), 2(-)</td>
</tr>
<tr>
<td>Capital investment</td>
<td>8</td>
<td>7</td>
<td>5</td>
<td>≤ 35 (million of euros) 5</td>
</tr>
</tbody>
</table>

Unfortunately, Z is not a linear function because each of the four terms has the nonlinear form. Therefore, the simplex method cannot be applied to solve the model in this form. However, it can be applied after the model is reformulated to fit the linear programming format. In particular, the first step is to introduce the new auxiliary variables

\[ \begin{align*}
  y_1 &= 15x_1 + 9x_2 + 12x_3 - 125, \\
  y_2 &= 4x_1 + 3x_2 + 5x_3 - 20, \\
  y_3 &= 8x_1 + 7x_2 + 5x_3 - 35,
\end{align*} \]

as well as their positive and negative components

\[ \begin{align*}
  y_1^+ &= y_1^+ - y_1^- , \quad \text{where} \quad y_1^+ \geq 0, y_1^- \geq 0, \\
  y_2^+ &= y_2^+ - y_2^- , \quad \text{where} \quad y_2^+ \geq 0, y_2^- \geq 0, \\
  y_3^+ &= y_3^+ - y_3^- , \quad \text{where} \quad y_3^+ \geq 0, y_3^- \geq 0.
\]

Because there is no penalty for exceeding the profit goal of 125 or being under the investment goal of 35, neither \( y_1^- \) nor \( y_3^- \) should appear in the objective function representing the total penalty for deviations from the goals. However, it is possible (and even desirable) to have \( y_1^+ > 0 \) and \( y_3^+ > 0 \), so both of these variables should appear (along with \( y_1^- , y_2^+ , y_2^- , \) and \( y_3^+ \) ) in the equality constraints that define the relationship between these six auxiliary variables and the three original decision variables \( (x_1,x_2,x_3) \). Using the penalty weights shown in Table 1 then leads to the following linear programming formulation of this goal programming problem:

\[ \begin{align*}
  \text{Minimize} \quad Z &= 3y_1^- + 4y_2^+ + 2y_2^- + 5y_3^+ \\
  \text{subject to} \\
  15x_1 + 9x_2 + 12x_3 - (y_1^+ - y_1^-) &= 125, \\
  4x_1 + 3x_2 + 5x_3 - (y_2^+ - y_2^-) &= 25, \\
  8x_1 + 7x_2 + 5x_3 - (y_3^+ - y_3^-) &= 35,
\end{align*} \]

and

\[ x_j \geq 0, y_k^+ \geq 0, y_k^- \geq 0 \quad (j = 1,2,3; k = 1,2,3). \]
Applying the simplex method to this formulation yields an optimal solution, \( x_1 = 2.5, x_2 = 0, x_3 = 3 \), with \( y_1^+ = 0, y_1^- = 51.5, y_2^+ = 0, y_2^- = 0, y_3^+ = 0, y_3^- = 0 \). Therefore, \( y_1 = -51.5, y_2 = 0, y_3 = 0 \), so the second and third goals are fully satisfied, but the first one is unsatisfied. So, the profit is 51.5 million euros less than 125 million. The resulting penalty for deviating from the goals is \( Z = 154.5 \).

2.2. PREEMPTIVE GOAL PROGRAMMING

The preceding Model problem 1 assumes that all of the goals are of roughly comparable importance. Now consider the case of preemptive goal programming, where there is a hierarchy of priority levels for the goals. Such a case arises when one or more of the goals clearly is far more important than the others. Thus the initial focus should be on achieving as closely as possible these first-priority goals. The other goals also might naturally divide further into second-priority goals, third-priority goals, and so on. After we find an optimal solution with respect the first-priority goals, we can break any ties for the optimal solution by considering the second-priority goals, and so on.

One way of solving the overall problem is by using so called streamlined procedure. If there are just two priority levels, the modification is to introduce multiplicative factor \( M \) – some huge positive number before running the simplex method. The linear programming formulation of our current problem (with two priority levels) would include all of the goals in the model in the usual manner, but with basic penalty weights of \( M \) and 1 assigned to deviations from first-priority and second-priority goals, respectively. If different penalty weights are desired within the same priority level, these basic penalty weights then are multiplied by individual penalty weights assigned within the level.

When there are more than two priority levels (say \( p \) of them), the streamlined procedure generalizes in a straightforward way. The basic penalty weights for the respective levels now are \( M_1, M_2, \ldots, M_{p-1}, 1 \), where \( M_1 \) represents a number that is vastly larger than \( M_2, M_2 \) is vastly 1.

We shall now illustrate the streamlined procedure by modifying the Model problem 1.

Model problem 2. The management of the company has reconsidered the original formulation of the problem that has summarized in Table 1. The management has concluded that a very high priority should be long profit more than 125 million euros. Based on these considerations, management has concluded that a preemptive goal programming approach now should be used where the two goals just discussed should be the first-priority goal (long profit more than 125 million euros), and the other three original goals (the current employment level of 2,000 employees and holding capital investment less than 35 million euros) should be the second-priority goals. Within the two priority levels, the relative penalty weights still should be the same as given in the last column of Table 1. This reformulation is summarized in Table 2.

Table 2. Revised formulation for company preemptive goal programming problem.

<table>
<thead>
<tr>
<th>Priority level</th>
<th>Factor</th>
<th>Goal</th>
<th>Penalty weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRST priority</td>
<td>Long-run profit</td>
<td>( \geq 125 )</td>
<td>3M</td>
</tr>
<tr>
<td>SECOND priority</td>
<td>Employment level</td>
<td>( \leq 25 )</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Employment level</td>
<td>( \geq 25 )</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Capital investments</td>
<td>( \leq 35 )</td>
<td>5</td>
</tr>
</tbody>
</table>
Using the *streamlined procedure* we work with just one linear programming model that includes *all* of the goals, as follows:

\[
\begin{align*}
\text{Minimize} \quad Z &= 3My_1^- + 4y_2^+ + 2y_2^- + 5y_3^+
\end{align*}
\]

subject to

\[
\begin{align*}
15x_1 + 9x_2 + 12x_3 - (y_1^- - y_1^+) &= 125, \\
4x_1 + 3x_2 + 5x_3 - (y_2^- - y_2^+) &= 25, \\
8x_1 + 7x_2 + 5x_3 - (y_3^- - y_3^+) &= 35,
\end{align*}
\]

and

\[
x_j \geq 0, \quad y_k^+ \geq 0, \quad y_k^- \geq 0 \quad (j=1,2,3; k=1,2,3).
\]

Applying the streamlined procedure to this model yields the unique optimal solution, \(x_1 = 8.33, x_2 = 0, x_3 = 0, y_1^- = 0, y_1^+ = 0, y_2^- = 8.33, y_2^+ = 0, y_3^- = 31.67, y_3^+ = 0\), with \(Z = 191.67\). This solution fully achieves *first-priority* goal, and it falls short by just 8.33 of the *second-priority* goal (employment level \(\leq 25\)) and by 31.67 of the other second-priority goal (investments \(\leq 35\)). So, employment level goal of 25 is exceeded by 833 employees and investments would be approximately two times more than 35 million euros. Complicated situation isn’t it?

**REFERENCES**

 ASSIGNMENT PROBLEM IN ECONOMICS
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1

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Abstract

A special form of the Transportation linear programming model is considered. Often in practice it is necessary to solve the problem where the resources are being allocated to the activities on a one-to-one basis. Thus each resource or assignee (e.g., an employee, machine, or time slot) is to be assigned uniquely to a particular activity or assignment (e.g., a task, site, or event). The present paper covers in step-by-step techniques for two cases – minimizing and maximizing assignment problems. Some applications in economics are presented. A computer program for solving any such problems in MATLAB are made in the both cases.

Key words: operations research, assignment problem, MATLAB

1. INTRODUCTION

The assignment problem is the special type of linear programming problem where the resources are being allocated to the activities on a one-to-one basis. Thus each resource or assignee (e.g., an employee, machine, or time slot) is to be assigned uniquely to a particular activity or assignment (e.g., a task, site, or event). There is a cost \(c_{ij}\) associated with assignee \(i\) \((i = 1, 2, \ldots, n)\) performing assignment \(j\) \((j = 1, 2, \ldots, n)\), so that the objective is to determine how all the assignments should be made in order to minimize total costs or to maximizing total earnings. In this way we obtain a special form of the Transportation problem. The assignment technique can be used for the problems which are similar to normal transportation problems such as assigning personnel to task. As with other LP technique no advanced mathematics is required. The paper covers in step-by-step fashion the techniques for both minimizing and maximizing assignment problems for some model problems in economics.

2. THE ASSIGNMENT TECHNIQUE FOR MINIMIZING

In this section we present an application in economics by Model problem 1 which has been used as a basis of the step-by-step explanation.

Model problem 1. A corporation has decided to produce three new products. Five branch plants now have excess product capacity. The unit manufacturing cost of the first product would be 31 €, 29 €, 32 €, 28 €, and 29 €, in Plants 1, 2, 3, 4, and 5, respectively. The unit manufacturing cost of the second product would be 45 €, 41 €, 46 €, 42 €, and 43 €, in Plants 1, 2, 3, 4, and 5, respectively. The unit manufacturing cost of the third product would be 38 €, 35 €, and 40 € in Plants 1, 2, and 3, respectively, whereas plants 4 and 5 do not have the capability for producing this product. Management has decided that each new product should be assigned to only one plant and that no plant should be assigned more than one product (so that three plants are each to be assigned one product,
and two plants are to be assigned none). The objective is to make these assignments so as to minimize the total cost of producing these amounts of the three products.

**STEP 1.** First, to formulate this problem as an assignment problem, we must introduce two dummy products – Product 4 and Product 5. Also, an extremely large cost $M$ should be attached to the assignment of Product 3 to Plant 4 and Plant 5 to prevent these assignments in the optimal solution. The resulting assignment problem cost table is shown in Table 1.

**Table 1.** Cost table for the Model problem 1 in the beginning.

<table>
<thead>
<tr>
<th>Products \ Plants</th>
<th>Plant 1</th>
<th>Plant 2</th>
<th>Plant 3</th>
<th>Plant 4</th>
<th>Plant 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product 1</td>
<td>31</td>
<td>29</td>
<td>32</td>
<td>28</td>
<td>29</td>
</tr>
<tr>
<td>Product 2</td>
<td>45</td>
<td>41</td>
<td>46</td>
<td>42</td>
<td>43</td>
</tr>
<tr>
<td>Product 3</td>
<td>38</td>
<td>35</td>
<td>40</td>
<td>$M$</td>
<td>$M$</td>
</tr>
<tr>
<td>Product 4 (d)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Product 5 (d)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**STEP 2.** Reduce each row by the smallest cost in that row. The smallest costs are 28, 41, and 35. Deducting these values from each element in the rows produces the following table.

**Table 2.** Cost table after Step 2.

<table>
<thead>
<tr>
<th>Products \ Plants</th>
<th>Plant 1</th>
<th>Plant 2</th>
<th>Plant 3</th>
<th>Plant 4</th>
<th>Plant 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product 1</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Product 2</td>
<td>4</td>
<td>0</td>
<td>5</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Product 3</td>
<td>3</td>
<td>0</td>
<td>5</td>
<td>$M$</td>
<td>$M$</td>
</tr>
<tr>
<td>Product 4 (d)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Product 5 (d)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**STEP 3.** Cover all the zeros in Table 2 by the minimum possible number of lines. The lines may be horizontal or vertical.

**Note:** The line, covering row of Product 1, could equally well have been drawn covering column of Plant 4.
Table 3. Cost table after Step 3.

<table>
<thead>
<tr>
<th>Products \ Plants</th>
<th>Plant 1</th>
<th>Plant 2</th>
<th>Plant 3</th>
<th>Plant 4</th>
<th>Plant 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product 1</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Product 2</td>
<td>4</td>
<td>0</td>
<td>5</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Product 3</td>
<td>3</td>
<td>0</td>
<td>5</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>Product 4 (d)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Product 5 (d)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

STEP 4. Compare the number of lines with the number of assignments to be made (in this problem which has four lines and five assignments) then

a. Find the smallest uncovered element from Step 3, called $X$ (in Table 3 this value is 1)

b. Subtract $X$ from every uncover element in the table.

c. Add $X$ to every element covered by two lines (cross point).

Carrying out this procedure on Table 3 produces the following result:

Table 4. Cost table after Step 4.

<table>
<thead>
<tr>
<th>Products \ Plants</th>
<th>Plant 1</th>
<th>Plant 2</th>
<th>Plant 3</th>
<th>Plant 4</th>
<th>Plant 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product 1</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Product 2</td>
<td>3</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Product 3</td>
<td>2</td>
<td>0</td>
<td>4</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>Product 4 (d)</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Product 5 (d)</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

STEP 5. Repeat Step 3 and Step 4 until the number of lines covering the zeroes equals the number of assignments to be made. So, first we obtain the following table.

<table>
<thead>
<tr>
<th>Products \ Plants</th>
<th>Plant 1</th>
<th>Plant 2</th>
<th>Plant 3</th>
<th>Plant 4</th>
<th>Plant 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product 1</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Product 2</td>
<td>3</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Product 3</td>
<td>2</td>
<td>0</td>
<td>4</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>Product 4 (d)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Product 5 (d)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Next the smallest uncovered element is $X = 1$, then subtract $X$ from every uncover element and add it to every cross point of lines. In this way we obtain Table 5.
Table 5. Cost table after Step 5.

<table>
<thead>
<tr>
<th>Products \ Plants</th>
<th>Plant 1</th>
<th>Plant 2</th>
<th>Plant 3</th>
<th>Plant 4</th>
<th>Plant 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product 1</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Product 2</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Product 3</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>M</td>
</tr>
<tr>
<td>Product 4 (d)</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Product 5 (d)</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

STEP 6. When the number of lines equals the number of assignments to be made, the actual assignments can be made using the following rules:

a. Assign to any zero which is unique to both a column and a row.

b. Assign to any zero which is unique to a column or a row.

c. Ignoring assignments already made repeat rule b, until all assignments are made.

Carrying out this procedure for our example we obtain the following solution: Product 1 to Plant 5, Product 2 to Plant 4, Product 3 to Plant 2, Product 4 (dummy) to Plant 1 and Product 5 (dummy) to Plant 3. The final assignment can be presented as follows

Table 6. Assignment table after Step 6.

<table>
<thead>
<tr>
<th>Products \ Plants</th>
<th>Plant 1</th>
<th>Plant 2</th>
<th>Plant 3</th>
<th>Plant 4</th>
<th>Plant 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product 1</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>1</td>
</tr>
<tr>
<td>Product 2</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>1</td>
<td>--</td>
</tr>
<tr>
<td>Product 3</td>
<td>--</td>
<td>1</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Product 4 (d)</td>
<td>1</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Product 5 (d)</td>
<td>--</td>
<td>--</td>
<td>1</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

Note: It is not difficult to see that there exists more than one assignment with the same value of min Z.

STEP 7. Calculate the total cost (min Z) of the final assignment (see Table 6 and Table 1). So, the total cost min Z = 29 € (Product 1 to Plant 5) + 42 € (Product 2 to Plant 4) + 35 € (product 3 to Plant 2) = 106 €.

Notes:

a. To solve assignment problems in the manner described the matrix must be square, i.e., the supply must equal the requirements. Where the supply and requirements are not equal, an artificial source or destination must be created to square the matrix. The costs/profit/contributions etc for the fictitious column or row will be zero throughout.

b. Having made the sources equal the destinations, the solution method will be as normal, treating the fictitious elements as though they were real. The solution method will automatically assign
3. THE ASSIGNMENT TECHNIQUE FOR MAXIMIZING

A maximizing assignment problem typically involves making assignments so as to maximize contribution. To maximize only Step 1 from above differs – the rows are reduced by the largest number in each row. From then on the same rules apply that are used for minimizing.

**Model problem 2.** Reconsider Model problem 1. Suppose that the data of the problem instead of manufacturing cost are expected net profit. Then management has decided that each new product should be assigned to only one plant and that no plant should be assigned more than one product (so that three plants are each to be assigned one product, and two plants are to be assigned none). The objective is to make these assignments so as to maximize the total expected net profit of producing these amounts of the three products.

**STEP 1.** In a similar way as Step 1 of the Model problem 1 we obtain the net profit table. Here instead of extremely large cost $M$ we introduce extremely small net profit ($-M$), where $M$ is a huge positive number.

**Table 7.** Net profit table for the Model problem 2.

<table>
<thead>
<tr>
<th>Products \ Plants</th>
<th>Plant 1</th>
<th>Plant 2</th>
<th>Plant 3</th>
<th>Plant 4</th>
<th>Plant 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product 1</td>
<td>31</td>
<td>29</td>
<td>32</td>
<td>28</td>
<td>29</td>
</tr>
<tr>
<td>Product 2</td>
<td>45</td>
<td>41</td>
<td>46</td>
<td>42</td>
<td>43</td>
</tr>
<tr>
<td>Product 3</td>
<td>38</td>
<td>35</td>
<td>40</td>
<td>$-M$</td>
<td>$-M$</td>
</tr>
<tr>
<td>Product 4 (d)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Product 5 (d)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**STEP 2.** Reduce each row by the largest value in that row and ignore the resulting minus signs.

**Table 8.** Net profit table after Step 2.

<table>
<thead>
<tr>
<th>Products \ Plants</th>
<th>Plant 1</th>
<th>Plant 2</th>
<th>Plant 3</th>
<th>Plant 4</th>
<th>Plant 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product 1</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Product 2</td>
<td>1</td>
<td>5</td>
<td>0</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Product 3</td>
<td>2</td>
<td>5</td>
<td>0</td>
<td>$M$</td>
<td>$M$</td>
</tr>
<tr>
<td>Product 4 (d)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Product 5 (d)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
**STEP 3.** Covers zeros by minimum possible numbers of lines. If number of lines equals the number of assignments to be made go to Step 5. If less, (as in this example), carry out the “uncovered element” procedure previously described. First, by three lines we obtain

<table>
<thead>
<tr>
<th>Products \ Plants</th>
<th>Plant 1</th>
<th>Plant 2</th>
<th>Plant 3</th>
<th>Plant 4</th>
<th>Plant 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product 1</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Product 2</td>
<td>1</td>
<td>5</td>
<td>0</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Product 3</td>
<td>2</td>
<td>5</td>
<td>0</td>
<td><em>M</em></td>
<td><em>M</em></td>
</tr>
<tr>
<td>Product 4 (d)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Product 5 (d)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Then subtract $X = 1$ from every uncover element and add it to every cross point of lines. In this way we obtain Table 9.

**Table 9.** Net profit table after Step 3.

<table>
<thead>
<tr>
<th>Products \ Plants</th>
<th>Plant 1</th>
<th>Plant 2</th>
<th>Plant 3</th>
<th>Plant 4</th>
<th>Plant 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product 1</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Product 2</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Product 3</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td><em>M</em></td>
<td><em>M</em></td>
</tr>
<tr>
<td>Product 4 (d)</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Product 5 (d)</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**STEP 4.** Repeat Step 3 until number of lines equals the number of assignments to be made. In this example this occurs without further repetition, thus:

**Table 10.** Net profit table after Step 4.

<table>
<thead>
<tr>
<th>Products \ Plants</th>
<th>Plant 1</th>
<th>Plant 2</th>
<th>Plant 3</th>
<th>Plant 4</th>
<th>Plant 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product 1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Product 2</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Product 3</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td><em>M</em></td>
<td><em>M</em></td>
</tr>
<tr>
<td>Product 4 (d)</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Product 5 (d)</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**STEP 5.** Make assignments in accordance with the rules previously described which result in the following assignments: Product 1 to Plant 2, Product 2 to Plant 1, Product 3 to Plant 3, Product 4 (dummy) to Plant 4 and Product 5 (dummy) to Plant 5. The final assignment can be presented as follows.
Table 11. Assignment table after Step 5.

<table>
<thead>
<tr>
<th>Products \ Plants</th>
<th>Plant 1</th>
<th>Plant 2</th>
<th>Plant 3</th>
<th>Plant 4</th>
<th>Plant 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product 1</td>
<td>--</td>
<td>1</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Product 2</td>
<td>1</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Product 3</td>
<td>--</td>
<td>--</td>
<td>1</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Product 4 (d)</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>1</td>
<td>--</td>
</tr>
<tr>
<td>Product 5 (d)</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>1</td>
</tr>
</tbody>
</table>

**Note:** It is not difficult to see that there exists more than one assignment with the same value of $\max Z$.

**STEP 6.** Calculate contribution to be gained from the assignments (see Table 11 and Table 7). So, the total net profit $\max Z = 29 \, \text{€} \text{ (Product 1 to Plant 2)} + 45 \, \text{€} \text{ (Product 2 to Plant 1)} + 40 \, \text{€} \text{ (product 3 to Plant 3)} = 114 \, \text{€}.$

Finally, we present a computer code in MATLAB for solution the both cases – minimizing and maximizing assignment problems

```matlab
function [Z,X] = assignment(C)

[m,n] = size(C);
a = ones(m,1);
b = ones(n,1);
suma = sum(a);
sumb = sum(b);
Iflag = 0;
if sumb > suma
    Iflag = 1;
    nulb = zeros(sumb-suma,length(b));
    C = [C;nulb];
    a = [a;ones(sumb-suma,1)];
end
if sumb < suma
    Iflag = 2;
    nula = zeros(length(a),suma-sumb);
    C = [C,nula];
    b = [b;ones(suma-sumb,1)];
end
```

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\begin{verbatim}
end
B = [a;b];
[m,n] = size(C);
f = reshape(C',m*n,1);
A1 = zeros(m,m*n);
A2 = eye(n);
A3 = eye(n);
for k = 1:m
    A1(k,((k-1)*n+1):(k*n)) = 1;
end
for k = 1:(m-1)
    A2 = [A2,A3];
end
A = [A1;A2];
[X,Z] = bintprog(f,[],[],A,B);
X = reshape(X,n,m); X = X';
if Iflag == 1
    X(end:-1:end-(sumb-suma)+1,:) = [];
elseif Iflag == 2
    X(:,end-(suma-sumb)+1:end) = [];
end
\end{verbatim}

where C is an input square matrix of data. In the case of maximizing problem instead of C we input (– C) and as a result we take \( \max Z = -Z \)

\section*{REFERENCES}

THE MANAGEMENT OF THE SOCIAL POTENTIAL OF REGIONAL ECONOMY

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5, Roschinskaya str., Gatchina, Leningrad region, Russia

Abstract

The article deals with the basic problems of formation, development and use of social potential in regions of the Russian Federation under the conditions of necessity of regional economy sustainable development maintenance from positions of the system approach. The point of view takes into account prospects of modernization of the Russian economic system on the basis of an innovative vector. The service sphere development is offered as the actual form of the regional economy social potential activation. The authors give some definition: social potential of regional economy, the management of the social potential of regional economy, human capital forming and developing management.

Key words: social potential, regional economy, sustainable development, modernization, human capital, system approach

1. INTRODUCTION

The modern period of economic development in Russia is characterized by necessity of transition to modernization, the main feature of which is the innovative vector. An ultimate goal of progress of economic systems is a quality of life achievement for the population a whole.

So, in the Concept of long-term social and economic development of the Russian Federation for the period till 2020 it is noticed that transition to innovative model of economic growth assumes creation of favorable conditions for development of abilities of each person, formation of the social quality environment, increase of competitiveness of the human capital and social sectors of economy providing it [4].

All social and economic processes of national economy are realized at region level. Therefore now the territorial aspects of conducting economic activities, the theory and practice of economic and social management have increasing importance, hence, get questions of development of regional economy. It concerns to creation of social preconditions of innovative economy at regional level.

2. DEFINITION OF THE SOCIAL POTENTIAL OF REGIONAL ECONOMY

The category of regional economy has complex character. According to A.A.Granberg's opinion, the concept of regional economy can be considered in narrow and wide sense of a word. In narrow sense is actually economy of each region, taking into account inter-regional economic interactions. In a wide sense it is necessary to consider regional system as a whole which include not only various aspects of economic life, but also system of the government and regulation in region, system of regional budgets and relations between budgets, system of transfers between budgets on the federal, regional and municipal level, and also budgetary credits to enterprises, grants, subventions, grants from higher
budgets to subordinate, and also system of social relations in region in which some parameters showing a condition of a standard of living in region are estimated, characterizing capacity of the internal regional market, degree of requirement for labor that is connected with social stratification, demographic processes in region, qualification of labor» [2]. That is the regional economy is considered as set of some cooperating subsystems. In our opinion, such approach is rather productive at the decision of the new problems connected with modernization and innovation because it reflects interdependence, first of all, between an economic and social subsystem. In the definition given by A.A.Granberg, it is possible to allocate a social component of a category «regional economy».

The level of the regional economy development is influenced by presence and efficiency of use of natural, industrial, scientific and social potentials. The modernization economy is characterized by gradual transition to an information society, to the economy based on knowledge as which carrier the person acts. That is the basic vector of modern development is a humanization of all directions and fields of activity. The person with corresponding knowledge, skills, qualification, personal qualities becomes a motor of economic progress. Therefore it is possible to speak about a key role of social potential in maintenance of the regional economy development.

The “social potential” concept isn't absolutely settled in a science. For its definition in the beginning it is necessary to address to the term "potential". The Soviet encyclopedic dictionary treats this term as "source of possibilities, means, a stock which can be put in action, used for the decision of any problem or definite purpose achievement; possibilities of separate persons, a society, the state in certain area". [5]

As a whole it is possible to allocate three groups of approaches to potential definition. According to the first, the potential can be considered as any set of resources, thus one mean the economic resources, which capable to provide an innovative vector of development to any object.

For the second approach the understanding of potential as sets of factors and the conditions providing functioning and development of object is characteristic.

According to another approach the potential is considered as ability (possibility) of set of resources to provide achievement of criterion function of system development is represented. This is the most interesting thing. In this case the potential characterizes not simply any set of resources, but possibility of these resources using for the problems decision. Therefore we must take into consideration not only quantitative volume of resources, but also their combination, and their quality of management, hence? the possibility to provide synergy effect. Thus, size of this effect will influence the size of potential.

Such system approach gives more exact representation about an estimation and management of potential. Really, if to consider potential as certain set of resources (or factors, conditions) its estimation will develop of separate kinds of resources characteristics, and management it is a management of separate blocks of resources, without their interrelations and mutual influence. From positions of the system approach these interrelations will be considered, and management will have the complex character considering influence of changes of each of subsystems on the general condition of system. Thus the potential is necessary to consider as a unity of existential characteristics.

To our mind, potential, acting in unity of spatial and time characteristics, concentrates in itself simultaneously three levels of communications and relations:

The first one reflects the past, i.e. represents set of the properties saved up by system in the course of its formation and causing its possibility to functioning and development. Thus, concept "potential" actually means "resources";
The second one characterizes the present from the point of view of practical application and use of abilities. It allows to spend distinction between the realized and non-realized possibilities. In this function concept "potential" partly coincides with concept "reserve".

Considering structure of potential from these positions, it is necessary to consider that in the first case the structural elements which is non-realized in a kind of potential conduct to decrease in efficiency of its functioning (for example, labor skills not used in work are lost, non-realized personal abilities collapse), and in the second case "the superfluous" stock of forces and abilities of the worker provides flexibility and manoeuvrability of system development under changing conditions;

Thirdly, it is focused on development (future): in the course of labor activity the worker not only realizes the abilities, but also gets new forces and abilities. Representing unity of steady and changeable conditions, the potential comprises elements of the future development as "potential".

Therefore, the social potential of regional economy can be considered as set of qualitative and quantitative characteristics of the human capital which is formed within the regional social infrastructure and it is used in regional economic system.

That is the social potential can be considered as multilevel difficult system. Management in social potential of regional economy should be understood as the complex process connected with interaction state and the public organizations, functioning within the regional social infrastructure and economic system both influencing on quantitative and qualitative characteristics of the human capital as resource of regional economy. As the management purpose in social potential of regional economy improvement of qualitative and quantitative characteristics of the human capital concideres.

The object of the regional social infrastructure management, which functions are the formations and preservation of the human capital, and also elements of regional economic system which participate in process of the human capital using.

3. INTERRELATIONS BETWEEN SOCIAL POTENTIAL AND HUMAN CAPITAL OF REGIONAL ECONOMY

It is possible to reveal interrelation between concepts «human potential», "labor", «the human capital», «formation of the human capital», «development of the human capital», «use of the human capital» which essence is shown at level of regional economy (more in detail interrelation of the given categories and regional economic growth see in [3]). In our opinion, it is possible to give following definitions to these terms.

The human potential represents set of attributive properties and qualities of the person which under certain conditions become means of purposeful activity on creation of the blessings and services.

The potential labor is the human potential offered on a labor market. The functional labor is the part of the potential labor which has received a cost estimation of the employer.

The human capital is a set of potential and functional labor of the individual, shown in interaction with the employer. Conditions, forms, terms and an interaction subject are defined during interaction of public institutes of the given region and the country.

Formation of the human capital is a purposeful process of influence of social and economic institutes on the person in which course it acquires knowledge, skills and the abilities, allowing to carry out the offer of potential labor on a labor market.
Development of the human capital - process of influence of social and economic institutes on the person included in process of economic relations in which course cost of its functional labor raises. Such influence is characteristic for the person having general or vocational training and feeling necessity of improvement of professional skill, a training for a new profession, additional education.

Use of the human capital – process of productive consumption of the human capital by enterprises. The results of this process are their incomes reception. Use of the human capital assumes its reproduction (simple or expanded), hence, its restoration.

As we consider management questions in social potential at the regional economy level, it is possible to allocate subsystems of a regional social infrastructure and regional economic system which influence on characteristics of the human capital. So, the human potential is formed, first of all, in a family, that is it is affected by the organizations, taking part in the social protection of the families with children. Further, formation of human potential depends on health level, hence, it is possible to allocate the organizations connected with public health services. Common cultural development in a great extend defines aspiration to increase of an educational level, profession acquisition, reception of new knowledge – all of these is formed under the influence of the culture organizations. It is necessary to allocate also the organizations connected with preschool, school and vocational training under which influence the human potential turns to potential labor.

Characteristics of potential labor are defined mainly by structure of educational space of region, hence, a parity of quantity of the graduates prepared by educational system of all levels. The parity of potential and functional labor depends on management efficiency in this sphere. It is necessary to notice that the disbalance between preparation directions in an education system and real requirements of employers, hence, characteristics of potential and functional labor considerably differ in the majority of the Russian regions. Besides, the parity of potential and functional labor is influenced by development of a regional labor market, efficiency of social partnership, a variety of managing subjects and profitability of their activity. The greatest distinctions are observed during the crisis periods, as a rule, accompanied by liberation of labor, its compelled training for a new profession, and also in regions with low level of social and economic development, including depressive. In this connection it is possible to allocate the organizations: connected with work and employment regulation; realizing mechanisms of social partnership; connected with rendering of educational services.

Formation of the human capital occurs under the influence of the organizations connected with rendering of services of public health services, culture, educational services, family social protection. Development of the human capital is connected both with educational system (additional education, retraining, improvement of professional skill), and with activity of placement services (for example, representing itself as customers of retraining), and also level and a vector of development of regional economy. It is necessary to notice that for innovative economy the requirement for continuous model of formation is characteristic.

Use of the human capital represents complex process on which appreciable impact dynamics of regional economic growth makes. Under conditions of positive dynamics the use of the human capital extends, requirements to its quality increase. Reproduction of the human capital, first of all, is connected with salary, therefore it is possible to speak about influence on it of the organizations which are carrying out observance of the labor law. The quality of use of the human capital is defined by presence of any kind of discrimination, conformity of employment and payment of real qualification. It must to note that in the Russian conditions the programs connected with maintenance of effective employment of people of advanced age as this category is discriminated now can represent interest,
because its real potential remains unclaimed as an important resource of regional economy, in particular for regions for which the accelerated aging of the population is characteristic.

4. PROBLEMS OF THE SOCIAL POTENTIAL MANAGEMENT IN RUSSIAN REGIONS

As a separate problem it is necessary to allocate questions of an estimation of quality of management in social potential. It is necessary to agree as a whole with Arslanova’s opinion which believes that «for an estimation of quality of management in social potential of region it is important to be guided by system of indicators which would reflect social consequences of accepted decisions in regional level. An indicator of qualitative management in social potential of region is its competitiveness» [1].

At the same time its approach reflects institutionally-organizational aspect of management as mainly considers subjective characteristics insufficiently. As indicators of quality of management this researcher allocates, in particular, satisfaction with work (it is differentiated on categories occupied and to the place of residence), the relation of administration to innovations, enterprise activity. Insipite of great significance of these indicators, we have to mark that management in social potential of regional economy should be characterized by a number of quantitative characteristics of a condition of a regional social infrastructure, and also objective indicators of quality and quantity of the human capital.

The key role of social factors of economic development is recognised now and at nation-wide level that has found reflexion in acceptance and realisation of National Projects in the key areas promoting formation, development and use of the human capital - a support of education, public health services, housing construction, and also the decision of social problems of agricultural regions. These projects are accepted at federal level, but realised by regions. At their doubtless advantages it is necessary to note the insufficient account of differences of lacks in requirements (and in realisation priorities) in the specified spheres in various regions.

In region the complex estimation of conditions of formation and development of the human capital is necessary for a substantiation of the basic directions of development of social sphere which will create long-term factors of regional economic growth also. The received indicators can form information base of management of social factors of regional economic development.

Quality of a life can be the integrated characteristic and be used for such estimation, because this term includes parameters of activity of the regional social and economic institutes defining: quality of the ecological environment of formation of the person, beginning from perinatal period; level of protection of motherhood and the childhood; an education system condition, beginning from preschool and finishing post-graduated and an additional education; degree of criminals in society; ethical and esthetic standards of a society; a manufacture and consumption level of development in region.

In managerial process it is very important to define condition of system to which it is necessary to achieve in the course of regional development.

In these purposes it is productive to use the concept of "ideal system». For definition of a desirable condition the nominal "ideal" region (for which indicators of formation and development of the human capital is put at the levels corresponding to the maximum values of corresponding indicators on all regions of the Russian Federation) is formed. Such approach corresponds to requirements of system approach, to main objectives of a regional policy of the federal centre and local authorities, and also representing "an ideal" conditions of system as some limit, which is difficult to achieve. And it gives the chance to receive quantitative estimations.
On the basis of the stated approach it is probably to receive integrated estimations of conditions of formation and development of the human capital in region [3]. The analysis of the received estimations during 2007-2008 allows to draw a conclusion about necessity of working out and application of a series of measures on a stop of degradation of the human capital not only at federal level (on which National Projects are already offered), but also on the regional. Despite of presence of numerous target programs in the field in regions-donors, it is impossible to recognize their formation scientifically proved, considering forecasts of social and economic development, criteria of their efficiency are reduced to a simple set of increasing quantity indicators. But, unfortunately, the financial crisis (2008) had a negative influence for resource supplying of the social policy.

Concerning to regions-outsiders (poor regions) where conditions of formation and development of the human capital are the extremely adverse, it is necessity of financial and other help of the federal centre. Thus, it is necessary «to draw up» various levels of development of regions to a possible maximum in the given conditions.

Formation and development of the human capital is a complex direction of a regional policy, therefore the management maintenance there is, mainly, a process of the coordination of interests of the social and economic institutes participating in creation of conditions of formation and development of the human capital in region.

Concreteness and addressing of measures for management of formation and development of the human capital can be reached under following conditions:

- Realisation of the quantitative analysis of conditions of formation and development of the human capital in region;
- Definitions of areas of responsibility and competencies of the social and economic institutes cooperating in the course of formation of conditions of formation and development of the human capital in region;
- Workings out of the basic scheme of interactions of the social and economic institutes defining conditions of formation and development of the human capital in region;
- Definition of spheres of division of the competence of governing bodies of various levels in the course of regulation of conditions of formation and development of the human capital.

Working out of the specified measures will promote activization of social factors of regional economic development.

5. THE SERVICE SPHERE DEVELOPMENT AS THE ACTUAL FORM OF THE REGIONAL ECONOMY SOCIAL POTENTIAL ACTIVATION

The quality of the human capital and the quality of life of the population also are in dialectic interrelation. On the one hand, a number of indicators of quality of life is defined by conditions of formation and development of the human capital. On the other hand, the human quality capital, acting as the main competitive advantage and the main motor power of innovative development of regional economy in modern conditions, generates growth of economic potential of region, hence, increases financial possibilities of social development (carrying out of strong social policy), providing with that growth of quality of life of the population. According to the budget spends analysis (in Russian regions), additional measures of social support are accepted mainly in economically successful regions.
The poverty problem have a negative effect on quality of the human capital. The human capital of regional economy is formed and develops mainly in an education sphere, public health services, and also as a result of consumption of services of welfare character. The population which is near a poverty line (and so behind it), isn't capable in modern social and economic system independently to provide necessary conditions for high-grade education and development of the children, healthy leisure, satisfaction even basic requirements of members of a family. There is especially difficult situation at the population, which incomes aren't so low to get social support from the state, but are thus obviously insufficient for development of the human capital. It is necessary to notice that as the major factor of the Russian poverty presence of children acts (family with children). So, about 40 % of families with 2 children and almost two thirds families having many children have the per capita income below a living wage, i.e. they live in poverty, and it is one of the highest indicators in the world [6]. The operating system of social protection thus shows the low efficiency.

«New poverty», that is poverty of the working population which level of a salary is lowest has especially negative consequences so-called. So, it leads to devaluation of value of fair work, education at rising generation, deforms their system of vital reference points. The human potential of this generation considerably degrades, the human capital formed on its basis isn't capable to participate in the decision of problems of innovative development of economy. Moreover, this part of the population to use begins incapable often «social lifts», allowing to pass from one social group in another, and poverty is reproduced, gets chronic character.

The fact that in Russia «new poor persons» quite often work in spheres in which the human capital is directly formed, for example, in preschool and additional education where, despite a number of measures undertaken by the state, level of a salary at workers remains low, aggravates a situation. In secondary and high educational institutions, in public health services establishments rather comprehensible level of a salary is frequently reached at the expense of loading growth on the worker, reduction of time of leisure and decrease in possibilities for self-development, thus in the least favourable position there are young workers, graduates, the educational institutions, not having experience. As a result the youth which has received vocational education (as a rule, at the expense of budgetary funds), extremely reluctantly recruits ranks of school teachers, trainers, heads of sections and circles, with readiness the occupation changes at the first possibility. In such conditions new problems, in particular, of the education systems connected with transition to innovative development of economy, demanding preparations of the future workers capable to self-education and innovative actions, will dare extremely inefficiently. In many respects it is shown and at realization of National projects which are frequently reduced to "the paper" innovations existing only in reports.

It is clear that reforming of these spheres occupies certain time, and the effect isn't always unequivocal and postponed in time. Considering specificity of the Russian poverty, acceptance of the measures promoting maintenance of equal access of rising generation to medical, educational and welfare services at the expense of formation of special funds of support of social sphere (at the expense of means of budgets of all levels) or target programs with attraction to participation in them of local business communities is obviously necessary. Corresponding projects should be formed at local level, however financial support is necessary for carrying out from the regional and federal budget, considering financial weakness of the majority of municipalities. Primary support of such projects by the federal center should be given for financially depressive regions. More actively it is necessary to use mechanisms of quotas establishment for workplaces for youth, rendering financial and other kinds of support to young specialists (graduates).
Besides efforts in social sphere, development of economic regulation measures system which will promote acceleration of achievement of the social purposes is necessary. To our mind, sphere of services has high potential. Now in economic systems advancing growth of branches of services in comparison with branches of production of goods is observed, thus in sphere of services the phenomena and the processes raising its role in regional economy are observed.

Development of service sphere promotes growth of a demand of various type of innovations, information technology. Specialization of industrial services (outsourcing) allows the industrial enterprises to use more effectively available resources, to increase profit volume, providing with that growth of incomes of workers and a total regional product. Besides, acting as the basic means of satisfaction of existing requirements of the population, both basic, and additional, the sphere of services, in turn, forms new (in particular, connected with leisure, tourism, education, etc.).

There is an active growth of services of the welfare character directed on perfection of intellectual and physical possibilities of the person, satisfaction of its welfare, spiritual and other requirements. It not only raises quality of life, but also provides growth of quality of the human capital. Thus, as one of key characteristics of services is their low mobility, the role of regional regulation considerably increases.

Property of sphere of services is the considerable volume of use of the human capital in comparison with other resources that staticizes value of the human quality capital for maintenance of competitiveness of the enterprises. Successful development of the enterprises of sphere of services promotes employment maintenance, poverty overcoming, growth of incomes.

Thus, the regional sphere of services which effective functioning in region:

- Raises innovative activity of region and its long-term competitiveness;
- Promotes increase of efficiency of activity of the industrial enterprises acting as the generator of a different kind of streams of incomes in region;
- Forms social and economic preconditions for improvement of quality of the human capital;
- Promotes fuller satisfaction both material, and spiritual needs of the population, to the decision of problems of poverty;
- Promotes to formation of financial bases of social policy of region.

Therefore creation in region of favorable conditions for development of sphere of services has direct influence on a solution of a problem of maintenance of innovative development of economy that is connected not only with a role of the given sphere in maintenance of quality of the human capital, but also with shorter period (in comparison with the industry) for investments return. It allows more quickly to increase means for social development. Not casually when jobless people receive money for supporting creation of own business (from local authorities in anti-crizis programs), they often given the priority to the sphere of services.

In the process of regulation of service sphere it is expedient to give a priority to the measures bringing simultaneously economic and social effects. Such measures, for example, concerns development of system of vouchers for consumption of services by socially unprotected people which financing should be made by municipal unions with active participation of regions (if it is necessary – with the federal center) as they solve simultaneously problems of maintenance of a standard of living and stimulation of development of sphere of services as parts of regional economy, providing thus a choice.
of the consumer and a competition between manufacturers of services, and also effective quality assurance. Hence, the social potential of regional economy is increased.

Thus, under conditions of the transition to innovative type of development, the activization of processes of modernization, the social potential of regional economy management have a special significance, as the social potential acts as the major resource of economic growth. The system approach to management is thus necessary.

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MARKET REACTIONS TO ENVIRONMENTAL INFORMATION
IN THE FOOD PRODUCTION INDUSTRY

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Abstract

According to recent studies published the food industry is one of the biggest contributors of greenhouse gas emissions and other related environmental pollution. Expectation would be that the various stakeholders force companies to improve their environmental performance, yet the industry is consistently ranked low on environmental stewardship. Capital markets are considered to be one of the possible agents that can influence firms’ operational policies. In this context information takes on a new role, and can create incentives for companies to adopt a more environment-friendly behaviour. This paper sets out to examine coverage of the industries’ environmental performance in the news media and corresponding effects in the stock market using the event-study methodology.

Key words: environmental performance, stock markets, food industry

1. INTRODUCTION

Results obtained in earlier research seeking to uncover the link between firm level social responsibility, of which environmental behaviour is a subset, and financial performance have been mixed. Even the direction of causality is not clearly defined. Is it socially responsible firm management that leads to higher profits, or is it that firms with higher profits can afford to be socially responsible? Some view environmentally sound operations as merely the cost of complying with government regulations, others consider it to be the pathway to competitive advantage. Although, environmental regulations have been around for many years, it is generally recognized that their efficiency of controlling pollution is rather inadequate. This is mainly contributable to the often lacking monitoring standards and enforcement and the fact that the very low penalties assessed could hardly fill the role of deterrents. However, even if the “command-and-control” approach seems to have many times failed, in recent years many so called “market based” instruments have emerged (taxes, tradable permits etc.) One such instrument, considered by many economist as the most efficient, the information based regulation that relies partly on the investor community for the monitoring and enforcement of environmentally friendly behaviour. Local communities and non-profit organizations play a large role in dispersing information and often are themselves participants in the boardrooms of corporations.

This study has set out to examine in particular, the food industry companies and their environmental track record. According to a study commissioned by the European Commission, the food and drink sector contributes to some 23% of global resource use, 18% of greenhouse gas emissions and 31% of acidifying emissions, with most pressure on the environment coming from agriculture (ETC/SCP 2009) (Table 1). The numbers include all resource use and pollution emitted during the production of
food from the farm through to the supermarket shelf, including the production and application of fertilizers, fuels in agricultural machinery, electricity consumed in food processing plants etc.

Table 1. Direct and indirect (global) environmental pressures attributable to Eating & Drinking

<table>
<thead>
<tr>
<th>Product name</th>
<th>Greenhouse gas emissions</th>
<th>Acidifying emissions</th>
<th>Ground ozone forming precursors</th>
<th>Material Use</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>tonnes CO₂-eq. per capita</td>
<td>% of total from consumption of all products</td>
<td>tonnes NOₓ-eq. per capita</td>
<td>% of total from consumption of all products</td>
</tr>
<tr>
<td>Products of agriculture, hunting and forestry</td>
<td>0.4</td>
<td>3.8%</td>
<td>4.0</td>
<td>8.1%</td>
</tr>
<tr>
<td>Fish and other fishing products, services incidental to fishing</td>
<td>0.02</td>
<td>0.2%</td>
<td>0.2</td>
<td>0.4%</td>
</tr>
<tr>
<td>Food products, beverages and tobacco</td>
<td>1.0</td>
<td>8.8%</td>
<td>9.7</td>
<td>18.2%</td>
</tr>
<tr>
<td>Electrical energy, gas, steam and hot water (20%)</td>
<td>0.3</td>
<td>2.7%</td>
<td>1.6</td>
<td>2.6%</td>
</tr>
<tr>
<td>Wholesale and retail trade services, personal and household goods (20%)</td>
<td>0.1</td>
<td>1.2%</td>
<td>0.7</td>
<td>1.2%</td>
</tr>
<tr>
<td>Hotel and restaurant services (EAP 2010)</td>
<td>0.2</td>
<td>1.8%</td>
<td>1.7</td>
<td>2.8%</td>
</tr>
<tr>
<td>attributable to eating &amp; drinking</td>
<td>2.0</td>
<td>18%</td>
<td>18.0</td>
<td>31%</td>
</tr>
</tbody>
</table>

Source: ETC/RWM data set

The beef and dairy production is especially singled out as the "bad guys", causing the highest emissions. The UN reports similar numbers. Of global emissions in 2005, agriculture accounted for an estimated 10-12% of carbon-dioxide, 60% of nitrous oxide and about 50% of methane (excluding emissions from electricity and fuel use). Globally, agricultural CH₄ and N₂O emissions have increased by nearly 17% from 1990 to 2005 (IPPC 2007). Research published by Environment America in November 2010 states that major agribusiness firms are responsible for the “degradation of 100,000 miles of rivers and streams and 2,500 square miles of inland lakes” in the United States (EAP 2010).

Controversially, these are also corporations with vast resources that could implement better, more sustainable ways of producing food. Yet, when it comes to the evaluation of environmental stewardship, food production companies were ranked rather low by several recent studies (Table 2).

Table 2. Environmental Performance Ranking by Industry

<table>
<thead>
<tr>
<th>Industry</th>
<th>Avg. Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel A</td>
<td></td>
</tr>
<tr>
<td>Chemicals</td>
<td>51.9</td>
</tr>
<tr>
<td>Electric Power</td>
<td>48.8</td>
</tr>
<tr>
<td>Automotive</td>
<td>47.9</td>
</tr>
<tr>
<td>Industrial Equipment</td>
<td>42.5</td>
</tr>
<tr>
<td>Metals &amp; Mining</td>
<td>42.2</td>
</tr>
</tbody>
</table>
Based on stakeholder theory, expectation would be that the various concerned parties force companies to improve their environmental performance. If information based regulations works, we should see the effect of environmental news, positive or negative, in the firm’s security prices. Therefore, this paper endeavours to examine the effects of environmental news on the security price of food industry companies using the event study methodology. The next section describes the data collection process and the dataset obtained, section 3 presents the statistical methodology used. The results are discussed in section 4 and section 5 summarizes the conclusions of this study.

2. SAMPLE AND DATA DESCRIPTION

To generate the sample a database of food industry companies that were traded on the New York Stock Exchange (NYSE) between the periods of January 2005 and December 2010 was created. The search was limited to companies with sales greater than 1 million USD. After utilizing a preliminary set of keywords to collect a small set of environmental news items from different publications a list of

<table>
<thead>
<tr>
<th>Industry</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest Products</td>
<td>37.2</td>
</tr>
<tr>
<td>Oil &amp; Gas</td>
<td>34.8</td>
</tr>
<tr>
<td>Coal</td>
<td>21.4</td>
</tr>
<tr>
<td><strong>Food &amp; Beverage</strong></td>
<td>17.6</td>
</tr>
<tr>
<td>Airlines</td>
<td>16.6</td>
</tr>
</tbody>
</table>

*Source: Report on Corporate Governance and Climate Change, CERES, 2006*

<table>
<thead>
<tr>
<th>Industry</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology</td>
<td>79.3</td>
</tr>
<tr>
<td>Pharmaceuticals</td>
<td>78.1</td>
</tr>
<tr>
<td>Banks, Insurance, Finance</td>
<td>72.8</td>
</tr>
<tr>
<td>Retail (other than food)</td>
<td>72.1</td>
</tr>
<tr>
<td>Consumer Products, Cars</td>
<td>71.6</td>
</tr>
<tr>
<td>Transport, Aerospace</td>
<td>71.3</td>
</tr>
<tr>
<td>General Industrials</td>
<td>71.1</td>
</tr>
<tr>
<td>Industrial Goods</td>
<td>69.1</td>
</tr>
<tr>
<td>Oil and Gas</td>
<td>68.4</td>
</tr>
<tr>
<td>Health Care</td>
<td>67.7</td>
</tr>
<tr>
<td>Basic Materials</td>
<td>64.9</td>
</tr>
<tr>
<td><strong>Food &amp; Beverage</strong></td>
<td>62.1</td>
</tr>
<tr>
<td>Utilities</td>
<td>60.1</td>
</tr>
</tbody>
</table>

*Source: Newsweek Green Rankings, 2010*
additional phrases and words that are commonly used in announcements of environmental nature was generated. With the information thus obtained a search string was created in the Wall Street Journal Factiva database and all announcements that met the search criteria were downloaded. After reviewing the articles in cases of duplicate news items that appeared in more than one publication or appeared multiple times only the news item with the earliest publication date were retained. Additionally, days with multiple event announcements or overlaps were excluded, as in these cases it could not be determined which environmental announcement is responsible for any market reaction.

The final sample consists of 283 environmental events from 19 unique firms. The sample includes firms from 15 primary SIC codes (Table 3). The study excludes all alcoholic and tobacco related products. Table 4. provides descriptive statistics of the sample.

<table>
<thead>
<tr>
<th>Primary SIC</th>
<th>Description</th>
<th>No. of Firms.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011-15, 2510</td>
<td>Meat &amp; Meat products</td>
<td>5</td>
</tr>
<tr>
<td>1750-1799, 5148</td>
<td>Fruit &amp; Vegetables</td>
<td>3</td>
</tr>
<tr>
<td>0723</td>
<td>Grains</td>
<td>2</td>
</tr>
<tr>
<td>2043</td>
<td>Cereals</td>
<td>2</td>
</tr>
<tr>
<td>2086-87</td>
<td>Beverages</td>
<td>1</td>
</tr>
<tr>
<td>2032, 2099</td>
<td>Canned &amp; Other Prepared Food</td>
<td>4</td>
</tr>
<tr>
<td>2064-68</td>
<td>Snacks &amp; Candy</td>
<td>1</td>
</tr>
<tr>
<td>2022, 2026</td>
<td>Dairy, cheese</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 4. Descriptive Statistics of Sample Firms

<table>
<thead>
<tr>
<th></th>
<th>Market Capitalization (SM)</th>
<th>Total Assets (SM)</th>
<th>Sales (SM)</th>
<th>Debt/Equity Ratio</th>
<th>Beta</th>
<th>P/E Ratio</th>
<th>ROE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>11,657</td>
<td>12,654</td>
<td>15,962</td>
<td>1.04</td>
<td>0.92</td>
<td>17.67</td>
<td>25.31</td>
</tr>
<tr>
<td>Median</td>
<td>9,760</td>
<td>7,970</td>
<td>10,793</td>
<td>0.83</td>
<td>0.73</td>
<td>14.68</td>
<td>13.44</td>
</tr>
<tr>
<td>Standard Error</td>
<td>2,829</td>
<td>3,436</td>
<td>3,612</td>
<td>0.17</td>
<td>0.17</td>
<td>3.28</td>
<td>5.79</td>
</tr>
<tr>
<td>Minimum</td>
<td>744</td>
<td>2,040</td>
<td>3,470</td>
<td>0.00</td>
<td>0.21</td>
<td>-0.06</td>
<td>2.86</td>
</tr>
<tr>
<td>Maximum</td>
<td>53,570</td>
<td>66,710</td>
<td>61,682</td>
<td>2.60</td>
<td>3.08</td>
<td>69.93</td>
<td>83.95</td>
</tr>
</tbody>
</table>

Given that the sample contains many different announcement categories, it is foreseeable that the market reaction could be different by subcategory. For example, the market may not react at all to
some categories, and in some cases it may react opposite to expectations. By aggregating news items of different types, the average reaction could well be insignificantly different from zero.

To investigate the effect of specific events, the sample was first divided into positive and negative events and then to the following four subcategories based on the subject matter of the articles:

**Event Type 1: News relating to penalties, government action, lawsuits etc. against the companies**

Keywords: fine, lawsuit, penalty, tort, violation, settle, order, notice, clean, "Environmental Protection Agency", "Department of Justice", superfund

**Event Type 2: Actions taken by the companies to improve environmental performance or perception**

Keywords: energy, LEED, EMS, "ISO 14001", "SA 8000", conservation, environment, sustainability, stewardship, recycling, green, eco, reusable, renewable, carbon, footprint, certification, climate, nature, donation, support, endow

**Event Type 3: Awards, rankings issued by an outside source about the company**

Keywords: award, prize, recognition, certificate, scorecard, index, rank, honor, win, won, admire, celebrate, tribute

**Event Type 4: Accidents, boycotts, other unfavourable news items**

Keywords: spill, pollution, contamination, cleanup, disaster, accident, toxic, emission, dump, report, study, research, Greenpeace, action, boycott

A breakdown of the events by sample size and time period can be seen in Table 5.

**Table 5. Breakdown of Environmental Announcements**

<table>
<thead>
<tr>
<th>By Event Type</th>
<th>By Year</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>E1</td>
<td>43</td>
<td>2010 67</td>
</tr>
<tr>
<td>E2</td>
<td>129</td>
<td>2009 61</td>
</tr>
<tr>
<td>E3</td>
<td>83</td>
<td>2008 46</td>
</tr>
<tr>
<td>E5</td>
<td>28</td>
<td>2007 41</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2006 40</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2005 28</td>
</tr>
</tbody>
</table>

### 3. METHODOLOGY

#### 3.1. The Event Study Methodology

The event-study methodology has a long history with the first more well-known methodological works published by Ball and Brown (1968) and Fama et al (1969). The methodology has been used to evaluate the effect of many different event types on the stock market. The process was then applied to analyse the reaction of the stock market to environmental news in the 90’s (Dasgupta et al. 1998;

The basis of event study methodology is that capital markets are efficient and almost instantaneously incorporate the impact of new information (news) on the future expected profits of firms. The efficient markets hypothesis (Fama et al. 1969) posits that in a well-performing capital market, stock prices will offer the best available unbiased estimates of the future value of a firm’s assets.

The event-study method is an effective mechanism by which market returns associated with specific events can be estimated, while simultaneously controlling for market-wide influences on stock prices.

The methodology involves the following steps (see Brown and Warner (1980, 1985), and MacKinlay (1997)):

1. identification of the events of interest and definition of the event window;
2. selection of the sample set of firms to include in the analysis;
3. prediction of normal returns during the event window in the absence of an event;
4. estimation of the abnormal return within the event window, where the abnormal return is defined as the difference between the actual and predicted returns; and
5. testing whether the abnormal return is statistically different from zero.

As the first step, the event window (the time period over which abnormal returns are estimated) is determined. Consistent with the approach used in most event studies, this study utilizes a three-day event period consisting of the day of the announcement and the preceding and following trading days. Thus, the trading day immediately preceding the announcement day is Day -1, while the next trading day is Day +1 (Fig. 1.).

![Fig. 1. Time Frame for Event Study](image)

Various models have been proposed to estimate abnormal returns. From these the single-index model (constant mean return model), the market model, and the capital asset price model (CAPM) are the most commonly used. The estimates of the size and statistical significance of abnormal returns are reasonably insensitive to the model used (Brown and Warner 1980, MacKinlay 1997). Consistent
with most event studies, here the “market model” is used to estimate abnormal returns. This model assumes a linear relationship between the return on a stock and the market return (i.e., the return on the market portfolio, in this case the S&P 500) over a given time period as:

\[ R_{it} = \alpha_i + \beta_i R_{mt} + \epsilon_{it} \]

where \( R_{it} \) is the return of stock \( i \) on Day \( t \), \( R_{mt} \) is the market return on Day \( t \), \( \alpha_i \) is the intercept of the relationship for stock \( i \), \( \beta_i \) is the slope of the relationship for stock \( i \) with respect to the market return, and \( \epsilon_{it} \) is the error term for stock \( i \) on Day \( t \). The term \( \beta_i R_{mt} \) is the portion of the return of stock \( i \) that is attributed to market-wide movements, while the error term \( \epsilon_{it} \) is the part of the return that captures the effect of firm specific information (i.e., environmental events). To obtain the estimated expected return for each sample firm, \( \alpha_i \), \( \beta_i \), and \( S_{\epsilon_i} \) (the variance of the error term \( \epsilon_{it} \)) are estimated using ordinary least squares regression (OLS) over the estimation period of 240 trading days. The estimation period ends two weeks (10 trading days) prior to day of the event. This is a sufficiently large gap to safeguard the estimates from any leakage from the event day.

The abnormal return \( AR_{it} \) for firm \( i \) on Day \( t \) is then computed as the difference between the actual return of firm \( i \) and its expected return:

\[ AR_{it} = R_{it} - (\alpha_i + \beta_i R_{mt}) \]

### 3.1.1 Parametric Tests

For each individual event, one can estimate the abnormal return and relevant test statistics at each instant in time within the event window. However, in order to get more comprehensive readings about the reaction of the market, the abnormal returns across a number of events (usually across events of a similar nature) can also be aggregated. Thus, for any given subset of \( N \) events, the subset average abnormal returns (AAR) at each instant \( t \) within the event window is expressed as:

\[ AAR_t = \frac{1}{N} \sum_{i=1}^{N} AR_{it} \]

where \( N \) is the number of events in the sample. To test the statistical significance of the daily mean abnormal return, each abnormal return \( AR_{it} \) is divided by its estimated standard deviation \( S_{\epsilon_i} \) to yield a standardized abnormal return. Since the abnormal returns are assumed to be independent across firms, with mean 0 and variance \( S_{\epsilon_i}^2 \), we know from the central limit theorem that the sum of the \( N \) standardized abnormal returns is approximately normal with mean 0 and variance \( N \). Thus, the test statistic for Day \( t \) is calculated as:
In order to test for the persistence of the effect during a period \((t_2-t_1)\), the abnormal returns for a given security \(i\) are added over the period \((t_2-t_1)\) to arrive at the cumulated abnormal returns \((\text{CAR}_i(t_1,t_2)):\)

\[
\text{CAR}_i(t_1,t_2) = \sum_{t=t_1}^{t_2} A\text{R}_i
\]

The test statistic for a period spanning multiple days is then derived as:

\[
F_{\text{sum}2}\left(\sigma_{\text{sum}}\right) = \frac{\sum_{i=1}^{N} \left( \sum_{j=1}^{T} \frac{A\text{R}_{ij}}{\sigma_j} \right)^2}{N}
\]

An additional significant measurement can be gained by an aggregation performed across both time and events. In this case, the average cumulative abnormal return for a subset of \(N\) events between two dates \(t_1\) and \(t_2\) is defined as:

\[
\text{CAAR}(t_1,t_2) = \frac{N}{\sum_{i=1}^{N} \text{CAR}_i(t_2-t_1)}
\]

To test the significance of \(\text{CAAR}(t_1,t_2)\) a Z (or t) test can be derived similar to the above.

3.1.2 Non-Parametric Tests

To check for the influence of outliers, the t-tests need to be re-enforced by two non-parametric tests. The two main non-parametric tests used in the finance literature is the sign test and the Wilcoxon signed-rank test. The former judges whether the percent positive abnormal returns during the event period are significantly higher or lower than that during the estimation period. The latter is a more complete non-parametric test that considers both, the sign and magnitude of the abnormal performance.

One of the simplest non-parametric tests for examining the hypothesis of no abnormal return is the sign test. The basis of this test is that under the null hypothesis of no market reaction to events, it is equally probable that the AR’s at time \(t\) will be positive or negative (or, equivalently, that the median difference is 0). Assuming that abnormal returns are cross sectional independent, the number of cases
where $AR_t > 0$ ( $AR_t < 0$ ) will have a binomial distribution with parameters $N$ and $p$. The $z$-distributed generalized sign test is given as follows:

$$Z = \frac{S - Np}{\sqrt{Np(1-p)}}$$

Where $S$ is the number of stocks with positive AR in the event window, $N$ is the number of stocks in the sample and $p$ is the expected portion of positive AR calculated from the estimation period.

The Wilcoxon signed-rank test is used for testing the null hypothesis that the population median of a random variable is equal to a given value $M$. It is assumed that the variable is symmetrically distributed about its median. First, the difference between each value and the median is found then the data is ranked without regard to sign from smallest to largest. Second, the signs of the original observations are attached to their corresponding ranks. Finally, the one sample $z$ statistic (mean / standard error of the mean) is calculated from the signed ranks. For large samples, the $z$ statistic is compared to percentiles of the standard normal distribution:

$$Z = \frac{W - c_{np}}{\sigma_w}$$

4. RESULTS AND DISCUSSION

The results of the statistical analysis presented in the previous section are summarized in Table 6.

Even though positive or negative events do not a priori suggest significant positive or negative valuation by the financial markets, in fact the market sometimes reacts counter-intuitive to the expectations, the analysis has found that both positive and negative events on the average have produced movements in the expected direction. In both cases the effect of the announcement is mostly observed one day after the event, however it is much greater in magnitude for negative events than for positive ones and the level of significance is also larger. (AAR for Positive events on Day +1 is 0.38% which was statistically significant at the 5% level and for Negative events -1.17% which was statistically significant at the 1% level). The non-parametric tests have also produced significant results.

Cumulative abnormal returns have produced similar figures (CAR for Positive events 0.63% and for Negative events -1.17% both significant at the 1% level) and when applying non-parametric tests, have still remained robust.

In the case of negative events cumulative abnormal returns diminish in significance more substantially than positive ones which would suggest that effects of negative events while creating a more intense reaction on the whole persist for a shorter period.
Table 6. Event Period Abnormal Returns for Positive and Negative Events

<table>
<thead>
<tr>
<th></th>
<th>Day -1</th>
<th>Day 0</th>
<th>Day +1</th>
<th>CAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive Events</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean AR</td>
<td>0.18%</td>
<td>0.08%</td>
<td>0.38%</td>
<td>0.63%</td>
</tr>
<tr>
<td>t-statistic</td>
<td>1.12</td>
<td>1.08</td>
<td>2.24**</td>
<td>2.84***</td>
</tr>
<tr>
<td>Median AR</td>
<td>0.11%</td>
<td>0.05%</td>
<td>0.30%</td>
<td>0.42%</td>
</tr>
<tr>
<td>Wilcoxon Signed-Rank</td>
<td>2.02**</td>
<td>1.30</td>
<td>3.58***</td>
<td>3.21***</td>
</tr>
<tr>
<td>% Positive</td>
<td>56.22%</td>
<td>50.69%</td>
<td>59.91%</td>
<td>58.06%</td>
</tr>
<tr>
<td>Generalized Sign</td>
<td>2.42**</td>
<td>0.79</td>
<td>3.51***</td>
<td>2.97***</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Day -1</th>
<th>Day 0</th>
<th>Day +1</th>
<th>CAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative Events</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean AR</td>
<td>-0.02%</td>
<td>0.02%</td>
<td>-1.17%</td>
<td>-1.17%</td>
</tr>
<tr>
<td>t-statistic</td>
<td>-0.39</td>
<td>0.23</td>
<td>-5.62***</td>
<td>-3.14***</td>
</tr>
<tr>
<td>Median AR</td>
<td>-0.16%</td>
<td>0.00%</td>
<td>-0.64%</td>
<td>-0.92%</td>
</tr>
<tr>
<td>Wilcoxon Signed-Rank</td>
<td>-0.45</td>
<td>-0.03</td>
<td>-3.83***</td>
<td>-2.20**</td>
</tr>
<tr>
<td>% Positive</td>
<td>42.42%</td>
<td>50.00%</td>
<td>27.27%</td>
<td>34.85%</td>
</tr>
<tr>
<td>Generalized Sign</td>
<td>-0.91</td>
<td>0.33</td>
<td>-3.37***</td>
<td>-2.14**</td>
</tr>
</tbody>
</table>

Note: ***, ** and * denote significance at 1%, 5% and 10% respectively (one-tail test)

When disaggregating the events into the four event categories created it becomes clear that only Event Type 1 and 2 generate large enough movements in the stock price. Event Types 3 and 4 both prove to be statistically insignificant (Table 7).

In the case of penalties and lawsuits 37.98% positive returns are significantly lower (at the 5% level) than the percent positive during the estimation period while for environmental initiatives 56.85% positive returns are much larger than expected (at the 1% level). Although 58.33% of the abnormal returns for other negative news items are positive and significantly higher (at the 10% level) than the percent positive during the estimation period, the mean (median) abnormal return is -0.07% (0.36%) and is statistically insignificant. Lastly, average market reactions for awards and rankings published are statistically insignificant. These findings seem to differ from those reported by Klassen and McLaughlin (1996) where significant positive abnormal returns of 0.82% for environmental awards
Table 7. Abnormal Returns by Event Type

<table>
<thead>
<tr>
<th>Event (E)</th>
<th>CAAR</th>
<th>t Statistic</th>
<th>Median CAAR</th>
<th>Wilcoxon Signed-Rank</th>
<th>% Positive</th>
<th>Generalized Sign</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1</td>
<td>-1.10%</td>
<td>-2.23**</td>
<td>-0.57%</td>
<td>-1.17</td>
<td>37.98%</td>
<td>-2.28**</td>
</tr>
<tr>
<td>E2</td>
<td>0.92%</td>
<td>2.68***</td>
<td>0.67%</td>
<td>3.00***</td>
<td>56.85%</td>
<td>3.48***</td>
</tr>
<tr>
<td>E3</td>
<td>0.30%</td>
<td>1.16</td>
<td>0.09%</td>
<td>1.15</td>
<td>52.61%</td>
<td>1.46</td>
</tr>
<tr>
<td>E4</td>
<td>-0.07%</td>
<td>-0.41</td>
<td>0.36%</td>
<td>0.50</td>
<td>58.33%</td>
<td>1.90*</td>
</tr>
</tbody>
</table>

Note: ***, ** and * denote significance at 1%, 5% and 10% respectively (one-tail test)

6. SUMMARY

This paper analyzes the effects of environmental performance on shareholder value by examining stock market reactions related to announcements of environmental nature in the media. The study examines the market reaction to two categories and four subcategories of environmental event types.

Results obtained in this study suggest that negative environmental performance is punished while positive is rewarded by the market. However, it is obvious, that the market is selective and does not value every effort uniformly. Events with actual negative monetary consequences, the result of non-compliance, still remain one of the strongest indicators in the market. Studies, rankings and awards issued by third parties are not appreciated by the market, however environmental improvement actions initiated by the companies themselves are valued.

Why is it then that food production companies fare so purely when it comes to public perception of environmental performance? One possible explanation might be that key agribusiness industries have moved to a vertically integrated model that gives giant corporations nearly complete control over the production process for example, from the birth of an animal’s to the delivery of processed meet to store shelves. Simultaneously, in many product categories only a handful of companies control the market, creating a quasi monopolistic situation. Under such conditions companies can afford not to care even if evidence points in the direction of environmental efforts producing positive shareholder value.

A further disaggregation of event types might provide valuable insights into which types of efforts does the market value. As the market seems to change preferences as perceptions evolve, a possible future research area could be a detailed study of how market reactions have changed over time. Data collected suggests, for example, that increased frequency of announcements of environmental nature have resulted in a desensitised market. An additional direction of interest is the investigation of the
correlation between self-reported environmental efforts and actual achievement of environmental objectives. In recent years, increased media awareness has resulted in the proliferation of environmental awards, various rankings and environmental standards which in many cases has raised the suspicion of window dressing. Popularly dubbed “green washing”, the practice has discredited genuine efforts and results achieved in the industry. Further research in this area could provide interesting insights into the continuing debate of “is it worth going to be green?”

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SOME PROBLEMS OF ADVERTISING IN GEORGIA

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Abstract

In the article I am trying to describe some problems of advertising in Georgia. In the transitional period to the market economy the research of actual problems of advertising is important. Companies must communicate with present and potential stakeholders, and the general public. To reach target markets and build brand equity, marketers are creatively employing multiple forms of marketing communications. They are means by which it can establish a dialogue and build relationships with consumers. One of the main parts of marketing communications mix is advertising. It is important to define the role of advertising in the companies. The role of advertising in the companies of our country are growing. Most companies understand the role of advertising in effective work on the market. There are some problems of planning and organization of strategies and activities. We need to foresee several principles for make effective advertising.

Key words: Advertisement, advertising companies, advertising audience, advertising campaign, efficiency of advertisement, advertising options

INTRODUCTION

Under conditions of transition to the market economy it is important to define the role and the position of advertising in the firms. Advertisement is an element of the modern marketing. The role and the position of advertising in the firms of our country grow. In the transitional period to the market economy the research of actual problems of advertising in Georgia is important. In Georgia companies ordering advertisement should pay more attention to the some important questions. Advertisement can be studied from the different standpoints. This time the object of our study is some aspects of efficiency and organization of advertising and their critical assessment.

ANALYSIS PROCESS

Aiming to study aspects of advertisement in the firms in Georgian companies in 2009-2010 we have conducted marketing survey. The consumer has to choose between different marketing offers. Advertising exert influence on the consumer’s decision. It facilitates the selling of goods. Advertising message is the final result of serious studies, decision-making and certain actions. Advertising process generally consists of:
Advertisement is an element of the modern marketing. Besides, advertisement is connected to art, science. It can be studied from the different standpoints. This time the object of our study is some aspects of efficiency and organization of advertising and their critical assessment. The leading place among the advertisement customers is taken by different manufacturing companies, trade companies, service agencies, public organizations. In conditions of business competition they need to gain an advantage at the market, which is represented by the consumers singling out products having properties they like. That is why the advertisement shall satisfy people’s interests and will in order to help them in solving their problems. Advertisement furthers expansion and change of consumers’ needs. Under its influence old habits and notions are changing. So, advertisement is something like the mean of connection between production and consuming. I think, in Georgia those companies ordering advertisement should pay more attention to the following key questions:

1. Before launching advertising campaigns firms shall carry out the market analysis, determine as to which group of consumers the advertising event shall be worked out for. The companies should concentrate their efforts on one or several target segments of the market, should study needs and behavior of the target audience so that the advertising campaign be task-oriented. This will also allow firms to save costs for advertisement, which means that they will not waste money. Besides, using of those mass media not interested for representatives of the selected target audience is out of question.

2. It is obvious that while waging advertising campaigns advertisement goals lack practicality, i.e. well-defined interrelation between goals and results of the advertising campaign. This is wrong, as by means of advertisement the consumer receives information about positioning of a product on the market and facilitates the buying process for potential buyer.

3. Certain part of local companies does not realize great importance of advertisement in cause of strengthening of already formed stereotypes of belief and behaviour of consumers. As soon as they achieve boost of sale of the concrete product they demonstrate certain inactivity, which is not right, as even if the consumer is satisfied with the purchase, he needs to receive advertising messages about the same product in future as well. It to certain degree confirms positive attitude of the consumer to the given product and in the long run probability of repeat purchase increases.

4. One of the key questions, the local companies should pay attention to is that the information offered to the consumer from different sources should not be contradictory. It is incorrect when the consumer receives one message from the TV commercial, and the press or other sources offer such messages, which are absolutely different and contradictory. This causes confusion among the customers and thus is harmful for the companies themselves. Hence, it became necessary to pay more
attention to correspondence between various means of communication and integration of all communication channels.

5. More consideration should be given by the marketing departments of the companies to the issue of advertisement planning. This, on its part, shall be based on the results of the analysis. Planning of advertisement should cover the following key issues:

6. Processing of advertising messages is the question of utter importance. It should be noted that from the point of view of working out of advertising messages there are certain progress. Advertisements of some products cause positive response of the audience, which afterwards has its effect on the market. From this point of view it advertisements of the Bank of Georgia, TBC Bank, the company Magticom and others should be noted. They are distinguished for successful advertising idea, creativity, high-quality performance and also because there are shown emotions of people’s joy in them. This was positively accepted by the audience, which watched these advertisements till the end (according to the results of questionnaire survey of the consumers). But it also should be said that the advertisement run by Georgian mass media often has no purposiveness, it does not take into account that, for example, different groups of consumers take one and the same information broadcasted by TV in different ways and their reactions are also different. That is why potential buyers should be offered information with consideration of wishes of the target audience.

Georgian advertising audience has named the following negative sides of TV commercials (According to the results of questionnaire survey of the consumers):

- Long intervals for commercials between TV programs;
- Frequent repeating of one and the same commercials;
- Poor translation of foreign commercials into Georgian;
- Tastelessly performed commercials from the visual and musical point of view;
- Obscure content of commercials;
- Insincerity in commercials; etc.

Selection of rational or emotional (positive or negative) motives is really quite a delicate question. Besides, it is necessary to uphold moderation. From the survey of customers I saw that demonstration of positive emotions in advertising messages in Georgia is accepted well by majority of the consumers. However, against the background of economic crisis significance of the rational appeals...
has increased. The buyer has become more oriented at the growth of accepted values. Consumers polled by me named the following proposed recommendation offers relative TV commercials:
- More attention to composition and quality of the advertised product;
- More attention to the semantic side in advertisement;
- Decreasing of frequency of run of commercials;
- More refined musicality;
- Demonstration of more positive emotions;
- Creation of advertisement on higher professional level; etc.

7. I think that today Georgian companies do not pay proper attention to assessment of efficiency of advertisement, though I believe that this deserves attention, as it determines efficacy of advertising campaign and its purposefulness within certain period of time. Moreover, advertising campaigns should be oriented at the result and increase of product demand.

8. Advertisement should not have “forced” character. Unfortunately, commercials often irritate viewers because of their high frequency. Besides, I think that advertisement of certain products by means of mass media is not reasonable from aesthetic point of view.

9. Information communicated by means of advertisement should not be false. Insincerity is harmful for consumers and misleads them. There is special law preventing dishonesty of advertisements, providing different requirements. This is the law of Georgia “On Advertisement”.

Some advertising companies in Georgia fulfill their activity through the assistance of marketing managers and sales managers. Marketing specialists prepare the list of potential customers of the advertising agency, the main source for which is the Internet and special directories. Afterwards, for selling and stimulation of their services advertising agencies refer to telemarketing (direct marketing via phone), personal selling and mailing system. The latter implies sending of information on new offer via e-mail to already existing clients, partner companies, etc. Besides it should be noted that the agencies try to avoid large-scale sending of their offers, as this is interpreted as the so-called “spam”. It causes negative attitude of consumers. That is why some advertising agencies avoid applying such method for finding the way to contact clients. The companies, existing in Georgia pay certain attention to personal relations and to establishing of personal contacts in the companies represented as potential clients. In the negotiation process with ordering companies it is better to choose a person, who will hold meetings. Advertising agencies in our country also need popularization of their activity, for which they use advertising and sponsoring. And for the purpose of stimulation of selling some agencies offer clients additional services. E.g. if a client has ordered polygraphic product, agency offers free design. And in case of repeated order it offers discounts. Agencies offer the clients ordering advertisement discounts even in case of ordering certain product package. But it should be noted that such methods are used by almost all agencies that is why these methods has already become ordinary for ordering companies. Share of web and program products in work of agencies is increasing. E.g. advertising companies offer client placing and updating of information in the Internet.

The most part of advertising agencies in Georgia is located in the capital. Their number has reached two hundred (advertising companies registered in the “Yellow pages” information base). As regards regions, only in few large cities there are advertising companies and web-service studios. They cannot enter into competition with advertising companies of Tbilisi. Some regions are almost undeveloped from the view of advertising service.
Part of advertising companies of Georgia understands well new possibilities offered by the Internet and computer technologies. E.g. creation of internet pages by advertising agencies, also creation of social networks, online games. This allows advertising companies to enter the online games market, which is the near-term perspective only for several agencies.

Economic crisis affects also advertising market. Political event of August 2008 had negative effect on advertising market of Georgia. As workers of advertising field say, the mentioned fact had negative influence on the advertising activity.

Relatively large advertising companies act on the Georgian market: “Alma-Plus”, “Sarke”, “Maggie Style”, etc. They own big share of the market and also have work experience. Large advertising companies have advantage in comparison with other organizations – they have contracts with large firms, which means several-year partnership with them.

**MAIN RESULTS**

Professionalism of the staff of advertising agencies and their motivation for successful activity has big importance for development of advertising activity. In my opinion, future progress of advertising organizations will greatly depend on sharing of experience exiting in this field in the developed countries from theoretical and practical point of view.

I think that along with formation of market relations it will be reasonable to create advertising units or at least advertising managers’ staff in the structure of marketing departments of large companies. This will ensure production of advertisement in short period of time and purposefulness of advertisement.

![Diagram of advertising unit in company](source: author)
Each company has its own problems concerning selling of goods, and advertising unit can consider well these specific issues, and having thorough information about the product plan and wage more effective advertising campaign.

New Georgian products enter the market of our country. This requires right selection of information channels. In the given case, focus should be made on means of advertising covering larger target audience.

Local companies should pay attention to saving of promotion expenses not to weaken their positions on the market. It is know that the big part of promotion expenses is spent for purchase of place and time of advertising, though I think it is possible to save promotion expenses in the following way:

- Choosing of mass media offering the least expenses for audience consisting of 1000 persons.
- It is generally known that promotion expenses are calculated for the target audience consisting of 1000 persons. In this case division of the audience is not applied in the advertising field. Thus, persons not consuming the advertised product have the same importance as potential buyers, which, to my mind is not right. More precision is necessary. It better for people and companies ordering advertisements and advertising agencies to use the cost estimating method for concrete target audience.
- Passing from the country-scale advertising campaign to the regional advertising campaign. This is the best way out for the small local agencies. They can use regional TV and radio. Such approach won’t be bad even for big companies, although expenses for covering target audience will be different depending on separate regions and cities. That is why it is necessary to take account of the existing there specific conditions.
- Improvement of attitude to time will have positive effect on effective usage of promotion expenses. Schedule of the advertising campaign has great importance. Seasonal selling of goods also should be taken into consideration. Small firms are not able to permanently carry on the advertising campaign. This is exactly why the most of such firms refuse to conduct advertising campaigns. Small firms can successfully use “pulsed” advertising, i.e. to advertise their products using one method and periodically, when there is the perspective of growth of demand.
- Activation of advertisement at the place of selling of goods. Big part of consumers takes decision concerning the category and brand of the product at the place of buying. That is why advertising at the place of buying has significant potential. It has its influence on the consumer right before the process of buying, and this is economical from the point of view of expenses.

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KNOWLEDGE CAPITALISM AND THE GLOBAL CRISIS
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Abstract
Knowledge-cognitive capitalism represents a generic new variant of capitalism based on accumulation of knowledge than monetary or physical forms of wealth. In the paper the author seeks to show how the new knowledge paradigm helps us to better understand the crisis of capitalism. The author believes that a current crisis is not a cyclical crisis, but a systemic one. Author in the article argues that the conditions to come out of the current crisis consist in a different understanding of the nature of the knowledge, its valorisation mechanism and in understanding of contradictions between social character of knowledge production and the private character of its appropriation.

Key words: Knowledge, knowledge capitalism, crisis, rent

1. INSTEAD OF INTRODUCTION
Knowledge revolution describes the fundamental shift that is occurring from the economy based on physical resources to the one based on knowledge. The emergence of wealth will be in the future mainly derived from knowledge which has become the most important production factor. It is becoming apparent that ownership of the means of production in the knowledge economy is going to be less straightforward than in the past since most valuable assets resides in the brains of the key workers. Knowledge capitalism represents a new capitalism, based more on the accumulation of knowledge than on the physical forms of wealth and marked by a pronounced financialisation coupled with technological innovations and supra-national institutional arrangements that have been key drivers of a flexible form of accumulation.

In the paper the author seeks to show, why the key to understanding of the today’s crisis lies in understanding the nature of the knowledge. In the second chapter the author provides arguments for understanding the nature of knowledge. In the next chapter author presents three influential schools of economic thought that contributed largely, by their differing apprehension of knowledge, to its fully understanding. In the fourth chapter the author seeks to explain how the spill over effects of knowledge requires a different understanding of the valorisation mechanism. The author argues that a contradiction between the knowledge as a private and common good can help us better comprehend the current crisis (chapter 5). The last chapter concludes.

2. IS KNOWLEDGE A PRIVATE OR A COMMON GOOD?
I believe that, besides the behaviour of financial markets, the key to understanding the today’s economic crisis lies in deeper understanding of knowledge. Hence, we first need to discover the nature of knowledge, in particular whether it is a private and/or a common good.
Knowledge requires its carrier. Knowledge-cognitive processes are basically related to the individual, since only subjective knowledge can provide the basis of decision-making. Acquiring knowledge is an individual process since individuals can acquire knowledge only through education. The neoclassical human capital theory underlines that knowledge is basically a personalised process, an investment into an individual, who is giving up a part of his or her income during education, trading it for higher income in the future (Mincer, 1958; Becker, 1964; Schultz, 1960). Consequently, an organisation can only learn by learning of its members or by accepting new ones (Senge, 1990). Nonaka (1994) and Grant (1997) emphasise that individual knowledge is stored in physical skills and in the brain, and can therefore only be transferred with the person that possesses it. All these statements show us, that knowledge is primarily a private good, because it is embodied in individual and its acquisition pertains to individual who appropriates the majority of the benefits derived from the investment into it.

Through socialization process knowledge becomes materialized in machinery, teamwork, and in production-organizational process. The process of acquiring knowledge which is fundamentally related to the individual apparently generates positive externalities that are manifest at the organizational level. Organization should be therefore viewed as a lot more than a group of individuals. Numerous authors acknowledge the organization's capacity to create, learn, and store knowledge. Nelson and Winter (1973, 1982) stress that organization creates through its operations, learning, and experience its own organizational knowledge. Holzner and Marx (1979) assert that organization as a 'collective agent of knowledge' has the capacity to learn. Organizational learning, organizational routines, and collective brains are notions that point to a conception of the organization as an agent of knowledge. For instance, Senge (1990) speaks of a 'learning organization', Quinn (1992) of an 'intelligent organization, and Nonaka and Takeuchi (1995) of a 'knowledge enterprise'. It means that an organization can be an important agent of knowledge, besides the individual. Also the business competitiveness increasingly depends today on so called external “knowledge suppliers” such as public research, mass education and the rising level of general training. As a result, the knowledge is becoming less private and more a common good.

Knowledge also enters the market, through the system of property rights hold by individuals and organizations, where knowledge can be exchanged for other entitlements. At the same time individual subjects are, though the information function of the market prices, learning from each other (Hayek, 1945). Market becomes a way of social learning and acquiring knowledge. Relations keep emerging through market as a process of social learning. Hence, knowledge cannot be entirely understood through the prism of an individual or an organization, but only through a more profound insight into the market mechanism. Or to put differently, knowledge ceases to become a private commodity, since knowledge is increasingly spilling over to others through the market relations, and thus it is becoming even more a common good and even less a private one.

3. ECONOMIC SCHOOLS OF THOUGHT AND THE NATURE OF KNOWLEDGE

Economic theory has developed different ideas of the knowledge throughout its evolution. I strongly believe that these changes also affected the capacity of economic theory to fully understand the nature of the knowledge itself. From the aspect of knowledge, it makes sense to remain confined to three schools of economic thought that contributed largely by their differing apprehension to knowledge, to its fully understanding: 1) the neoclassical school, 2) the Marxist school, and 3) the Austrian school.

Economic theory equates knowledge mainly with information, human capital, production factors and technological progress. The human capital theory underlines that knowledge is
basically a private good, formed by an investment into an individual through education. Also, investments into human capital bring diminishing returns. However, knowledge is not a conventional commodity, as it is never lost upon sale of purchase; each transaction only increases it, leading to increasing returns. The law of diminishing returns obviously does not apply to knowledge; on the contrary, its value is increasing with its use. Without a grasp of the social inclusion of the individual it is impossible to understand the increasing returns of knowledge and its common good character. The neoclassical theory does not adequately account for knowledge as a common good, because the theory does not wish to threaten the position of the individual (and knowledge as a private good) as the fundamental unit of analysis.

Marxist school developed somewhat different approaches to knowledge. With its theory of 'commodity fetishism', it pointed out that the market commodity relations actually hide the background of broader social relations (Swedberg, 1994). Knowledge is basically a private good, however since individual knowledge cannot be appropriated, only contractual relations are possible between employer and employee. Such relations generate externalities, as knowledge is increasingly spilling over to other users, and thus it is becoming a public good (World Report, 1999). Therefore, knowledge is not only embodied in individuals, but also resides in the relations between them. The business competitiveness increasingly depends today also on public research, mass education and the rising level of general training. As a result, the knowledge is becoming less private and even more a common good.

The Austrian schools furnished a deeper notion of knowledge. An important contribution was its emphasis on the importance of entrepreneurial innovation and business cycles (Schumpeter, 1960) and its conception of the market as resulting from spontaneous action by subjects who possess partial knowledge (Hayek, 1945). The market mechanism of social learning leads to the transfer of knowledge between individual subjects in the market. Hence, learning is not based merely on our own experience, but also takes place through the market (Hayek, 1945). Through these market relations knowledge is increasingly becoming even more a common good and even less a private one. This means that understanding of knowledge comes to life even more with Austrian school and its understanding of market as a system of social learning. It is obvious that (neo)classical understanding of the knowledge as a private good is too narrow, and that the contributions of Marxist and especially Austrian school provide a deeper notion of its common character.

4. KNOWLEDGE AND VALORISATION

One of the reasons of today’s structural crisis can be found in the tendency of the financial capitalism toward a rent which does not belong to it (Vercellone, 2010). In order to be able to understand this argument we should understood the evolution of the economic system. In the early stage of the society only one factor of production (mainly labour) was used to produce commodities, since land was regarded as a free gift of Nature and capital was non-existing. In this one factor world relative prices were governed by relative labour costs (labour value theory) (Blaug, 1996, 38). In the advanced state of society the value of the commodity could not be determined anymore simply by labour. The value of the commodity is the sum of the normal amounts payable to all the factors used in making it, within so called cost-production theory of value. Land rentals were determined as a differentials surplus over the marginal cost of cultivation, wages of labour were governed by the long run costs of producing the means of substance and the rate of profit o capital was treated as a residual (Blaug, 1996, 281). However even when two of three factors are employed, a pure labour cost theory of value can still
more or less predict all significant changes in relative prices, simply because labour costs usually bulk large in total costs (Blaug, 1996, 90, 111).

Today’s knowledge revolution describes the fundamental shift that is occurring from the economy based on physical resources to the one based on knowledge. The emergence of wealth will be in the future mainly derived from knowledge, which has become the most important production factor. Even more, knowledge appears in the background of all the important production factors (labour, capital, land). Knowledge allows humans to gain control over nature (land), rendering it subordinate to satisfy their needs. Marshall (1961), for example, stresses that there are mainly two essential productive factors: labour and land; capital is an effect of labour. It is not useless to reply that machines are only embodied labour. We can argue that capital goods can in a certain way be reduced solely to labour, that yesterday labour (Blaug, 1996, 93). However yesterday labour, which produced today’s capital was itself working with capital goods and land existing yesterday and so on back to the Garden of Eden. The first machine was produced by labour alone cons ago (Blaug, 1996, 93). If knowledge appears in the background of labour, and if capital is an effect of labour then capital too, is a result of knowledge. This means that knowledge, albeit indirectly, stands in the background of all these three production factors, which in turn implies that two-or more dimensional classification of production factors is quite meaningless. This implies that a historical dilemma between labour theory of value on one side and the cost production theory of value on the other is quite meaningless.

In the Fordist paradigm the valorisation is based on the tangibility of production factors itself and its necessary time for production. New understanding of knowledge represents a new way of valorisation, since the main source of value resides in creativity of the key workers. In the cognitive capitalism the process of valorisation is not immediately computable at the time of production (Fumagalli, 2010, 65). The result is crisis in the traditional measurement of the value (Fumagalli, 2010, 65). As knowledge becomes a common good, the measurement of valorisation tends to realize itself through socialization.

5. ORIGIN OF TODAY’S CRISIS: SOCIAL CHARACTER OF KNOWLEDGE PRODUCTION AND THE PRIVATE CHARACTER OF ITS APPROPRIATION

The current debate about the causes of today’s crisis mainly deals with the responsibility of the financial system (e.g. real negative interest rates, inappropriate monetary policy, weak regulation, systemic risk, high leverage effect). At the moment it seems that the rescue packages, like large increases in public deficits and expansionary monetary policy in many countries, will not restore soon the previous growth rates. At the moment it does not seem that BRIC countries can sufficiently compensate for the loss of internal demand in the most developed countries (e.g. EU, USA).

Fumagalli, Lucarelli (2010) and Vercellone (2010) believe that the origin of the crisis lies in the tendency of the financial capitalism toward rent which does not belong to them. In the previous chapter we could see that knowledge is spilling over to other users, and thus it’s becoming a common good. This means that knowledge is produced by social cooperation and through the market society and as such it does not belong to a single owner. Therefore, the value that springs from its use it simply can’t be the reward of the investment in physical capital. Value is generated by the social cooperation; thus the expropriation is no longer confined within the individual or organization but extended to the whole of society (Vercellone, 2010, 93). In other word, as long as profit comes from the exploitation and expropriation of knowledge as a common good for private purposes it can be partially understood as a rent.
Knowledge capitalism requires a different understanding of the valorisation process in a way that a single person cannot take the rent from a system based on social cooperation. It means that contradiction between knowledge as a private/common good brings out the contradiction between social production of knowledge and private appropriation of it. This incongruity, between knowledge as a private/common good, is crucial in explanation the current economic crisis. The explosion of the today’s crisis has been the result of this antagonism, since the financial markets have taken the rent from the social production of knowledge. These structural reasons, in combinations with delocalization of industry in countries with low strong Asian industrial reserve army force, are shown in automatization and robotization of the entire labour processes and in strong tendencies of putting labour in precarious condition (e.g. compressing wages, flexible labour forms, lower employment security, attacks on syndicates). Therefore, the current crisis is not a cyclical crisis, but a structural one. It is the crisis of the whole capitalist system as it has been developing since 1990s till today.

6. CONCLUSION

Knowledge has become today the prime factor of the value and the principal factor of growth. Knowledge-cognitive capitalism represents a generic new variant of capitalism based on accumulation of knowledge than monetary or physical forms of wealth. Knowledge-cognitive processes are basically related to the individual, since individuals can acquire knowledge only through education. However, knowledge cannot be fully understood through the prism of an individual or an organization, but only through a more profound insight into the market mechanism. Since knowledge is increasingly spilling over to others in organizations (e.g. team work, knowledge materialised in machinery) and through the market relations, it is becoming more a common good and less a private one. The neoclassical understanding of the knowledge as a private good is too narrow, and only Marxist and especially Austrian school provide a deeper notion of its common good character.

As knowledge becomes a common good, the measurement of valorisation tends to realize itself through socialization. Knowledge capitalism obviously requires a different understanding of the valorisation process in a way that a single person cannot take the rent from a system based on social cooperation. Since knowledge is also the common good, produced by social cooperation, the value that springs from its use cannot simply be the reward of the investment in the physical capital. This contradiction between knowledge as a private or/and a common good brings out also the contradiction between the social production of knowledge and the private appropriation of it. The explosion of the today’s crisis has been the result of this antagonism.

REFERENCES


DEVELOPMENT PERSPECTIVES OF COMPANY STRUCTURES

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Abstract

There is no doubt that the world around us has changed, that is changing and will change. The dynamic nature of companies that exist today brings not only advantages but also complex tasks for people who run them.

Efficiency in operation of socio-economic system depends to a great extent on the efficiency of its management system. Research in the areas of management and organization as well as grasping their essence based on interdisciplinary approaches, is a prerequisite for efficient management at different levels of socio-economic systems.

Concepts of managing activities in the sphere of business can not be reduced to some recipes, instructions or regulations. They are constantly improving and transforming along with changes in science, economics and society.

Key words: management, demenagerisation, virtualization, networking organization, business-system.

1. INTRODUCTION

In contemporary management virtualization problem requires special attention as one of the factors in demanagement. This is a complex phenomenon and it is necessary to explore it in the context of systematic processes.

In recent years, a lot of attention has been paid to issues of virtualization in scientific literature. According to data from international electronic library Emerald, the number of journals in the field of management, acknowledged by the world scientific community (top management journals) has reached 300 titles, 100 of which are represented as the best in International Electronic Scientific Library. Among them are well known journals such as Management Research News, Journal of Organizational Change Management, Journal of Management Development and others.

Owing to search capabilities of this library, we conducted a survey of the number of articles devoted to problems of company virtualization for the period from 1992 to September 2006 in those 100 magazines. The research results are given in Table 1 and in the diagram (Fig. 1).
### Table 1. Articles in leading magazines, dedicated to virtual companies

<table>
<thead>
<tr>
<th>Year</th>
<th>92.</th>
<th>93.</th>
<th>94.</th>
<th>95.</th>
<th>96.</th>
<th>97.</th>
<th>98.</th>
<th>99.</th>
<th>2000.</th>
<th>01.</th>
<th>02.</th>
<th>03.</th>
<th>04.</th>
<th>05.</th>
<th>06.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of articles</td>
<td>2</td>
<td>5</td>
<td>3</td>
<td>9</td>
<td>11</td>
<td>20</td>
<td>26</td>
<td>21</td>
<td>32</td>
<td>36</td>
<td>36</td>
<td>27</td>
<td>29</td>
<td>30</td>
<td>25</td>
</tr>
</tbody>
</table>

Note: number of articles for 2006. is cited according to the state in September 2006.

### Fig. 1. Change in the number of articles dedicated to virtual companies in leading world magazines

We can assume that dynamics of thematic articles in leading journals reflects a general tendency, which exemplifies the attention of scientists aimed at the problems of company virtualization. The first major articles appeared in the early 1990s, and their number rapidly increased and reached a maximum at the end of the century. A sudden increase in the number of articles is one manifestation of the strict regime which we have mentioned earlier and which characterizes the position of management as a science in the late 20th century.

Assumptions for company virtualization are, above all, development of communication networks and entrepreneurial activity of different virtual agents in the networks, which activate processes of mutual action in their area of interest.

Virtualization process takes place in several inter-related directions and under certain conditions. We shall pay attention to some of them.
At first glance, it may seem paradoxical, but one of the first virtualization directions is a management consultancy, or as it is now called “consulting.” When in 1913 Mr. F. Taylor founded the first company for management consulting, he could not have guessed that this would eventually lead to virtualization of business systems. Consulting has passed through the following stages in the course of its development:

The first stage is preparing qualified advice and recommendations for performing specific functions at the company request.

The second stage is not only elaborating recommendations, but also implementing them in cooperation with the authorities, i.e. taking part in company management.

The third stage is transferring certain roles completely from a company to a consulting firm, like, for example, the role of human resources, marketing services and so on. In fact, in many cases it is economically more profitable to transfer some functions to a specialized consulting firm by way of commercial contract, than to finance a lot of employees, appropriate facilities or equipment. In recent years, it has been more likely to transfer “sacred cows” such as accounting department, which, after all, has been a sign that domestic business is coming out of half-grey area, a sign that the business is opening and taking on a more civilized form.

This actually means that company departments, which make up its structure, are “pouring out” into outer environment, the structure loses its systemic importance, there is more and more “empty body” in the company itself, so it becomes one with external environment. In the extreme case, a company can be reduced to one office only, which can be placed at home.

In this virtualization tendency, there is also a tendency which, as a rule, do not reach scientists’ standpoint. It consists of the fact that content and form of production relations are changing; in the virtualization process, wage labor is replaced by partner business relationships.

This is the first of the virtualization guidelines and its conversion into a business-system, whose elements are business-processes – work courses. Evidently, there are still many questions, particularly those related to company departments which carry out material production, but tendency has been very clear so that contemporary scientists and managers-practitioners have no right to ignore it, so as not to stay on the edge of progress. As for material production, the processes here go towards creating the so-called production “without people”, transferring executive and technological jobs from human to machine, i.e. to more flexible automated production systems.

The second virtualization guideline (associated with the first, but independent due to its specific features) is forming a virtual communication space, virtual environment that allows information exchange in real time frame all over the planet and creating a colossal database and knowledge base.

The consequences of virtualization may be global and difficult to predict in economy, but they can lead to changes in the nature of economic relations. Primarily, they can predict the disappearance of intermediaries between producers and consumers, and other changes of economic relations of principle nature (electronic commercial department, electronic money, electronic signature, etc.).

If applied to a specific company, virtual communication area in many cases makes out-of-date following company attributes, such as: necessity to come to work on time, to make a record inspection, to provide a daily schedule; to make sure that the workers of one department are in one place and so on. Today, the leading scientific publications in the field of management in Russia and abroad are filled with articles on virtual teams, virtual groups, comprised of staff from different terri-
The third virtualization guideline is concerned with structural aspects in a company. According to V. Jefremov every company is only a specific form through which people put into practice a specific common activity. The motives and nature of interaction between people and their groups in a company are defined by the objectives of their activity. Accordingly, if contents of the activity change, then the company must change as well. And if the company fails to satisfy interests or match people’s goals, it must give way to new forms of their mutual activity. “The purpose of a company is not to represent the external and the internal within itself, but in more detail, what kind of role it has in the system, where it is included as an element.” (Ефремов, 2001, pp. 77-78). This system is represented as business space, which, in turn, becomes included in socio-cultural environment.

A company as an instrument of business draws its opportunities. It is now impossible to continue with a series of company structures (linear, functional, mixed, divisional, design, matrix etc.) without damaging the concept of company. Some concepts related to company boundaries such as number of employees, size of capital, territory, etc. disappear; outer environment ceases to be outer environment, but it becomes an area of existence of virtual business-systems, which are mutually permeated. Throughout the process, business-system becomes an instrument of business relationships and qualitatively new subject in socio-cultural process.

The fourth virtualization guideline defines socio-cultural process. The main systemic factors in traditional company are its objectives and structure. Since a company in the future ceases to be a target system, and structure loses its authenticity, a new systemic factor is, above all, company culture, not as a corporate culture, but as an element of civic society culture. From the viewpoint of socio-cultural process, external environment ceases to be a fighting arena (particularly of competitive battle), but it becomes a space for civilized cooperation, partnership. In this case, we are talking about a tendency, which is now gaining strength and which will dominate in 21st century management.

It is believed that virtualization weaknesses are as follows: too much economic dependence on partners, which is associated with network members’ narrow area of expertise, risk of complications, mainly arising from diversity of members, unclear relationship of members in networks, open networks, dynamics of self-organization, undefined plans for members of virtual companies, renouncing long-term contractual forms and normal business relationships. The last item causes the problem of replacing well-known organizational and management principles by substitutes that can guarantee stable performance and development of virtual companies. Such a substitute is the organizational culture of virtual companies.

2. ORGANIZATIONAL CULTURE

At the present stage of studying organizational culture, many authors agree on the position that this is a specific, characteristic of a given organization, system of communications, actions, interrelations, which are put into action within a specific way of running business, entrepreneurial activity; its source are individual essential values, it is formed and developed by a unique team in the work process; it makes basis for company personnel policy and is put into action through its activity. However, those characteristics of organizational culture are also inherent in traditional companies with hierarchical management systems, and since virtualization of business-processes fundamentally changes the way of business, so is organizational culture being changed. It loses essential characteristics of corporate culture.
Analysis of traditional and virtual company allows significant differences to be exerted, not only in assumptions for starting up but also for facilitating company stability, and in that way those differences define the key role of organizational culture. In traditional companies, organizational (corporate) culture is formed primarily by artificial means; Personnel Department used to spread (and sometimes impose) values and norms accepted by senior manager or owner. Stability of such a company is facilitated on the account of administrative-organizational resource and exclusive economic interests of the participants, and organizational culture is just a supplement to the existing structure and has a supplementary, pragmatic role.

In a virtual company, organizational culture formation is based on natural approach, which implies that it consists of norms and values of each participant. There is no administrative resource here, and purely economic interests of virtual company members are necessary, but insufficient condition for its stable function. The phenomenon of virtual company stability is in many ways defined by nature of synergistic processes that are happening in it and that are able to create organizational order on macro level from chaos on micro-level, under certain conditions. Very defining condition for virtual company self-organization is the existence of unique information and communication space and sufficiently high ethical values of each participant, which does not allow it to be violated by meeting one’s own needs at the expense of resources of its individual members and which also creates organizational culture as a systemic factor in a virtual company.

3. VIRTUALIZATION DIRECTIONS

Employee leasing can be considered one of the characteristic guidelines of virtualization (Аникин, 2006, p. 288). In Russia, some legislative acts that regulate wage labor are being elaborated at present, although in 1997. The Convention no.181 was adopted at the 85th meeting of the International Labor Organization (ILO), and it has allowed private employment agencies to legally rent employees in order to offer their work to third parties, which indirectly use that labor for realizing their own interests.

Beside all differences related to employee leasing from the point of view of public companies, employers and wage-workers, it should be noted that from the organizational point of view, this phenomenon reflects objective processes in modern companies, mainly virtualization processes. In fact, from an economic standpoint, for a company it is more useful to carry out a larger workload with fewer staff. Leaving employees without jobs while preserving the volume of work allows employee leasing or out-staffing. Evidently, employee leasing is appropriate only when it is cheaper to keep employed staff, than to use hired labor. In this way, the process of outstaffing implies that there is a “leakage” of the company to the outside, which is a general feature of company virtualization. However, beside company functions and processes, employees are also “leaking”, so the company itself is becoming empty bodied. New direction toward virtualization is shown on the graphic model (Fig. 2).
The term “virtual” is used in bibliography with different shades of meaning, “artificially made”, “object that does not exist in real space”, “intangible object”, “imaginary”. V. Meitus classifies virtual enterprises in the sphere of material production as “a structure oriented toward specific goods production, which is created only for the period of its development by merging manufacturing capabilities and resources offered by other entities (companies, entrepreneurs, individuals) with contractual terms agreed in a pre-determined amount and fixed time. (Meitous, 2004, pp. 91-95). It should be noted that this definition is in accordance with the terms of mutual contracted action, whose schemes and standards used to be well known in Soviet times. Adding subjects of market relations to this scheme will change little in it. Although virtualization features in such a scheme are undoubtedly present, they are insufficient to describe such a complex phenomenon in modern economy and modern management techniques such as virtualization.

A. Kataev states the following definition of virtual companies, “a temporary cooperative network of enterprises (companies, collectives and people) with essential competencies to meet market needs the best possible way, which is based on a unified information system.” (Karaen, 2005). Similar interpretations of the term “virtual company” require precision. The term “virtual company” or a “virtual enterprise” is very conditional. It would be more precise to rather talk about enterprises (companies) that have the features of virtualization (virtual features). Here are the attributes of virtual company:

- “Empty body” caused by transferring company functions and processes to entities in the outer environment (outsourcing) or by creating an autonomous non-productive structure, which
coordinates the operation of a number of manufacturers in order to make their own material gain;

- use of hired labor (out-staffing);
- Communication primarily in virtual information space (virtual environment) and a high level of information support in decision-making through modern technology (for example, introducing system of ERP - Enterprise Resource Planning class);
- Territorial dissection of virtual education entities (agents);
- Autonomy and interactivity;
- High status of organizational culture as a necessary condition for virtual company efficient operation;
- Virtual company structure is dependent on particular demand (company adaptability);
- Existence of flexible automated production systems in virtual entities.

4. VIRTUAL ORGANIZATIONS

In accordance with these characteristics, several virtual companies, or more precisely companies with virtual features, can be pointed out.

1. Realistically existing company-manufacturer, which integrates virtual agents and coordinates their activities, by which each single agent could also be a coordinator of virtual agents on the second level (Fig. 3). We shall mark this virtualization form as symbol A.

Fig. 3. Quasi-virtual structure: Central company system, surrounded by virtual agents
2. Unproductive company artificially created to coordinate virtual agents-manufacturers, which represents a sort of intermediary between customers and product manufacturers - a “virtual cluster” (Fig. 4). We shall mark this virtualization form as symbol B. In this scheme, two variants for creating virtual platforms are possible: the first, coordinating agent is originally created as an incubator, which then gathers around him other agents (form B-1) and the second, creation of virtual platforms is pre-arranged by future agents (form B-2).

![Fig. 4. Company of “empty body” is created for coordination of virtual agents’ activities](image)

3. Unproductive company-outsourcer that has presented its business processes into external environment, form C (Fig. 5).

![Fig. 5. Company becomes “hollow” by transferring its functions to virtual agents](image)

4. Network of manufacturers without a coordination center; coordination of their activities is done through local mutual action by principle of self-organization (Fig. 6).
The first three forms of virtual companies imply the existence of systemic (central, management, coordinating, etc.) company, which is sometimes called a network administrator, or virtual corporation administrator. Such terms, in our opinion, are not the best, since they can be ambiguously interpreted, but these are inevitable terminological problems in the process of forming new knowledge. The first form can be classified as virtual very conditionally; it is quasi-virtual structure. The second and third form are appropriate variants of deepening the virtualization process. They differ in origin: in one case a real company remains empty bodied, by pouring out its business processes and employees into external environment, and in the other, an empty-bodied company is created immediately, and then it identifies and unites virtual agents.

The fourth type corresponds to economic and organizational relationship situation, characteristic of network where there is no coordination center.

In practice, there are different types of virtual structures: from mobile trade agents to territorially separated partner clusters. In bibliography, there are various examples of virtual companies that function effectively. An example is a virtual company “Virtual University Enterprises” (VUE, a part of NCS Pearson, Inc.) founded in 1997, a relatively young virtual company, which provides services of automated testing. (Сердюк, 2001). Using virtual company basic foundations, such as electronic network infrastructure, concentration of competencies, systems of interaction with clients and so on, has enabled creation and operative function of more than 2500 company centers, situated in 110 countries worldwide. These centers organize exam programs for company certification such as Check Point Technologies, Cisco Systems, CompTIA, Ericsson, Generation, Informix, Linux Professional Institute (LPI), Lucent Technologies, Microsoft, Novell, PTC, RSA Security, IBM, Tivoli et al. New testing centres “Virtual University Enterprises”, which function in Russia are “AstroSoft” and “Academy IT”. “Academy IT”, for example, prepares experts for taking most exams according to certification programs of such companies as Microsoft, Novell, Oracle, Caldera, Lotus, Avaya, etc.

Some other publications that illustrate business activity of virtual companies are also well known, however, lack of methodology that would enable identifying virtual companies or defining degree of virtualization, is becoming a serious obstacle in collecting and analyzing statistical data about the
number of virtual companies in different economic areas and their development tendencies. According to some estimates, by 2010, various forms of virtualization will be used in economic regions by more than 90% of companies that do business. (Абросимов and Носов, 2002).

Company virtualization is becoming a reality in business. In addition, the problem of identifying virtualization processes is becoming stronger. In order to avoid ambiguous interpretation, diversity of criteria, terminological errors, and destructive rush of new fashionable concept, it is necessary to create friendly methodology for assessing company virtualization degree, both for scientific community, as well as for managers- practitioners. Fundamentals of methodology that enables assessment of virtualization degree in a specified company can consist of the above virtualization features. Furthermore, it is necessary to mark typical indicators characterizing those features and explain the integral indicator. In addition, it should be noted that task of “measuring” virtualization and assessing degree of company openness, socialization, adaptability and similar tasks represent individual cases of a wider problem: elaboration of self-organization criteria. Lack of precise criteria makes it difficult to create meaningful self-organization models in socio-economic systems.

Generalizing experience in creating self-organization models, V. Hicenko has come to conclusion that “these models are inadequate and weak for social sciences and management, and a radical conceptual reform, which will enable clarifying social self-organization is still far away.” (Хиценко, 2000). Thus, management theory still has to pass this part of its journey: first, manifest and analyze phenomena characteristics (virtualization, self-organization, networking et al.), then to generalize and systematize, after that to exhibit tendencies and causal relations, to describe them verbally, further elaborate the studied phenomenon, after which research exceeds into modeling stage (including graphical, mathematical and other modeling).

In the early 20th century, Henry Ford created giant automobile empire, which included assembly industry, metallurgical enterprises, railway, extractive industries, energy production and so on. As a comparison, we should point out that today Toyota Company mainly deals with product assembly and sale while it left manufacturing of most parts to other companies, and thus production organization is characteristic of all Japanese manufacturers and it has become the world's management practice of many industrial enterprises. Table 2. shows development dynamics of outsourcing services market in Europe (Аникин and Рудая, 2006, p. 39).

### Table 2. Development of European outsourcing services market (1995 - 2001)

<table>
<thead>
<tr>
<th>Country</th>
<th>Market development, billions of dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td>7100</td>
</tr>
<tr>
<td>France</td>
<td>1400</td>
</tr>
<tr>
<td>Germany</td>
<td>1100</td>
</tr>
<tr>
<td>Great Britain</td>
<td>2550</td>
</tr>
<tr>
<td>Italy</td>
<td>420</td>
</tr>
<tr>
<td>Sweden</td>
<td>470</td>
</tr>
</tbody>
</table>
Table 3. Use of production outsourcing in industrial companies in the USA, %

<table>
<thead>
<tr>
<th>Sphere of activity</th>
<th>Not used</th>
<th>Partial outsourcing</th>
<th>Complete outsourcing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply</td>
<td>83,3</td>
<td>14,3</td>
<td>2,5</td>
</tr>
<tr>
<td>Equipment maintenance</td>
<td>53,6</td>
<td>43,8</td>
<td>2,6</td>
</tr>
<tr>
<td>Basic production</td>
<td>41,2</td>
<td>54,9</td>
<td>3,8</td>
</tr>
<tr>
<td>Storage and distribution</td>
<td>69,5</td>
<td>26,3</td>
<td>4,1</td>
</tr>
<tr>
<td>Information technologies</td>
<td>55,4</td>
<td>39,5</td>
<td>5,1</td>
</tr>
<tr>
<td>Transport</td>
<td>28,3</td>
<td>27,0</td>
<td>44,7</td>
</tr>
</tbody>
</table>

Virtualization problem in a company as a business tool contain many questions that have yet to be answered. Primarily it refers to material production. For the last two decades in scientific bibliography the concept of “industrial virtual enterprise” (Industrial Virtual Enterprise) has been discussed and virtualization as a whole has been researched as a new phenomenon in management. Even so, scientists are reluctant to elaborate these topics, while the topic of virtualization in information technology area is much more attractive. Virtual Office – it is simply more convenient than “hard” production.

As it has been already stated, we start from the viewpoint that organizational processes in material production area are going towards creating so-called production “without people” based on the
transfer of executive and technological functions from human to machine, i.e. to flexible automated production systems.

5. VIRTUALIZATION AND NETWORKING

Virtualization as multi-planned phenomenon in modern management creates networking relationships in economy and social life. Unlike administrative systems, which have long, previously designed logic of activity, network culture of establishing aims implies particular project thinking; its essence is to work through an individual and on an individual. In modern theory on companies there is a special place for concepts about network structures and networking process. Term “networking” means forming multi-dimensional organizational network with nodes and connections for fulfilling entrepreneurial goals according to partner and business competition needs and expectations.

Terms “virtualization” and “networking” are close, but not identical. Company virtualization reaches its logical end when the environment itself becomes the company, when relationships in the environment are established as a set of connections. Virtualization begins the process of destructuring companies, and networking completes it; however it is not possible to draw a clear line between these two phenomena in modern management. That fact can also explain similarity of scientists’ conclusions particularly in terms of virtualization and networking structural aspects. Thus, two organizational models of network structures are currently widespread.

In the first model, network structure is formed around a large company, bringing together smaller firms, assigning them to perform various professional tasks. Firms, in turn, may have its own sectors necessary for production, which require very high qualifications. In this case, network is quasi-hierarchical and large company occupies a dominant position in business operations, since it represents the main principal. Large company benefits enable it to exercise control, but not at the expense of administrative resources and equity, but through market mechanisms. Large companies choose partners which can adapt easily, which are flexible to changing conditions and have creative potential.

R. Daft believes that such a network structure emerges as a result of division structures’ development. “Network structure means that company shares its basic functions (production, engineering, sales, accounting and finance) with a number of companies working under contract and companies whose brokers (intermediaries) are small main companies.” (Дафт, 2000, p. 333). R. Daft provides organizational chart of hypothetical networked organization (Fig. 7).

In the second model, networking is in accordance with corporate network which consists of companies of the same size, most of which are legally independent, but support each other in economic terms. Similar community increases competitiveness of goods and services. Permanent relationships present in several key companies, which stimulate innovation and commercial process, simplify management tasks of small and medium-sized companies which form a network.

Therefore, networking is not entirely the result of virtualization, that is manifested in company “outpour” into external environment (dissipative process), but it involves uniting efforts of free entities in economic activity, including those arising from outpouring (associative process).

Jointly with this, by analyzing networking problems, we start from the following ideas:

- It is useful to divide the concept of company “organizational structure” and concepts of relationships between companies;
• If it is a socio-economic system (in a company), network structure can not be viewed as a type of organizational structure;

• A company in destructuring process is being changed to a qualitatively new condition, which is characterized by loss of traditional features like systemic factors (boundaries, structure, and goal).

Consequently, there is a need to explore the concept of “networking” as a phenomenon in management and economics, and not only as a process through which company takes on different forms of organizational structure.

Networking, as well as virtualization, represents a multi-dimensional process expressed through systemic unity of outsourcing and development of joint activities in companies with classic structures, as well as through business-systems, created during outsourcing process.

Virtualization and networking are directions in changing business organizational forms, which are conditioned by objective reasons, primarily of economic nature: business saves costs for company maintenance and is forced to search for more effective instruments.

Theoretically possible and realistic mutual relations between participants in economic activities are not exhausted by dichotomy of free market and bureaucratic management. Network structures as a mechanism are characterized by particular communication method (they are not based on goals or hierarchical relationships, but on personal or personified mutual links), type of creating advantage (mutually dependent relationships, different from independent relationships typical of the market, and dependent relationships typical of bureaucratic structures), normative basis of their mutual relations (ethical norms as opposed to legal norms in hierarchical systems).

Members of network structures blur the boundaries between public and private, and reduce pretensions on property by creating a new type - “the combined type”. Young organizational forms are
characterized by organizational mobility and pragmatic orientation, which will enables network structures to increase value of existing features and other assets through their redistribution.

Networking offers non-traditional view on potential results of network structures’ activities. Thus, network structures can be viewed as a form of social mobilization. From the point of synergetic approach, network nodes can be viewed as attractors of self-organization process. There are no institutions as limiting principles in it. It has been created at maximum possible share of risk and it creates temporary virtual institutions to resolve specific tasks. Therefore, such a structure solves a specific task much more efficiently. V. Hicenko said: “It is network principle of creating company structures with its possibilities to self-increase collective intellect and self-develop communication abilities that is a worthy response to growing complexity of our information-oriented world.” (Хиценко, 2000).

Networking reflects direction of management development from hierarchy to organizational democracy, from organizational democracy to organizational liberalism. Replacing managers by leaders is a mandatory step toward organizational liberalism. Along with that, a leader as a “binding element”, compared with a manager in the same role, does not change the content of organizational relationships on principle level, leaving them as they used to be before - subject-object relationships.

According to scientific viewpoint, networking, as well as other phenomena in modern management, is a multidimensional phenomenon in which moral component takes on a qualitatively new meaning: from confirmed decorative role in hierarchy, to necessary network development factor. The network ethical principle is: a precondition for enhancing personal well-being is increasing social welfare. The hierarchy principle is: increasing personal well-being at the expense of society.

Hierarchy is interested in introducing intellectual and other stratification in a company. This is close to Taylor’s principles, who believed that cooperation between bosses and workers must be expressed in such a way that bosses take on intellectual activity (the hardest according to Taylor), and workers are left with the easiest activity - to be obedient executors.

In terms of socio-economic system at the state level, networking success is defined by its vector: private companies – network or government enterprises - network. Development of networking theory and real networking processes have also coincided with social-economic system dissolution in former socialist bloc and redistribution of state property that followed.

Many Western scholars have concluded that networking in conditions of state property privatization in Russia, its transition to private ownership, dual status of property rights have created assumptions not to increase economic system adaptability, but to increase scale of theft, by becoming an instrument of unfair enrichment of a limited number of people (monarchs and bureaucracy in such cases monopolize decision-making concerning institutional changes and setting up companies-satellites, which can be used to transfer capital).

As a consequence, an opinion has been formed that network structure in the former socialist world was mainly formed by nomenclature, which abused power. This fact was used by hierarchy supporters as an argument against networking. Indeed, networking is an alternative to hierarchy. Consequences of global networking can be ambiguous: networking will either destroy civilization or it will upgrade it to a higher, qualitatively new level of development. Partisan divisions (network) are in certain situations more efficient than regular army (hierarchy).
6. CONCLUSION

Society and its socio-economic institutions have come to the point of bifurcation, in synergy this state is referred to as a regime with aggravation. Many scientists and practitioners do not take into account the fact that “regimes with aggravation have such a feature that process flow in them has two totally different stages: a long meta-stable stage, when all process characteristics increase slowly and slightly, and an asymptotic stage of instability close to aggravation moment.” (Курдюмов and Князева, 2004, p. 40).

The path, social development will set on after passing the bifurcation point, will be determined by the state of social culture and dominant system of values. Hierarchy has a historic opportunity: by using its abilities it will raise spiritual potential of society, which has significantly decreased during post-industrial stage (consumer society stage), and therefore it will create conditions for development in creative direction. However, in case hierarchy spends its remaining resources on useless struggle with networking, then the society will get a network with a powerful destructive force.

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THE IMPACT OF GLOBAL FINANCIAL CRISIS IN THE ACTIVITY OF CREDIT IN ALBANIA BANKING SYSTEM

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Abstract

During the expansion of the economy, lending increased by very high rate and decreases significantly when the economy is in recession. Problematic credits are low during the economic expansion and increased significantly at the stage of economic recession. The credit activity is one of the most dynamic and vigorous activities of Albanian banking system. Its rapid growth has attracted the interest of many analysts, who have suggested the controlled growth of the credit. The growth of credit is accompanied with the increasing number of problematic credits. The value of the ratio problematic credit versus the total credit, 2005-2010, from one quarter to the next one, is approximately increased by 46.9%. Global economic and financial crisis led to a reduction of incremental rhythms offered loans, average 50% and the deterioration of the macroeconomic situation in the country. This caused sharp increase in the extent of nonperforming loans 106.2% from one quarter to another, compared with 8.8% average growth before the crisis. Being motivated by the importance of the problematic credits, the aim of this work is to analyze the activity of credit and the tendency of credit risk in Albanian banking system, by exploiting trusted official and national data, by evidencing some important temporal moments that have sensitively affected the tendency of the problematic credits.

Key word: credit activity, banking system, financial crisis, credit risk.

1. INTRODUCTION

Financial crises can often be negative and undesirable consequences of risky activities that carry out banking institutions. Banks manage the daily activity, trying to find an optimal level between profit and risk. Historically, lending to the origin and evolution of banking to date, is regarded as the activity that carries more risk of the activities that banks perform, but it also provides higher profits. This is why lending activity devoted much time, space, effort, human resources, information, etc. Experience has shown that many banks and financial system developments are pro-cyclical and one of the main reasons for this behavior of financial institutions is associated with growth and reduction of credit supply during the business cycles of the economy. During the expansion of the economy, lending increased by very high rate and decreases significantly when the economy is in recession. Usually changes in lending are proportionally greater than changes in economic activity, then changes in credit supply has a tendency to emphasize the business cycle. During the contraction of the economy, low level of credit and deteriorating credit performance indicators, as problematic loans follow the cycle of the economy. Indicators loans are very low during the economic expansion and increased significantly at the stage of economic recession. So, high risk that banks take to the stage of growth, appear later because it takes some time to identify problem loans. In the literature there are presented several reasons that explain this behavior of banks, but the main reason is related to human behavior or rather
to irrational behavior of bank managers. Irrational behavior of bank managers is explained by these theories:

- Unfortunate myopia. The Situation of the unfortunate myopia occurs when it is difficult to determine the possibility of occurrence of a future event. Such an event could be the result of economic changes, changes in legal framework or the other a variety of situations. Banks underestimate the risks that have little chance to occur. Therefore when the economic activity is in expansion, banks boost credit and stop it immediately when economic activity slows, and then when the above events are more likely to occur.

- The theory of crowd behavior as. Relies on the idea that bank managers are concerned only about their reputation in the short term. This behavior is observed more on managers who are not successful and are steadily losing market share. Therefore they try to follow the actions taken by their peers to be successful. For example, when some successful banks finance a sector or a certain group of borrowers, the managers of banks not successful do the same thing by imitating the successful banks. This behavior leads to a similar assessment of borrowers without taking into account the characteristics of resources and the return of projects. Initially, it brings increased lending activity, and when economic activity slows down, will decrease the ability of paying the loan and will increase loans. In this case short-term goals of managers to maintain their position on the emerging long-term goal of the bank's performance.

- The head of the agency theory. This theory can have two angles. On the one hand encourage administrators to shareholders increased activity through the implementation of various compensation schemes for managers. Indicators of growth of the bank or its profitability ratios serve as a basis for reward. If the quantitative performance meters kill the qualitative ones, then one might expect irrational behavior of administrators. They tend to take high-risk activities, for example by increasing with higher rhythm the loan portfolio, which affects short-term growth.

- Institutional Memory. According to this theory borrowers or bad relationships forgotten for two reasons.
  - First, while some employees retire and others are hired, create a gap and lack professional experience.
  - Second, credit analysts forget past mistakes by creating self-confidence and relationships with customers. This brings failing to consider the negative factors.

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9 Rajan, 1994 “Why bank credit policies fluctuate”.
2. AN ANALYSIS OF CREDIT ACTIVITY IN ALBANIA BANKING SYSTEM

During the last couple of years, the activity of the banking system has been sensibly increased. The weight of the total activity of the banking system versus the GDP was 76.7% by the end of 2008, and 77.5% by the end of 2009. One of the most increasing activities is that of the ease of credit activity, which has a big impact not only on the financial sector, but influences the whole country’s economy. By the end of 2009 the landed credits by the Albanian banking system was 39.3% of the GDP (Graph 1).

Although the high increasing rates, Albania is within the countries with the lowest report of the credit for the private sector versus GDP, (Graph 2).

The credit risk is one of the most important and sensitive risks, the banks are facing during their activity. It is related to the inability of the borrowers to fulfill their agreements with the bank.

Based on the regulation: “For administration of the credit risk” the banks classify their credit in to five categories: standard credit; credit in pursuit; credit below the standards; suspiciously credit and lost credit.

The data to draw the graph from Albanian Bank

Graph 1. The total of the credit activity of the banking system versus the GDP

The credits classified within the second and first category constitute the group of the qualitative credits. The credits classified within the third, fourth and fifth category, make the group of the problematic credits.
The development of the credit classes during the 2005-2010 clearly shows the increasing tendency of the risky classes of the credits, which represents the total problematic credits. Increasing rates of the “default credits”, “suspiciously credit” and “credit below the standards”, are higher than those of the “credit in pursuit”, (Graph 3). This increasing tendency is more emphasized, starting from the third quarter of 2008, the period when the Albanian banking system felt the negative effects of the world credit crisis. The financial crisis which dominated the world economy has also affected our country. This affect came gradually during the last quarter of 2008. The uncertainty that accompanied the world financial system collapse was reflected on the withdrawal of the deposits from the banking system during the last quarter of 2008. These withdrawals brought the liquidity problems in the system, and were accompanied with the increasing tendency of the interest rates.

On the other hand, this situation affected naturally the decreasing of the system respond to credit the economy and therefore affected the obvious decreasing of the credit rate starting from this period of time. This development accompanied with the decreasing of the remittances, affected the slowdown of the economic activity.

3. THE IMPACT OF GLOBAL FINANCIAL CRISIS IN CREDIT RISK IN ALBANIA

The graph 3 illustrates the increasing tendency of the problematic credits, and shows their instantaneous jump in September of 2009. The fluctuations observed from the group of the credit in pursuing have to be considered and analyzed as strongly related to the changes of the bed credit. The decreasing of the credit in pursuing, as well as the increasing of the potential factor to convert them to the bed credits, have to be treated with the same concern. The report of the problematic credits versus the total of credit portfolio, based on the brute data, was increased by 10.5% comparing with the 9.75% it was during the third quarter of the 2008. Only during the last quarter of 2008, the problematic credits of the banking system were increased by 4.5 billion ALL or 10.4% comparing with that of the previous quarter. This report for 2010 was 12%. This event confirms the main impact of the low
increasing pace of the sufficient credit during 2009 and 2010, (Graph 4), on the worsening of the reports that measure the quality of this portfolio.

![Graph 3. The problematic credit and the credit in pursuing](image)

According to the groups of the users, the quality of the credit portfolio is decreased for the businesses, as well as for the private sector. The report of the problematic credit versus the sufficient credit for the business and the private sector is calculated to be 12.4% and 8.2% in 2009 comparing to 7.6% and 5.5% respectively by the end of 2008. According to the currency, by the end of 2009, the ratio of the problematic credit in All/the supplement credit in All, and the ratio of the problematic credit in currency/the supplement credit in currency are calculated to be at the similar levels about 10%, 7.5% and 6.5 respectively, referring the end of 2008. The decreasing of quality of the problematic credit yearly, as a result of the higher increasing rate of problematic loans, 67%, than the supplementary in All, 23%.

Recently in Albania, a phenomenon has occurred, that for many mortgage holders there is an incompatibility between the credit currency and currency of the entering flux of the money. Due to the politics of the banks, the borrowers are obligated to get their loans, with a currency different from their incomes. Therefore a devaluation of the currency from their incomes, against the credit currency, will decrease the capability of the borrowers to pay their loans, and as a result will delay or default in payment of their obligation toward the banks. Credit in euro/incomes of the borrowers are in currency was 31.64 of total credit and 45.6% of credit in euro. The quality of the credit currency against the risk of the exchange rate is measured by means of the factors “hedged” and “un-hedged”.

![Graph 3. The problematic credit and the credit in pursuing](image)
The “hedged” factor is considered as the loan with problems in currency (incomes of the borrowers are in currency) /the total of the loan is in currency). The second factor, the “un-hedged”, as the loan with problems in currency, (incomes of the borrowers are in All/ the total loan in currency, the incomes of the borrowers in All). These two factors are approximated 7.1 and 5.7% by the last quarter of the 2008, comparing with 3.49 and 3.74% of the third quarter of 2008. Whereas, the “un-hedged” factor
had a value of 9.6% by the end of 2009. This indicates the negative effect of the ALL devaluation, on the quality of the credit portfolio.

The quality of the credit portfolio has significantly decreased by the end of 2009 for some of the economic sectors. The highest ratio of the problematic credits against the supplementary credit has been observed for the industrial sector, about 15.8, from 6.7% it was at the end of 2008, following by the construction sector 13.9%, from 7.6% it was the previous year. Although the high increasing rates, Albania is within the countries with the normal report of the credit risk.

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010*</th>
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<tr>
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<td>3.1</td>
<td>3.4</td>
<td>6.6</td>
<td>10.5</td>
<td>12</td>
</tr>
<tr>
<td>Bosnia and Hercegovina</td>
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<td>4</td>
<td>3</td>
<td>3.1</td>
<td>5.9</td>
<td>7.1</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>2.2</td>
<td>2.2</td>
<td>2.1</td>
<td>2.5</td>
<td>6.4</td>
<td>7.8</td>
</tr>
<tr>
<td>Croatia</td>
<td>6.2</td>
<td>5.2</td>
<td>4.8</td>
<td>4.9</td>
<td>7.8</td>
<td>8.8</td>
</tr>
<tr>
<td>Lithuania</td>
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<td>1</td>
<td>4.6</td>
<td>19.3</td>
<td>19.2</td>
</tr>
<tr>
<td>FYR Macedonia</td>
<td>15</td>
<td>11.2</td>
<td>7.5</td>
<td>6.8</td>
<td>8.9</td>
<td>9.9</td>
</tr>
<tr>
<td>Montenegro</td>
<td>5.3</td>
<td>2.9</td>
<td>3.2</td>
<td>7.2</td>
<td>13.5</td>
<td>14.9</td>
</tr>
<tr>
<td>Romania</td>
<td>2.6</td>
<td>2.8</td>
<td>4</td>
<td>6.5</td>
<td>15.3</td>
<td>17.5</td>
</tr>
<tr>
<td>Turkey</td>
<td>5</td>
<td>3.9</td>
<td>3.6</td>
<td>3.8</td>
<td>5.6</td>
<td>4.9</td>
</tr>
</tbody>
</table>

Source: IBM “Global Financial Stability Report”, *October 2010

**Table 2: Bank nonperforming loans to total loans for Central and Eastern Europe**

4. **REGRESSION ANALYSIS OF CREDIT RISK**

Nevertheless has to be emphasized that the picture of the problematic credits series for Albanian banking system, suggests the existence of the increasing trend. The graph 5 shows the progress of the quality of the Albanian banking system, respectively, problematic credit versus the total credit. It is clear that the continuously increasing tendency of the problematic credit index against the total credit, which results in significant increase at the end of the third quarter in 2008. This strong increase came as a result of the negative effect of the economic and financial crisis to our banking system. If we have a look on the graph data, this trend can be seen as a linear function.

By using the data of the time series for the problematic credit, we use the regression analyze to solve the linear function. In this case the changing variable is the time \( t \) and the controlled variable is the ratio of the problematic credits to the total credit. Time table includes the 2005-2010 period, and the data are with quarterly taken. The regression analyze is fitted using the statistic program SPSS.

The equation from the regression analyze is as following:

\[ Y = \beta_0 + \beta_1 \times t + \epsilon_0 \]

\[ Y = 0.055 + 0.469 \times t \]
In overall is extrapolated a increasing tendency statistically important, with a corrected determination coefficient of 76.8%. The series of the problematic credit versus the total of the credit have manifested an increasing tendency during the period of 2005-2010, an increase that is estimated statistically important, according to the t-statistic test. Based on the regression formula the value of the ratio problematic credit versus the total credit, from one quarter to the next one, is approximately increased by 46.9%. This equation can be also used for the forecasting analysis, to forecast the ration value for the coming quarter.

As the chart suffers fractures noted in the third quarter of 2008, then we share the data series into two parts. The first part, before the crisis, includes the period 2005 - second quarter 2008. While the second part, after the impact of the crisis, covering the period 2008 third quarter - third quarter 2010. Upward trend estimate for each period and thus provide more transparency rather than the averaged trends for the period 2005-2010. Use the regression analysis, "Curve estimation", trends and find the most appropriate graphs. Regression analysis results are given in the tables below.

For the period January 2005 to October 2008, there is a tendency incremental of loans, (Table 4). This trend is confirmed statistically by the Fisher criterion “F”. The positive sign of the regression coefficient, 0.088, shows that for this period the problematic loans increased on average from one quarter to another by 8.8%. By observing the chart we see that the value of the first survey is far from the average trend. This value corresponds to the first quarter of 2005. At the end of 2004 was privatized Saving Bank (Raiffeisen Bank) and removed restrictions on its lending. This brings significant increase of the credit offer, which brought reduction ratio, loans to total loans. So the first observation value represents the value of the last of a series of data, where loans were high.

![Graph 5. The tendency of the problematic credit](image-url)
## Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>.882&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.779</td>
<td>.768</td>
<td>1.73615</td>
</tr>
</tbody>
</table>

* a. Predictors: (Constant), Time

### Coefficients<sup>a</sup>

<table>
<thead>
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<th>Model</th>
<th>Unstand. Coefficients</th>
<th>Standard. Coefficients</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>1</td>
<td>-0.092</td>
<td>.748</td>
</tr>
<tr>
<td>Time</td>
<td>0.469</td>
<td>0.055</td>
</tr>
</tbody>
</table>

* a. Dependent Variable: Risk

Table 3. Regression analysis

---

### Model Summary and Parameter Estimates

#### Dependent Variable: Risk

<table>
<thead>
<tr>
<th>Equation</th>
<th>Model Summary</th>
<th>Parameter Estimates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear</td>
<td>R Square</td>
<td>F</td>
</tr>
<tr>
<td></td>
<td>.322</td>
<td>5.706</td>
</tr>
</tbody>
</table>

The independent variable is Time.

---

![Risk Graph](image)

Table 4. Regression analysis results for 2005 - second quarter 2008
For the period October 2008-September 2010, showy tendencies highlighted in the report increased loans to total loans, averaging 106.2% from one quarter to another, (Table 5).

Results show that global economic and financial crisis has had significant impact on the deterioration of the quality of banking portfolio. Pronounced upward trend established through the Fisher test. Global economic and financial crisis led to a reduction of incremental rhythms offered loans and the deterioration of the macroeconomic situation in the country. This caused sharp increase in the extent of nonperforming loans 106.2% from one quarter to another, compared with 8.8% average growth before the crisis. This fact proves that the period of deterioration of macroeconomic indicators significantly reduced lending activity and emphasize problematic credit cycle, they are low at the stage of economic expansion, and grow significantly in the period of reduced economic growth.

Model Summary and Parameter Estimates

<table>
<thead>
<tr>
<th>Equation</th>
<th>Model Summary</th>
<th>Parameter Estimates</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>R Square</td>
<td>F</td>
</tr>
<tr>
<td>Linear</td>
<td>.973</td>
<td>256.005</td>
</tr>
</tbody>
</table>

The independent variable is Time

![Graph showing linear relationship between Risk and Time](image)

Table 5. Regression analysis results for the period 2008 third quarter - third quarter 2010

5. CONCLUSIONS AND RECOMMENDATIONS

5.1. Conclusions
Loans increased substantially due to the negative effects of the financial crisis and economic turmoil.
Global economic and financial crisis led to a reduction of incremental credit rhythms offered, in terms of the existence of uncertainty in financial markets in the world, the crisis of confidence among the leading operations in these markets, the lack of liquidity and the bleak prospects for global economic growth. Reduce incremental rhythms of the credit, an average of 50%, (Graph 4), led to increased non-performing loans ratio to total loans provided by our banking system.

The crisis led to a deterioration of macroeconomic indicators, which negatively affected the deterioration of the microeconomic environment where individuals develop their activities and businesses. Growth rate ALL / EUR, increased unemployment, reduced incomes from remittances brought worsening financial situation of individuals and families being reflected in increased access to loans taken dishonor. On the other side, businesses had significant difficulties associated with the reduction and profit or their bankruptcy. Businesses had problems to be financed by the banking sector due to the crisis, they also were faced with external demand reduction as a result of declining exports and increased financing costs due to public debt. All this led to increased non-payment of loans taken.

In the period of slowing economic growth increases the possibility of deteriorating credit grade borrowers, especially lower grades of classification. This makes incremental rhythms loans are larger in this period. The upward rhythms were 8.8% and 106.2% pre-crisis after crisis. (Graph 6).

One element to be noted is that the economic crisis led to a reduction of income from remittances. Lending to real estate occupies a significant part of GDP, and moreover it constitutes the majority of loans offered to individuals. So the deterioration of income from remittances has led directly to the deterioration of non-performing loans ratios.

![Graph showing the relationship between bad credit and total credit before crisis. The equation is y = 0.088t + 2.448, with R² = 0.322. The graph covers the period from 2005-QII to 2008.](image)
The data to draw the graph from Albanian Bank

**Graph 6. The tendency of bad credits before and after the crisis**

5.2. Recommendations

- Based on forecasts of macroeconomic indicators, the deterioration of portfolio quality indicators banking is expected. Therefore, banks seem to establish sufficient reserves for the risk of loan losses. Relying on the portfolio of loans banks have to identify clients with problems of temporary and surmountable by creating policies to support and increase the likelihood of payment. As for clients who are assessed with low chance of repayment of the loan, banks must follow legal procedures for the execution of guarantees and collateral to recover a greater amount of the loan.

- For new loans based on the experience of banks with problems faced in the loan portfolio and the reasons it is necessary to have a better distribution sector and a more reasonable balance between public and private projects, and between business enterprises or families, between forms of giving credit in All or in foreign currency etc. being directed lending in order to minimize the exposure of banks to more problematic forms and low concentration in its entirety.

- Since the banking system appeared positive feedback on the macroeconomic situation in the country, banks should stress the stress-test analysis. This analysis assesses the various scenarios the main macroeconomic indicators and based on the probability of occurrence of these scenarios take measures to cope with the loss of various banking portfolio. Banks should strive to have more accurate analysis, more frequent and performed on more advanced forecasting programs.
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IMPROVING THE ATTRACTION OF EUROPEAN UNION FUNDS
IN THE REGIONS OF LATVIA

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Abstract

Stimulation of the development of the territory of the region has been applied in most EU Member States since the 50-ies of the 20th century; the development of the territories is based on the regional policy. EU funds are a tool of implementing the regional policy, with the help of which, applying stimulating investment implementation methods, the economic growth of the country and its regions and certain industries is ensured.

Development levels of the regions differ both between EU Member States and their groups and Latvia. The role of the region in Latvia has changed historically – from a geographical territory to a planning region, whose competence is to enhance the development of the region to reach the average development indicators in EU regarding GDP, the unemployment level and other indicators affecting welfare nowadays.

In Latvia EU funds have facilitated the development of the regions but the distribution of the resources between the regions is significantly different. In the territories where the largest financing of EU funds has been attracted a rapid development has taken place, whereas the socio-economic indicators of the territories of the other regions lag behind, their development differences continue to increase, which is against the EU regional development conceptions and emphases. The present centralised system of introducing EU funds in Latvia has not been absolute to reduce the differences between regions.

The research investigates which interests would be most important for implementing EU funds and which criteria should be used in EU funds distribution for reducing the differences regarding the development of the territories of the regions. The potential evaluation is performed applying the hierarchy analysis method.

Key words: EU funds, hierarchy analysis, improvement of funds introduction

1. INTRODUCTION

Significant social and economic differences between the regions can still be observed in Latvia. The EU funds programming document the Single Programming Document (SPD, 2004) identifies the problems that cause these differences: insufficient provision of qualitative infrastructure, high unemployment level, low entrepreneurial activity, low income level, large proportion of low value added production in economics. The character, the intensity and reasons of these problems are different. With the help of EU funds it was planned to reduce the above mentioned problems in 2004-2006 and 2007-2013 periods.
Table 1. The main indicators characterising the planning regions in Latvia in 2009

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Regions</th>
<th>Riga</th>
<th>Vidzeme</th>
<th>Kurzeme</th>
<th>Zemgale</th>
<th>Latgale</th>
<th>Latvia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Territory size (thou. km²)</td>
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<td>15.2</td>
<td>13.6</td>
<td>10.7</td>
<td>14.5</td>
<td>64.5</td>
</tr>
<tr>
<td>Proportion (%)</td>
<td></td>
<td>16.2</td>
<td>23.6</td>
<td>21.1</td>
<td>16.6</td>
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<tr>
<td>Number of population (mill.)</td>
<td></td>
<td>1.09</td>
<td>0.23</td>
<td>0.3</td>
<td>0.28</td>
<td>0.34</td>
<td>2.26</td>
</tr>
<tr>
<td>Proportion (%)</td>
<td></td>
<td>49</td>
<td>10</td>
<td>13</td>
<td>13</td>
<td>15</td>
<td>100</td>
</tr>
<tr>
<td>Population density/inhabitants/km²</td>
<td></td>
<td>105.6</td>
<td>15.5</td>
<td>22.2</td>
<td>26.3</td>
<td>23.6</td>
<td>35</td>
</tr>
<tr>
<td>Percent against the average in Latvia</td>
<td></td>
<td>302</td>
<td>42</td>
<td>63</td>
<td>75</td>
<td>67</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: author’s calculations based on CSB-a (2009)

The Law on Regional Development of Latvia (Law on Regional Development, 2002) presents planning regions that is a secondary public entity. The largest territorial units in Latvia about which statistical information is collected and analysed are planning and statistical regions. The planning regions in Latvia were established to plan, coordinate and ensure the cooperation of municipalities (Noteikumi, 2009). For accounting purposes, six statistical regions have been established (Par Latvijas...*, 2004). The division into statistical and planning regions is different. Having evaluated the 6 statistical regions and 5 planning regions of Latvia, the author concluded that Riga and Pieriga statistical regions correspond to the territory of Riga planning region, thus in the evaluation of social and economic processes in the regions Riga planning region contains statistical information about Riga and Pieriga statistical regions.

The planning regions of Latvia differ significantly in their acreage (see Table 1). The largest planning region is Vidzeme region, which occupies 23.6% of the total territory; Latgale and Kurzeme regions cover a similar territory - 21-22% of the total area, but Riga and Zemgale regions occupy 16% of the total territory of Latvia.

The largest population density is observed in Riga region. From 2004 till 2009, during the implementation of EU funds the number of population has decreased within the limits of 3-8% in all the regions, but the lowest decrease, in the amount of 0.3%, is in Riga region.

The Gross domestic product (GDP) is the total value of the end product and services produced in the territory of the country over a year. To compare the development level of the territories according to the created economic value, the common GDP indicators in the regions and GDP per capita in actual prices are used.
Table 2. GDP in Latvia and the regions in actual prices in 2004-2008

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Regions</th>
<th>Riga</th>
<th>Vidzeme</th>
<th>Kurzeme</th>
<th>Zemgale</th>
<th>Latgale</th>
<th>Total in Latvia</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP in 2004 (mill. LVL)</td>
<td></td>
<td>5045.3</td>
<td>473</td>
<td>886</td>
<td>480</td>
<td>548</td>
<td>7432.3</td>
</tr>
<tr>
<td>Structure (%)</td>
<td></td>
<td>68</td>
<td>6</td>
<td>12</td>
<td>6</td>
<td>8</td>
<td>100</td>
</tr>
<tr>
<td>GDP in 2008 (mill. LVL)</td>
<td></td>
<td>10 806</td>
<td>10 658</td>
<td>1688</td>
<td>1237</td>
<td>1358</td>
<td>16 156</td>
</tr>
<tr>
<td>Structure (%)</td>
<td></td>
<td>67</td>
<td>7</td>
<td>10</td>
<td>8</td>
<td>8</td>
<td>100</td>
</tr>
<tr>
<td>Base increase, %</td>
<td></td>
<td>214</td>
<td>225</td>
<td>190</td>
<td>258</td>
<td>248</td>
<td>217</td>
</tr>
<tr>
<td>GDP per capita in 2004</td>
<td></td>
<td>4593</td>
<td>1 916</td>
<td>2 841</td>
<td>1 662</td>
<td>1 493</td>
<td>3214</td>
</tr>
<tr>
<td>GDP per capita in 2008</td>
<td></td>
<td>8993</td>
<td>4 143</td>
<td>4 979</td>
<td>4 154</td>
<td>3 471</td>
<td>6493</td>
</tr>
<tr>
<td>Base increase, %</td>
<td></td>
<td>196</td>
<td>216</td>
<td>175</td>
<td>250</td>
<td>232</td>
<td>202</td>
</tr>
</tbody>
</table>

Source: author’s calculations based on CSB-b, 2010

More than half of the GDP is created in Riga region. This fact has been emphasised in the research of K. Špoģis, A. Radže (2007), V. Striķis, K. Špoģis (2002). The authors relate regional differences with the uneven contribution of investment that does not facilitate creating the economic value GDP. EU funds investment in the territories of the regions should be considered investment.

Calculations about GDP differences in Latvia and its regions (see Table 2) allow concluding that:

- in 2008 in Latvia LVL 16.1 billion GDP has been produced in actual prices. In comparison with 2004, when the acquisition of EU funds had only started, the total GDP in Latvia has grown more than twice;
- when comparing the possibilities of regions in creating GDP, in 2008 Riga region produced 67% of the total GDP in Latvia, which indicates to large production concentration. The other regions of Latvia constitute 7-10% of the total GDP contribution;
- when comparing the base increase in 2008 with 2004, it can be concluded that it has grown in all the regions from 1.9-2.6 times, with the fastest growth in Zemgale region – 2.6 times.

In 2008 LVL 6.4 thou. GDP per capita in actual prices have been produced (see Table 2):

- among the regions, the largest indicator can be observed in Riga region – LVL 8.9 thou., in the other regions it lags behind the average in Latvia by 1.3-1.8 times and they are 1.8-2.6 times smaller than in Riga region;
- the base increase of GDP per capita (LVL) in 2008, if compared with 2004, has grown 1.7-2.5 times in all the regions, with the fastest growth in Zemgale region – 2.5 times.
Various EU funds and programmes are available in Latvia. From 1997-2006 they were ISPA, PHARE SAPARD programs and from 2004 they are EU funds: ERDF, ESF, EAGGF, FIFG, CF, EFLA, EZF, with the help of which LVL 1.11 billion have been attracted. In the pre-accession period that lasted from 1997-2006, LVL 111.7 million have been invested in the regions of Latvia. The after-accession period can be split into two periods: 2004-2006 that has already finished and during which LVL 599.7 mill. have been invested and 2007-2013, during which LVL 398.6 million have been attracted to the regions of Latvia and the acquiring of funds is continuing until 2013.


Figure 1. Financing of EU funds and programmes in the regions of Latvia, mill. LVL

The financing introduced by EU funds is significantly different in the regions of Latvia (see Fig. 1). When the amount of financing introduced by EU funds is compared in the regions, in all three periods in total, Riga region has received the largest amount of financing if compared to the other regions of Latvia.

When evaluating the amount of financing introduced by EU funds in the regions of Latvia, the following connections have been observed:

The concentration of EU funds in Riga region has taken place during all the periods of introducing EU funds.

The introduced financing has allowed Riga planning region to demonstrate more effective GDP production per 1 Lats invested by an EU fund.

Interconnections of EU funds introduction indicate to the deficiencies of the EU funds introduction system, facilitating the development of only one region and ignoring the needs of the other regions.
Research aim - to evaluate the improvement of EU funds implementation in the regions of Latvia by applying the hierarchy analysis method.

Research hypothesis - Improvement of EU funds implementation will enhance the development of the regions.

To achieve the aim, the following objectives were set:

1. With the help of the hierarchy analysis method, to find out experts’ opinions about the most effective type of implementing EU funds for the enhancement of regional development.

2. To simulate the possibilities of distributing financing of EU funds in regional programmes.

2. MATERIALS AND METHODS

To organise and process experts’ evaluation, the hierarchy analysis method offered by the American economist T. Saati (1980) has been used. T. Saati method is used for making complex decisions, determining the features of complexity – resource capacity, longevity and uniqueness. For the hierarchy analysis results to be considered objective, a special attention should be paid to the basic principles of logical analysis – establishing the hierarchy, determining precise priorities, the analysis should be logically reconciled (Rivža...* 1999).

With the help of the hierarchy analysis method the elements of the problem are systematically grouped dividing the problem into simple parts. The experts compared the simplified parts by pairs and determined the degree of importance for the problem elements based on the hierarchy principle. The hierarchy developed in the research (see Table 4) consists of 4 levels:

at Level 1 the aim has been set – opportunities of EU funds for regional development,

at Level 2 criteria groups are offered, whose importance the experts evaluated,

at Level 3 the types of EU funds investment support are grouped, the grouping is performed based on the logical criteria of the assignment variant,

at Level 4 alternatives for allocating EU funds financing are developed and they have to be evaluated against the criteria of Level 2 and Level 3 group.

The 5 alternative models for introducing EU funds (Level 4, Table 3) offered for experts’ evaluation comprise different opportunities for the regions – starting from complete independence in introducing EU funds and finishing with total integration at the national level. Experts had to fill in the designed survey matrixes to express their opinion. The evaluation scale of 1-9 of the degree of importance was used when requesting experts to fill in the tables.

After the survey matrixes were filled in, priority vectors for each of the hierarchy elements were calculated, which indicates to their significance against every criterion of a higher hierarchy level and that numerically characterises every form of improving the EU funds.

The 5 alternative models for introducing EU funds (Level 4, Table 3) offered for experts’ evaluation comprise different opportunities for the regions – starting from complete independence in introducing EU funds and finishing with total integration at the national level. Experts had to fill in the designed survey matrixes to express their opinion. The evaluation scale of 1-9 of the degree of importance was used when requesting experts to fill in the tables.
After the survey matrixes were filled in, priority vectors for each of the hierarchy elements were calculated, which indicates to their significance against every criterion of a higher hierarchy level and that numerically characterises every form of improving the EU funds.

### Table 3. Hierarchy of the evaluation criteria

<table>
<thead>
<tr>
<th>Level 1</th>
<th>Opportunities of EU funds for the development of regions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 2</td>
<td>State interests</td>
</tr>
<tr>
<td>Level 3</td>
<td>Balanced regional development</td>
</tr>
<tr>
<td></td>
<td>Balanced development of the industries</td>
</tr>
<tr>
<td></td>
<td>Development of entrepreneurship</td>
</tr>
<tr>
<td></td>
<td>Development of human resources</td>
</tr>
<tr>
<td></td>
<td>Development of the infrastructure and services</td>
</tr>
<tr>
<td></td>
<td>Effective support administration</td>
</tr>
</tbody>
</table>

| Level 4 | Allocating financing based on the priority areas/industries defined in the country | Allocating financing corresponding to the development indices of the regions | Allocating financing to municipalities as provided by the defined criteria | Allocating integrated financing | Maintaining the present situation |

*Source: author’s construct*
To obtain the values of the priority vector co-ordinate, the eigenvector groups have been calculated (see Formula 1) and the co-ordinates of priority vectors have been obtained by normalizing the results. According to Saati (1980), the geometrical mean has been used for normalizing. The geometrical mean is calculated multiplying the elements of every row and finding the n-degree root, in which n is the number of elements. The obtained groups of figures have been normalized dividing every figure with the sum of all figures. Calculation algorithms of 3x3 matrix elements have been used as an example (see Table 4).

Table 4. Priority vector calculation stages

<table>
<thead>
<tr>
<th>The given matrix</th>
<th>Eigenvector calculation</th>
<th>Priority vector calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td>( A_1 )</td>
<td>( \frac{W_1}{W_1} \frac{W_1}{W_2} \frac{W_1}{W_3} )</td>
<td>( \sqrt[3]{\frac{W_1}{W_1} \times \frac{W_1}{W_2} \times \frac{W_1}{W_3}} = a_1 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>( \frac{a_1}{S} = x_1 )</td>
</tr>
<tr>
<td>( A_2 )</td>
<td>( \frac{W_2}{W_1} \frac{W_2}{W_2} \frac{W_2}{W_3} )</td>
<td>( \sqrt[3]{\frac{W_2}{W_1} \times \frac{W_2}{W_2} \times \frac{W_2}{W_3}} = a_2 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>( \frac{a_2}{S} = x_2 )</td>
</tr>
<tr>
<td>( A_3 )</td>
<td>( \frac{W_3}{W_1} \frac{W_3}{W_2} \frac{W_3}{W_3} )</td>
<td>( \sqrt[3]{\frac{W_3}{W_1} \times \frac{W_3}{W_2} \times \frac{W_3}{W_3}} = a_3 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>( \frac{a_3}{S} = x_3 )</td>
</tr>
</tbody>
</table>

1

W – evaluation intensity,

a – geometrical evaluation of the comparable elements,

x – priority vector of the comparable elements

Source: author’s created based on Saati, 1980

\[ S = \sum_{i=1}^{3} a_i \quad (1) \]

In the next hierarchy analysis step the logical coordination of the obtained results was tested. It allows evaluating the correctness of the independently performed comparisons. To perform the coordination proportion, additional intermediate calculations had to be performed (see Formulas 2 and 3):

\[ \lambda_{\text{max}} = \left( \frac{W_1}{W_1} + \frac{W_2}{W_1} + \frac{W_3}{W_1} \right) \times x_1 + \left( \frac{W_1}{W_1} + \frac{W_2}{W_2} + \frac{W_3}{W_2} \right) \times x_2 + \left( \frac{W_1}{W_3} + \frac{W_2}{W_3} + \frac{W_3}{W_3} \right) \times x_3, \]

where \( \lambda_{\text{max}} \) - a special coefficient

\[ \text{SI} = \frac{\lambda_{\text{max}} - n}{n - 1}, \quad (2) \]

where SI – coordination index,
n – number of comparable elements

SA=SI/SV, \hspace{1cm} (3.)

where \( SA \) – coordination proportion,

\( SV \) – potential coordination, which depends on the size of the matrix (see Table 5).

### Table 5. Average coordination evaluation

<table>
<thead>
<tr>
<th>Size of the matrix (number of comparable indicators)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potential coordination (SV)</td>
<td>0</td>
<td>0</td>
<td>0.52</td>
<td>0.89</td>
<td>1.11</td>
<td>1.25</td>
<td>1.35</td>
<td>1.40</td>
<td>1.45</td>
<td>1.49</td>
</tr>
</tbody>
</table>

To find out the homogeneity of the variations of experts’ opinions, variation coefficients were calculated (Formula 4):

\[ V = \frac{\sigma}{\bar{x}} \times 100\% \], \hspace{1cm} (4.)

where \( V \) – variation coefficient

\( \sigma \) – standard deviation

\( \bar{x} \) – average value.

8 experts were selected to evaluate the most effective type of EU funds introduction:

Deputy of the State Secretary of the Ministry of Finance of the Republic of Latvia, manager of the Leading Institution of EU Structural Funds and Cohesion Fund.

Deputy of the 9th Saeima, former Minister of Education and Science, economist of Latvia, professor of LUA, academician of the ASL and politician, member of the Farmers’ Party.

State Secretary of the Ministry of Regional Development and Local Government.

Specialist in the project department of Zemgale planning region. The project department of the planning region administration develops, manages and coordinates projects and attracts financial resources to regional development.

Municipality project department manager of Jelgava territory. The project department develops, manages and coordinates projects and attracts financial resources for the development of the territory.

Chairperson of the Board of “Ziedi P” Ltd., manages ~2700 ha in Zemgale region, the main business directions – growing crops, rapes, dairy farming. The enterprise has actively involved in acquiring EU financing since 2002. Until September 2010, 12 projects have been implemented; in total, public financing has been received in the amount of LVL 856 430, incl. SAPARD programme (in 2002-2004) - 6 projects, structural funds (in 2004-2008) – 3 projects, ELFLA (in 2007-2010) – 3 projects.
Board chairperson of Bauska territory enterprise “Bauskas alus” Ltd. The brewery “Bauskas alus” was founded in 1981. The enterprise has been constantly modernizing itself and has been working on improving the product quality to provide the consumers with the highest quality product. In 2004-2006 it has attracted LVL 249 484 of the public financing of EU funds. The money has been invested in upgrading private infrastructures, the production process and the product, as required by the market standards and the standards regarding environment, work security and consumer rights protection.


Economists of Latvia V. Voronovs, I. Petrova, E. Račko (2006) have mentioned the undeveloped infrastructure, low efficiency of agriculture, differences of the social and economic development of the region as the most painful aspects. The resources from EU funds are directing at addressing exactly these matters.

The mentioned significant success factors of Latvia as a single region strongly affect the development of certain regions in the country. When analysing the absolute amount of EU funds financing based on the largest and the smallest indicator, V. Voronovs, I. Petrova, E. Račko (2006) conclude that the economically strongest region in Latvia attracts larger financing, thus creating even larger mutual development differences among the regions of Latvia, which does not facilitate the competition of Latvia as a single region at the global level. The findings of the research by “PKC” Ltd. about the impact of the EU funds period 2004-2006 on the regional development is similar (2008). State interests in improving the EU funds attraction are related with the overall development of the country and its ability to compete globally and integrate successfully.

In the author’s opinion, observing different interests in introducing EU funds financing is an important factor which is the social and economic basis of Latvia as a single EU region, when offering the experts to evaluate the Level 2 hierarchy group, therefore it is divided into the following criteria groups:

- state interests,
- regional interests,
- municipality interests,
- businessmen’s interests,
- inhabitants’ interests.

After summarising experts’ opinions about the type of improving the EU funds attraction and mutually comparing the various criteria groups (see Fig. 2), it can be observed that experts have valued highest the “State interests” (0.26), which is followed by “Businessmen’s interests” (0.20), “Inhabitants’ interests” (0.19), and “Regional interests” (0.18). “Municipality interests” has received the lowest evaluation (0.17).
When calculating the group variation coefficient for criteria groups (see Fig. 2), it can be observed that “Businessmen’s interests” has the highest (91%), then “Inhabitants’ interests” is 74%, “Municipality interests” is 65%, but “State interests” is 59%. The high variation coefficients approve of the differences of experts’ opinions. The experts’ evaluation about the necessity to improve the EU funds introduction is homogeneous observing “Regional interests” – 41%.

At Level 3 of the hierarchy analysis the criteria groups are established based on the logical criteria of the variants, which are determined in EU funds introduction programmes SPD PP (2004) and VSID PP (2007), as well as based on basic macroeconomic principles.

Regional development is a component of the country’s development policy, therefore at the national level it is necessary to ensure the regional development as required by the national development programmes and goals. EU funds is a tool that is employed to achieve the economic goals of the country. The author of the present paper had included the following criteria groups in Level 3:

- balanced regional development,
- balanced development of the industries,
- development of entrepreneurship,
- development of human resources,
- development of the infrastructure and services,
- effective support administration.

In the state interests group the experts stated the development of entrepreneurship (0.22) as the most important criterion that should be supported with the help of improving the EU funds implementation, then follow balanced regional development (0.21), development of the infrastructure and services (0.21). Effective support administration has been evaluated as insignificant (0.05).
When calculating the variation coefficient of the experts’ opinions on the types of improving the EU funds introduction, based on the state interests, the largest difference in experts’ opinions - 83% and 82% - is about the balanced regional development and the effective support administration, which indicates high dispersion around the mean indicator. Experts’ opinions are unequivocal about the development of entrepreneurship (56%) and the development of the infrastructure and services (58%).

In the 2007-2013 VSID (2007) planning document the balanced development of the territory factor is mentioned as the horizontal priority, within the framework of which every project is analysed and evaluated based on the largest socio-economic contribution to the territories of the regions of the country; the evaluation criteria have been worked out by the Ministry of Regional Development and Local Government.

Source: author’s research and construction

Figure 3. Experts’ evaluation based on the assessment of the type of improving EU funds regarding the state interests

Evaluating the need for improving the EU funds introduction, based on "Regional interests" (see Fig. 4), experts evaluated attracting investment with the highest priority vector (0.40) as the most important criterion for regional development. It is followed by the population retention and attraction criterion (0.27), but the lowest evaluation is assigned to maintaining attracting cultural environment criterion (0.10).
When calculating and comparing variation coefficients of experts’ opinions about improving EU funds attraction regarding the regional interests (see Fig. 4), the highest coefficient can be observed for maintaining attracting cultural environment (76%), the lowest – attracting investment (46%), which indicates to the uniformity of experts’ opinions.

In the “Assessment of the Impact of EU Structural Funds on the Regional Development” (2008) of the 2004-2006 EU funds introduction period it has been concluded that interconnections can be observed between the total absolute distribution of financing and the socio-economic level of the region. As it has been concluded in the SPD assessment in 2004-2006 period, the differentiation of support intensity is insufficiently utilized, as well as the planning regions had not defined the number of particular priorities because regional needs are significantly different.

In the period of 2007-2013 the mutual coordination of the distribution of EU funds financing mechanism is ensured by the leading institution - the Ministry of Finance. It is planned to facilitate a possibly more complete provision of the activity programme coordination with the help of the concentrated, centralised introduction model, concentrating information about all activity programmes in one place. However, the differences of the development levels of the regions and the rapid population migration offer grounds for questioning the effectiveness of the centralised introduction model.

In the planning period of 2007-2013 there exist two types of selecting EU Structural Funds and Cohesion Fund co-financed projects: limited project selection and an open tender. The limited project selection as a type of selecting EU Structural Funds and Cohesion Fund co-financed projects is a procedure for project selection developed by the industry ministry to implement the policy in a particular area of investment for a limited range of beneficiaries who are invited to submit the project application. In this case all project proposals that correspond to the project submission criteria are approved and financed.
An open project tender as a type of selecting projects co-financed by structural funds anticipates a competition among project applications, as a result of which projects that are co-financed from the EU funds resources are selected. In the author’s opinion, this type of introducing EU funds does not allow solving the typical local problems of the regions, municipalities and businessmen because the terms of the tender previously provide for the problems to be solved, the anticipated outcomes and every project applicant tries to adjust its needs to the tender requirements. The centrally offered type of introducing EU funds and the problems to be solved sometimes have already lost their topicality when the tender is announced.

At Level 4 the author has determined the alternatives for improving the introduction of EU funds, which should be evaluated against twenty-six criteria of Level 3:

- allocating financing based on the priority areas/industries defined in the country,
- allocating financing corresponding to the development indices of the regions,
- allocating financing to municipalities as provided by the defined criteria,
- allocating integrated financing,
- maintaining the present situation.

**Allocating financing based on the priority areas/industries defined in the country** means that priority areas/industries are defined as provided by the country’s long-term strategic development documents and the EU funds financing is concentrated in these areas/industries. In the present national strategic planning documents - NDPL (medium-term) and the strategy “Latvia 2030” - priority areas/industries are not defined, therefore it is problematic to plan the development of areas/industries and the required amount of financial resources to solve the problems of the area/industry. As a result a situation occurs when EU funds resources are fragmented and planned for all industries, not specifying the priority areas.

**Allocating financing corresponding to the development indices of the regions** means that regions with a lower development index receive a larger amount of EU funds financing to reduce the differences. Another important factor is the decentralised introduction of EU funds in the regions. The independence of regional administration in the distribution of EU funds financing would offer the opportunities to resolve problems based on the internal development needs of the region, not on the viewpoint at the ministry level.

**Allocating financing to municipalities as provided by the defined criteria** means that EU funds are allocated to municipalities based on particular criteria:

- the number of the population,
- tax revenue,
- the number of enterprises,
- and others.

Municipalities define their priority areas and industry activities for introducing EU funds financing.

**Allocating integrated financing** is connected with allocating financing partly based on the priority areas/industries defined in the country, partly based on the development indices of the regions and partly based on the municipality developed allocation criteria. The alternative variant of introducing EU funds financing would solve more effectively the existing problems in the industry, region and
municipality, problems which change and cannot be anticipates 3-4 years in advance as it is planned for the 2007-2013 period.

The priorities of maintaining the present situation are divided between particular ministries; the planning of the use of the funds, centralised development of documentation is at the level of the responsible ministry; every ministry has its own agency for introducing funds. The Ministry of Finance operates as the coordinating institution; very many activities and measures are supported, which is fragmented; the financing of the funds is directed at solving short-term problems and does not allow concentrating financing for the long-term development of the country and has not given the planned outcome in reducing regional differences.

According to the experts’ evaluation, it is best to ensure state interests with the integrated financing alternative model (evaluation 0.33) (see Fig. 5). The other alternatives for introducing EU funds financing are evaluated within the margins from 0.11-0.26. The fluctuations of the variation coefficients of experts’ opinions indicate to differences of the opinions. The development of the infrastructure and services has the lowest variation coefficient – 49%, then comes the development of entrepreneurship (52%), while the other dispersion indicators fluctuate around the mean value within the margins of 55-67%.

Source: author’s research and construction

Figure 5. Experts’ evaluation of the alternatives of introducing EU funds, regarding the criteria of the group “State interests”

According to the experts, regional interests (see Fig. 6) can be ensured utilizing the integrated financing alternative in introducing EU funds (value 0.33). The other alternatives have received the evaluation within the margins of 0.12-0.21. Criteria of regional interests are evaluated within the margins of 0.30-0.35. The experts have admitted attracting investment (0.35) and the socio-economic development of the region (0.34) to be most important in the integrated financing model. The lowest variation coefficient of experts’ opinions is assigned to attracting investment (39%), the variation coefficients of the other experts’ opinions is above 52%, which indicates to a variety of opinions.
Figure 6. Experts’ evaluation of the alternative of introducing EU funds, regarding the criteria of the group “Regional interests”

Recommendations for improving EU funds financing. From the analysis of the conclusions and opinions of scientific research of the various authors, taking into account the experts’ opinions and the results of the hierarchy analysis method it is possible to establish two variants for introducing EU funds, which would facilitate reducing the regional differences (see Fig. 7).

Figure 7. Variants for reducing regional differences using the EU funds financing

Integrated allocation of EU funds financing and availability of financing. In the research of different authors and in the assessment of the impact of 2004-2006 EU funds on the regional development, an uneven distribution of EU funds financing among the planning regions of Latvia is stated. The performed calculations approve that the economically strongest region has attracted the largest part of financing. In the introduction of EU funds in the future a system where the less developed territories of the country should be preferred when allocating financing should be developed.

The present system for introducing EU funds, which is based on the principle of less developed territories, anticipates the amount of national financing of up to 60% for less developed territories. However, this support mechanism has not been sufficient to reduce regional differences.
The author of the paper offers to introduce a type of project implementation – regional programmes in the following 2014-2020 period. Practically calculating the benefits of the planning regions, using the regional programmes, the author of the paper used the types and amount of the distribution of the financing of 2007-2013 period.

### Table 6. Present planned and potential distribution of EU funds in 2007-2013

<table>
<thead>
<tr>
<th>Type of introducing EU funds</th>
<th>Distribution of financing</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Current</td>
<td>Potential</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Amount of financing (mill. LVL) Structure (%) amount of financing (mill. LVL) Structure (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limited selection of project applications</td>
<td>2 514.6</td>
<td>79</td>
<td>1 114</td>
</tr>
<tr>
<td>Selection from an open project tender</td>
<td>668.3</td>
<td>21</td>
<td>954.8</td>
</tr>
<tr>
<td>Regional programmes</td>
<td>0</td>
<td>0</td>
<td>1 114</td>
</tr>
<tr>
<td>Total:</td>
<td>3 182.9</td>
<td>100</td>
<td>3 182.9</td>
</tr>
</tbody>
</table>

*Source: author’s calculation based on VSID (2007)*

As the calculations in Table 6 present, the total distribution of EU funds financing of 2007-2013 is as follows: it is planned to introduce 79% of the total planned financing through the limited project selection type and 21% of the total planned financing is planned through the open project tender type (VSID, 2006). In the author’s opinion, the type of the distribution of financing should be as follows: 35% is introduced through the type of limited project applications, 30% - through the open project tender and 35% of the EU funds financing would be directed through the regional programmes. Regions would plan this financing and acquire it according to the decentralisation principle, taking into consideration the territory development plan and the needs during the entire planning period.

Until July 30, 2010 in total, EU funds project agreements for the amount of LVL 1 741.1 mill. have been signed. To July 15, 2010 project agreements that are directly directed at the regional development comprise LVL 398.6 mill., which is 23% of the total amount of the signed agreements. In the author’s opinion, if for regional programmes it were 35% of the total amount, the total should be LVL 609.4 mill.

The author has performed preliminary calculations (see Table 7) if the distribution of EU funds had happened based on the regional principle, which would be 35% of the total amount of EU funds. The amounts of the signed project agreements in the regions and in Latvia in total were used for the calculations.

If the financing for the regions were 35% of the total EU funds financing, which is calculated based on the agreements signed to July 30, 2010 and if the distribution among the regions stayed at the same level, the largest increase would be observed in Latgale region (55%), in Kurzeme it would grow by 53%, in Vidzeme – by 49%. The smallest increase would be for Riga region – 39%. On average financing for all the regions would grow by 53%.
If the financing of regional programmes were distributed equally proportionally to all the regions, 20% to every region, it would decrease by 44% in Riga region, but increase 3-3.3 times in Vidzeme and Zemgale regions; it would increase by 70% in Kurzeme region and by 63% in Latgale region.

If the financing of regional programmes were distributed based on the number of population, the percentage distribution among the regions would be larger for Riga region – 48% of the total financing, in the other regions it would fluctuate between 10-15%. In comparison with the present amount of financing, the largest increase of financing based on the number of population in the regions would be observed in Zemgale region – by 89%, by 74% in Vidzeme region, by 60% in Riga region, by 24% in Latgale region, but the lowest increase would be observed in Kurzeme region – by 14%.

If the financing of the regional programmes were distributed based on the size of the territory, the distribution of financing would be even in all the regions within the margins of 16-22%. Comparing with the present distribution of financing, for Riga region it would decrease by 78% but in the other regions it would increase 1.8-3.9 times.

Table 7. Signed project agreements in the regions and the potential financing distribution in the regional programmes on July 30, 2010

<table>
<thead>
<tr>
<th>Present and anticipated amount of EU funds financing</th>
<th>Regions</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Riga</td>
<td>Vidzeme</td>
</tr>
<tr>
<td>Present signed project agreements in the regions</td>
<td>175.5</td>
<td>36.6</td>
</tr>
<tr>
<td>(mill. LVL)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structure (%)</td>
<td>44</td>
<td>9</td>
</tr>
</tbody>
</table>

| Anticipated 35% of the total in Latvia                |       |       |       |       |       |       |
|                                                       | 243.8 | 54.8 | 109.6 | 60.9 | 115.8 | 609.4 |
| Structure (%)                                        | 44   | 9     | 18    | 10    | 19    | 100   |
| Increase in comparison with the present situation (%) | 39   | 49    | 53    | 50    | 55    | 53    |

| Regional programmes based on the principle of equality (mill. LVL) |       |       |       |       |       |       |
|                                                                   | 121.8 | 121.8 | 121.8 | 121.8 | 121.8 | 609.4 |
| Structure (%)                                                      | 20   | 20    | 20    | 20    | 20    | 100   |
| Increase in comparison with the present situation (%)              | -44  | 332   | 70    | 301   | 63    | 53    |

| Based on the number of population* (mill. LVL)                    | 294.8 | 63.7 | 81.9 | 76.4 | 92.6 | 609.4 |
| Structure (%)                                                      | 48   | 10    | 14    | 13    | 15    | 100   |
| Increase in comparison with                                        | 60   | 74    | 14    | 89    | 24    | 53    |
the present situation (%)

| Based on the size of the territory** (mill. LVL) | 98.3 | 143.6 | 129.5 | 101.1 | 136.9 | 609.4 |
| Structure (%) | 16 | 24 | 21 | 17 | 22 | 100 |
| Increase in comparison with the present situation (%) | -78 | 392 | 181 | 250 | 184 | 152 |

*- number of the population to 2009, **- size of the territory to 2009


CONCLUSION

1. Significant social and economic differences among the regions can be observed in Latvia. The differences are caused by a non-qualitative infrastructure, high unemployment level, low entrepreneurial activity, high proportion of low value added production in economics. It was planned to reduce the mentioned problems with the help of EU funds.

2. In the period of EU funds acquisition the total amount of GDP in Latvia has increased more than twice. If regions are compared, Riga region produces 67% of the total GDP in Latvia and that indicates to a large production concentration; in the other regions the GDP comprises 7-10% of the total in Latvia.

3. The introduced financing of EU funds in the regions of Latvia is significantly different. The concentration of EU funds has occurred in Riga region over all the periods of introducing EU funds and that indicates to the insufficiencies of the EU funds.

4. As a result of the hierarchy analysis for the need to improve EU funds, the experts indicated state interests as most important, concerning the significance, and balanced regional development was admitted to be one of the priorities in the group of state interest criteria. For attracting investment to it, the improvement of the present system for introducing EU funds is required.

5. According to the experts’ evaluation, state interests and regional interests will be better provided by the developed alternative – integrated financing model of introducing EU funds financing, on the basis of which there is: allocating EU funds financing partly based on the support priority areas defined by the country, partly based on the regional development indices, partly based on the municipality developed allocation criteria.

6. Uneven distribution of EU funds financing among the planning regions has been observed. In the future process of introducing EU funds, a system should be developed in which preference for receiving EU funds financing is given to less developed territories of the country. Regional programmes in which regions would plan the amount of financing based on the developed regional development programmes using the decentralisation principle of EU funds and the needs is a potential solution.
REFERENCES


SUSTAINABLE DEVELOPMENT AND SOCIAL RESPONSIBILITY

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Abstract

Sustainable development and social responsibility constitute two of the most debated themes in the literature in the past decades. The emergence and evolution of sustainability as a new policy idea provided business organizations an opportunity to enter the development debate. Social responsibility has become one of the most important drivers of sustainable development. The aims of our paper are to present a concise review of the literature regarding the history of sustainable development and to highlight the connection between sustainable development and social responsibility.

Key words: sustainable development, social responsibility, sustainability, corporate social responsibility, society, community

1. INTRODUCTION

Sustainable development and social responsibility constitute two of the most debated themes in the literature in the last decades. In spite of the fact that sustainable development has different meanings for the diverse groups promoting it (Barraclough, 2001), there is a quasi-unanimous agreement that sustainable development challenges individuals, organizations and states to act upon social, economical and environmental issues in a holistic manner. Reaching an equilibrium among economic growth, social development and environmental protection represents a fundamental issue for human society in the age of globalization.

The emergence and development of sustainability as a new policy idea provided business organizations an opportunity to enter the environmental arena as legitimate participants (Murphy and Bendell, 1999). Especially after the Earth Summit, more and more corporations understood the need for a greater role for business in the development debate (O’Neill, 1999). That is why social responsibility has become one of the most important drivers of sustainable development.

The aims of our paper are to present a concise review of the literature regarding the history of sustainable development and to highlight the connection between sustainable development and social responsibility.

The second chapter of the paper is dealing in short with the history of sustainable development. The relationship between sustainable development and social responsibility is presented in the third chapter. This is followed by final conclusions.

2. A BRIEF HISTORY OF SUSTAINABLE DEVELOPMENT

After the Second World War the world faced complex economical, social and political challenges. The challenge of reconstruction and the challenge of finding sustainable development paths as the number
of nations multiplied were only two of them. In order to meet the diverse humanity’s goals and aspirations the United Nations (UN) established the Brandt Commission on North-South issues, the Palme Commission on security and disarmament issues, and the Brundtland Commission on environment and development. Therefore, the Brandt’s Programme for Survival and Common Crisis and the Palme’s Common Security were followed by the Brundtland Common Future.

In 1972, the UN Conference on the Human Environment aimed to delineate the rights of human family to a healthy environment (e.g., the rights of people to safe water, the rights of people to sound housing, the rights of people to adequate food etc.). The downward spiral of poverty and rapid environmental degradation showed that the emergence of a common concern for the Earth and the interlocked social, demographical, economical and ecological problems (e.g., the increasing world population, the debt crisis, the shortage of jobs, the nuclear disasters etc.) had been justified.

In 1980, the International Union for Conservation of Nature and Natural Resources (IUCN) prepared and published the “World Conservation Strategy: Living Resource Conservation for Sustainable Development” with the advice, cooperation and financial assistance of the UN Environment Programme (UNEP) and the World Wildlife Fund (WWF), and in collaboration with the Food and Agriculture Organization of the UN (FAO) and the UN Educational, Scientific and Cultural Organization (UNESCO). In the first pages of the strategy, M. Kassas, the president of IUCN, M. K. Tolba, the executive director of UNEP, and J. H. Loudon, the president of WWF, stated that the two following features characterized the 1980s:

- the limitless capacity of people for building and creation;
- the global interrelatedness of actions, with its corollary of global responsibility.

The World Conservation Strategy (WCS) aimed “to help advance the achievement of sustainable development through the conservation of living resources” and intended “to stimulate a more focused approach to living resource conservation and to provide policy guidance on how this can be carried out” (IUCN, 1980, p. IV). As a consensus of policy on conservation efforts in the context of world development, the WCS established three key objectives:

- to maintain essential ecological processes and life-support systems;
- to preserve genetic diversity;
- to ensure the sustainable utilization of species and ecosystems.

Starting from the fact that development was defined as “the modification of the biosphere and the application of human, financial, living and non-living resources to satisfy human needs and improve the quality of human life” the WCS considered that in order to be sustainable, development “must take account of social and ecological factors, as well as economic ones; of the living and non-living resource base; and of the long term as well as short term advantages and disadvantages of alternative actions” (IUCN, 1980, p. 2).

The well-known Report of the World Commission on Environment and Development (WCED) “Our Common Future” or the Brundtland Report was published in 1987 by the UN. As a global agenda for change, the report:

- proposed long-term strategies for achieving sustainable development by the year 2000 and beyond;
- promoted a greater cooperation between countries at different stages of economical and social
development that took into account the interrelationships between people, resources, environment and development;

- indicated specific ways by which the international community could deal more effectively with environment concerns;
- helped to define the shared perceptions of long-term environmental issues and the appropriate efforts needed to address successfully the problems of protecting the environment.

According to the Brundtland Report “sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs” and “contains within it two key concepts:

- the concept of ‘needs’, in particular the essential needs of the world’s poor, to which overriding priority should be given; and
- the idea of limitations imposed by the state of technology and social organization on the environment’s ability to meet present and future needs” (WCED, 1987, p. 43).

At the core of the “sustainable development” concept there is “the need to consider “three pillars” together: society, the economy and the environment” (Strange and Bayley, 2008, p. 27). This means that human beings, habitats and economic systems are strongly interconnected and constitute an inseparable whole.

In 1991, the UN Conference on Environment and Development/the Earth Summit adopted the Rio Declaration on Environment and Development. Representatives from 179 countries of the world agreed upon the Rio Declaration which contains 27 principles such as:

- Human beings are at the centre of concerns for sustainable development (Principle 1).
- States have the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies (Principle 2).
- The right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations (Principle 3).
- Environmental protection shall constitute an integral part of the development process (Principle 4).
- States must cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth’s ecosystem (Principle 7).
- States should reduce and eliminate unsustainable patterns of production and consumption (Principle 8).
- Environmental issues are best handled with the participation of all concerned citizens (Principle 10).
- States should cooperate to promote a supportive and open international economic system that would lead to economic growth and sustainable development in all countries (Principle 12) etc.

Also, these representatives adopted the Agenda 21, a comprehensive plan of action in every area in which human impacts on the environment, which was divided into the following four main sections: (i) Social and Economic Dimensions; (ii) Conservation and Management of Resources for
Development; (iii) Strengthening the Role of Major Groups; (iv) Means of Implementation. According to the agenda “the international economy should provide a supportive international climate for achieving environment and development goals by:

(a) Promoting sustainable development through trade liberalization;
(b) Making trade and environment mutually supportive;
(c) Providing adequate financial resources to developing countries and dealing with international debt;
(d) Encouraging macroeconomic policies conducive to environment and development.” (UN Agenda 21, 1991)

In its “Shaping the 21st Century: The Contribution of Development Co-operation” the Organisation for Economic Co-operation and Development (OECD) recommended that “there should be a current national strategy for sustainable development, in the process of implementation, in every country by 2005, so as to ensure that current trends in the loss of environmental resources- forests, fisheries, fresh water, climate, soils, biodiversity, stratospheric ozone, the accumulation of hazardous substances and other major indicators- are effectively reversed at both global and national levels by 2015” (OECD, 1996, pp. 10-11). In 2001, OECD published “Strategies for Sustainable Development: Guidance for Development Co-operation”. The document underlined that a strategy for sustainable development should comprise “a co-ordinated set of participatory and continuously improving processes of analysis, debate, capacity-strengthening, planning and investment, which seeks to integrate the short and long term economic, social and environmental objectives of society – through mutually supportive approaches wherever possible –and manages trade-offs where this is not possible” (OECD, 2001, p. 25), based on the following key principles:

- people-centered;
- consensus on long-term vision;
- comprehensive and integrated;
- targeted with clear budgetary priorities;
- comprehensive and reliable analysis;
- incorporate monitoring, learning and continuous improvement;
- country-led and nationally-owned;
- high-level government commitment and influential lead institutions;
- building on existing processes and strategies;
- effective participation;
- link national and local levels;
- develop and build on existing capacity.

In 2002, the World Summit on Sustainable Development was organized in Johannesburg by the UN. N. Desai, the secretary-general of the summit, stated that sustainable development “has emerged as a new paradigm of development, integrating economic growth, social development and environmental
protection as interdependent and mutually supportive elements of long-term development” and “emphasizes a participatory, multi-stakeholder approach to policy making and implementation, mobilizing public and private resources for development and making use of the knowledge, skills and energy of all social groups concerned with the future of the planet and its people” (UN, 2002, p. 1).

That is why sustainable development requires the full involvement of all social, political and economic actors such as public policy makers, consumers, producers, educators, scientists, communicators or community activists. The Johannesburg Declaration on Sustainable Development reaffirmed the commitment to achieving sustainable development and to building a humane, equitable and caring global society.

The European Council has often affirmed that sustainable development constitutes a key principle of the Lisbon Strategy. In essence, according to the Council, sustainable development (Council of the European Union, 2005, p. 28):

- aims at the continuous improvement of the quality of life on earth of both current and future generations;
- is about safeguarding the earth’s capacity to support life in all its diversity;
- is based on the principles of democracy and the rule of law and respect for fundamental rights including freedom and equal opportunities for all;
- brings about solidarity within and between generations;
- seeks to promote a dynamic economy with full employment and a high level of education, health protection, social and territorial cohesion and environmental protection in a peaceful and secure world, respecting cultural diversity.


One year later, the Commission adopted “Towards a global partnership for Sustainable Development”. The Sixth Environment Action Programme of the European Community was adopted in 2002 and set out the framework for environmental policy-making in the European Union for the period 2002-2012. The programme introduced the concept of Thematic Strategies that focused on an integrated approach and on implementation issues. The Thematic Strategies cover the following seven domains: air, waste prevention and recycling, marine environment, soil, pesticides, natural resources and urban environment. In 2005, the Council approved the “Guiding Principles for Sustainable Development” such as:

- promotion and protection of fundamental rights;
- solidarity within and between generations;
- open and democratic society;
- involvement of citizens;
- involvement of businesses and social partners;
policy coherence and governance;
- policy integration;
- use best available knowledge;
- precautionary principles;
- make polluters pay.

This year OECD launched “Towards Green Growth”, a document that shows that “sustainable development provides an important context for green context” (OECD, 2011, p. 5). As green and growth can go hand-in-hand the OECD aims to develop a green growth strategy.

At the national level many countries around the world have created and implemented various environmental programs and plans. In 1989, the Parliament of Netherlands approved the National Environmental Policy Plan (NEPP) in order to achieve a sustainable, high-quality environment within 25 years. Being revised every four years, the plan provides the framework to take positive environmental action for sustainability. The strategy of the Dutch Environmental Ministry has taken into account:

- eight “themes” of general category comprising all the environmental problems: acidification, eutrophication, dehydration of the water table, dispersion of uncontrolled hazardous substances, waste, squandering of resources, local noise-odor-air nuisances, global climate change;
- five geographic scale models: local regional, fluvial, continental, global;
- six target groups of the business sector: agriculture, building trade, consumer and retail trade, energy sector, industry and refineries, traffic and transportation.

In 1991, the New Zealand Government ratified the Resource Management Act, one of the cornerstones of its green planning effort. This act determined environmental quality bottom line standards and ensured that they will not be contravened. Also, the Ministry for the Environment has created and developed the Govt3 Program. By promoting a ‘learning by sharing’ approach, the program has focused on two themes: sustainable procurement and energy efficiency.

In 2000, the Swedish Government Bill refined the framework of environmental objectives of 1999. In order to stress the ecological dimension of sustainable development the Bill established 15 cross-sectoral environmental quality objectives (e.g., reduced climate impact, clean air, natural acidification only, non-toxic environment, safe radiation environment etc.) based on the following main principles:

- the promotion of human health;
- the preservation of biological diversity;
- the preservation of cultural heritage assets;
- the preservation of the long-term production capacity of ecosystems;
- the wise management of natural resources.

Germany has long been at the forefront of both theory and practice on sustainable development. There are deep roots of sustainability in Germany. In the last century several environmental actions such as waste recycling or clean-up of contaminated land took place. Germany has initiated and implemented
the National Sustainable Development Strategy since 2002. The strategy requires sustainability to be mainstreamed in all ongoing political activities and details targets, indicators and timetables to meet key challenges. Besides the Federal Government, the German Council for Sustainable Development, the Parliamentary Advisory Council on Sustainable Development in the German Bundestag, the Federal States, the leading associations of local authorities, the private sector forum on sustainable development of major German enterprises (“econsense”), and the German Global Compact play a major role in the formation of sustainable development.

In 2007, France set out Le Grenelle Environment Plan, a five-year plan for nationwide sustainability. Aiming at establishing a new ecological new deal to the French people, the plan comprises the following key themes:

- fighting climate change (e.g., modernising buildings and cities, urban planning etc.);
- protecting and managing biodiversity and natural environments (e.g., preventing biodiversity loss, ensuring the ecological quality of water etc.);
- protecting health and the environment whilst promoting economic growth (e.g., “health and environment programme” etc.);
- developing an ecologically-responsible democracy (e.g., ecological governance etc.).

In 2004, the Finnish National Commission on Sustainable Development began the process of the establishment of a new national strategy for sustainable development.

Denmark published its “Agreement on Green Growth” in 2009. The agreement aims to ensure a high level of environmental, nature and climate protection in Denmark. It incorporates the Environment and Nature Plan Denmark up to 2020 and the strategy for a green agriculture and food industry. The Environment and Nature Plan Denmark 2020 has established the following goals and initiatives:

- an aquatic environment of high quality;
- a substantial reduction in the harmful effects of pesticides on human beings, animals and nature;
- fewer greenhouse gasses;
- improved protection of nature and biodiversity;
- more nature and better access to nature;
- improved planning and monitoring of the environment and nature;
- compensation of the industry for mandatory nature and environment obligations.

The record of the past three decades has shown that enormous social, economic and political changes have shaped and transformed present-day realities over this period. The emergence and development of a worldwide sustainable development movement has clearly demonstrated that the process of building equitable and participatory structures to increase the social and environment empowerment of communities and societies represents a challenging issue for the future of humanity.
3. SUSTAINABLE DEVELOPMENT AND SOCIAL RESPONSIBILITY: TWO INTERRELATED CONCEPTS

In the past community was considered as being composed from three unrelated parts: a social part, an economic part and an environmental part (Fig. 1). When economy, society and environment were viewed as separate parts of a community, its problems were also seen as isolated issues.

![Fig. 1. A view of community as three separate, unrelated parts.](image)

Sustainable development pictures a world in which this new paradigm appears in response to the social and environmental problems of humanity, supported by more equitable values and institutions. Humanity has understood the importance of the community that takes into account the relationships among the economy, the environment and the society (Fig. 2). In order to improve conditions in a community all needed actions have to take these connections into consideration. That is why many questions related to various issues in a sustainable community include references to the links among the economy, the environment and the society. For example, the question ‘How has the community changed environmentally?’ looks at the relationship between society and environment. Therefore, fully understanding the three parts and their interconnections is essential to recognizing the importance of sustainability.

In this respect, social responsibility has become in the last decades one of the most important drivers of sustainability. On the other hand, sustainability leads to the development of social responsibility. In essence, social responsibility means that an entity (e.g., individual, government, civil association, public company, non-governmental organization etc.) has an obligation to act to benefit the whole society. In other words, it has a responsibility either positive (proactive stance) or negative (resistance stance) to society. Social responsibility promotes the proactive attitude of an entity about an action rather than the reactive attitude. During the time, social responsibility has received a normative status in the documents issued by the UNESCO, the Council of the European Union or the International Organization for Standardization.

Nowadays, more and more individuals and organizations, public or private, are acting in the benefit of society at large. For example, scholars and researchers from different fields of study (e.g., sociology, ecology, law, business administration, philosophy, economics, management etc.) agreed on the fact that there is an ethical responsibility of small, medium and big enterprises to conduct their progress in...
a direction favorable for global society. Either in an active manner, by achieving social and environmental objectives, or in a passive one, by avoiding destructive actions, today’s companies have realized the need to behave in a responsible way within the communities and societies they function. They have to address the entire spectrum of duties and/or obligations businesses have to society. Over the last century the corporate social responsibility (CSR) concept has grown in importance. There are many definitions of the CSR concept in the literature (Table 1), but none of them is universally accepted.

**Table 1. Definitions of CSR.**

<table>
<thead>
<tr>
<th>No.</th>
<th>Author</th>
<th>Definition</th>
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<tbody>
<tr>
<td>1.</td>
<td>Commission of the European Communities- Implementing the Partnership for Growth and Jobs: Making Europe a Pole of Excellence on Corporate Social Responsibility, 2006</td>
<td>Corporate social responsibility is a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis.</td>
</tr>
<tr>
<td>2.</td>
<td>World Business Council for Sustainable Development- Meeting Changing Expectations, 1998</td>
<td>Corporate social responsibility is the continuing commitment by business to contribute to economic development while improving the quality of life of the workforce and their families as well as of the community and society at large.</td>
</tr>
</tbody>
</table>

The sum of four kinds of responsibilities constitutes the total CSR (Fig. 3): economic, legal, ethical and philanthropic (Carroll, 1991). Firstly, the fundamental role of corporations is to provide the needed goods and/or services to consumers and to obtain a reasonable profit in this process. Secondly, businesses reach their economic goals within the framework of legal requirements.
Thirdly, society has expectations of businesses over and above the legal requirements (e.g., standards, norms etc.). Fourthly, there are society’s expectations about the fact that businesses have to be good corporate citizens.

All the above mentioned have shown that sustainable development and social responsibility are two interrelated concepts. Without any doubt CSR represents an integral part of sustainable development. Enterprises “should contribute to economic, environmental and social progress with a view to achieving sustainable development” (OECD, 2011, p. 17). CSR activities, programs and projects contribute to the achievement of the sustainable development priorities. For example, CSR contributes to job creation and environment protection. On his turn, sustainable development stimulates and popularizes a responsible way of thinking and acting. Governments recognize the role of CSR in “contributing to responsible growth in the world economy and a more inclusive form of globalization” (United Nations Development Programme, 2010, p. 1).

**Fig. 3.** The total CSR.
4. CONCLUSIONS

Over the time the human and social values have changed. In the last century new concepts have come up the curve. Sustainable development and social responsibility are among the most important of them. By achieving the balance among its economic, social and environmental parts, a community pursues the sustainable development way. The necessary harmonization of these three main parts and the extension of existing policies towards sustainability occur through the adoption and implementation of social responsibility on a large scale.

The understanding of the relationship between sustainable development and social responsibility is based on the view of what fundamental role they play in today’s human society. Our paper suggests that sustainable development and social responsibility are two interrelated concepts.

REFERENCES


STATE INTERVENTIONS IN THE ECONOMY BASED ON FISCAL POLICY INSTRUMENTS – EMPIRICAL EVIDENCE FOR CENTRAL AND EASTERN EUROPEAN COUNTRIES

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Abstract

Fiscal policy have an increasingly role as it must ensure efficient and equitable redistribution of income in the economy, increase welfare, provide social protection to correct imbalances in economic downturns such as the current crisis. In addition, pressures on national fiscal policy are even greater in that the countries have budget deficits and public debt accumulated even in periods of economic boom. These signals of sharp deterioration in the fiscal position are accentuated during the crisis. So, state interventions are necessary based on concrete fiscal policy measures to reduce the budget deficit and public debt, to ensure the resumption of economic growth without neglecting the long-term fiscal sustainability. The aim of this paper is to examine for Central and Eastern European countries the state interventions based on fiscal policy instruments.

Key words: fiscal policy; fiscal deficit; public debt; fiscal sustainability.

1. INTRODUCTION

In recent years many academic and political debates reveal the current challenges for fiscal policies. These are close related with the need to recover the losses generated by the financial crisis, and for a new macroeconomic policy framework based on equity and efficiency regardless the mix of policies to be applied in the economy. Therefore, the state must intervene in the economy so that to ensure the achievement of these objectives by using specific instruments of fiscal policy.

The current economic situation highlight the importance to identify the adequate economic measures, capable to bring savings on an increasing trend and to restore the public balance, creating thus the prerequisites for a sustainable economic development in the medium-term. In addition, it was demonstrated once again that the irresponsible behavior of states cannot be maintained indefinitely as evidenced by significant increases in budget deficits and public debt even in years in which growth occurred. As a result, it has to resort fiscal policies in order to absorb the external shocks and help reduce their spread effects. These will ensure the exit from the financial crisis by resuming the economic growth through macroeconomic stabilization without neglecting the economic objectives and sustainability of public finances on medium and long term.

Therefore, it can be synthesized that the challenges for fiscal policies and the need for the state intervention in the economy, in order to ensure the macroeconomic development, are represented by three major objectives (debt sustainability, economic stabilization, government size) for which had been taken important measures based on government revenue and expenditure. Also, the challenges
for fiscal policies will induce more pressure on governments that must undertake active measures to assure the objectives in the condition of the risk exposure reduction.

In order to face those challenges, governments must apply active measures to limit the budget deficit and the accumulation of an excessive public debt especially during the economic downturns. These active measures are represented by the tax increases and/or public expenditure contraction independently on economic cycles. As a result, fiscal adjustments have an important role. Many studies (Alesina and Perotti, 1995; Alesina and Perotti, 1996a, 1996b, 1996c; Perotti, 1996; Alesina and Ardagna, 1998; Alesina, Perotti, Tavares, Obstfeld and Eichengreen, 1998; Gupta, Clements, Baldacci and Mulas-Granados, 2002; Purfiled, 2003) investigate the fiscal adjustment in different countries in order to identify the most efficient active measures and their incidence on economic growth.

The aim of this paper is to analyze the state interventions in the economy based on fiscal policy instruments. These instruments are represented by the government revenue and expenditure that must be used in order to reduce the budget deficit and/or public debt, and, therefore, to react to the fiscal policy challenges. The investigation involves the Central and Eastern European countries such as Cyprus, Estonia, Malta, Slovakia, and Slovenia, that became soon a Euro area member. This paper is structured as follows. The next Section consists of theoretical aspects on government interventions in the economy in order to improve the fiscal position. Section 3 presents the methodology and database used to investigate the state intervention in the economy through government revenue increase and/or government expenditure cut in five Central and Eastern European countries. In the last Section will be formulated the concluding remarks of this study.

2. GOVERNMENT INTERVENTIONS IN THE ECONOMY TO IMPROVE THE FISCAL POSITION - THEORETICAL BACKGROUND

Governments undertake measures to support the economy based on fiscal policy instruments without neglecting their medium term objectives. In order to assure these, governments tend to use unbalanced budgets that will express the deterioration of fiscal policy. But, the fiscal deficit can be only a temporary imbalance that will be covered by governmental loans mainly on short term. If this became a current practice in the governmental activities then this fiscal disequilibrium will lead to new loans necessary to repay the public debt and to finance the fiscal imbalances. Therefore, gradually, the fiscal imbalances will have a higher frequency with large increasing values and will conduct to more public debt stock. It will become a convenient and common practice for government in order to avoid or to postpone the fiscal adjustments based on increasing taxation and/or spending cuts. Moreover, fiscal adjustments, even if they are badly needed, are postponed by governments in order to do not loss political capital.

Through fiscal adjustments, fiscal policy has an important role in restoring the economic disequilibrium especially in the case of economic downturn. Therefore, governmental interventions in economy must restore the economic growth by efficient fiscal adjustments and fiscal stimulus. This is also the case for the European economies which are confronted with a financial crisis „without precedent in post-war economic history” (European Commission, 2009, p. 1) since the summer 2007. Also, the success of the fiscal adjustments will restore the confidence in fiscal policy and in the economic recovery. As consequences, the fiscal consolidation is necessary for the assessment of medium term economic objectives and long term sustainability of fiscal policy.
The literature review reveals many definitions for fiscal adjustments or fiscal consolidation. A fiscal consolidation is defined as "a positive change in the budget balance", while a negative change expresses a fiscal expansion (Gupta, Clements, Baldacci, Mulas-Granados, 2002, p. 8).

The fiscal adjustment episodes and composition involve the investigation of fiscal states of a country by using various indicators expressed as GDP ratio, such as: budget balance, primary balance, cyclically adjusted budget balance, cyclically adjusted primary balance, public debt, dynamic and composition of governmental revenue and expenditure.

The simplest way to define episodes of fiscal adjustment is to consider the year or the consecutive years with a sharp reduction of budget deficit and/or public debt.

Many authors identify fiscal adjustment episodes based on the variation of cyclically adjusted primary balance (CAPB). An improvement of CAPB (an increase of the cyclically adjusted primary surplus (CAPS), a decrease of the cyclically adjusted primary deficit (CAPD), or CAPS after a year with CAPD) is presented as a sign of government intervention based on tax increases and/or expenditure cuts. To ensure that CAPB is not the result of a simple coincidence, authors selected some limits in order to identify the fiscal adjustment states of a country. The thresholds vary between 0.5 and 2 percentage points of GDP when is taking into consideration one year change and a consecutive years (for instance 2 to 3 years). For public debt variation, many authors consider the limit of 3 or 5 percentage points of GDP in order to establish the period of fiscal adjustments.

3. GOVERNMENT INTERVENTIONS BASED ON FISCAL ADJUSTMENTS

3.1. Methodology

The aim of this paper is to investigate the state interventions in the economy based on fiscal policy instruments using the case of Cyprus, Estonia, Malta, Slovakia, and Slovenia. Therefore, this analyze is based on annual data from AMECO database during 2000-2011 which will allow the study of fiscal adjustments before and during the crisis. In order to do so, fiscal adjustment episodes are defined as year or consecutive years with an improvement of CAPB based on one year change. In general, the main stream of literature on fiscal adjustment issues relies on cyclically unadjusted fiscal variables which are affected by cyclical factors that distort the investigation of fiscal policy state. For instance, Larch and Turrini (2009) consider that transitory elements included in annual budget balance vary between 0.5 and 1.5 percent of GDP. In order to eliminate the influence of these factors it is necessary to use adjusted fiscal data.

Assessment of the fiscal policy states based on cyclically adjusted data represents a recent concern for authors (Lavigne, 2006; Kumar, Leigh, and Plekhanov, 2007; Larch and Turrini, 2009; Campeanu and Stoian, 2009; Alesina, 2010).

Therefore, fiscal adjustment episodes are identified based on cyclically adjusted fiscal variables for some of the Central and Eastern European countries (Cyprus, Estonia, Malta, Slovakia, and Slovenia). In order to have a comparable data for all five countries, it is use the cyclically adjusted data from AMECO database.

Also, the paper aim is to present the general government revenue and/or expenditure for the identified active measures as a reflection of government intervention to reduce fiscal imbalances and public debt.

Fiscal adjustment episode is the year or the consecutive years with an improvement of CAPB compared with the previous year. An improvement of CAPB expresses one of the following situations:
i) decrease of primary deficit; ii) increase of primary surpluses; iii) primary surpluses after a year with primary deficit.

The size of fiscal adjustment is represented by the improvement of CAPB and its duration is revealed by the years where there is a continuous decrease of primary deficit, increase of primary surplus and/or primary surplus after primary deficit. Also, during this fiscal adjustment period it must be a reduction of public debt. It is not considered a fiscal adjustment episode the year when it is an improvement of CAPB even that it is obtained in the conditions of increasing public indebtedness and of an expansionary evolution of general government expenditure and revenue.

Effects of fiscal adjustment are expressed based on the reduction of budget deficit and/or public debt. Also, if after a fiscal adjustment it is observed a continuous improvement of CAPB and a reduction of public debt then these consecutive years are taken as a period where it had been a conduction of this identified fiscal adjustment effects (a so called spread effects).

Regarding the active measures applied by the governments, there is a consensus among authors that these are represented by tax increases and/or expenditure cuts. Despite of these, countries experiences in dealing with excessive fiscal imbalances and public debt reveal that it could be use taxation and/or spending cut. Also, may be cases when there is an improvement of CAPB and a reduction of public debt even that the active measures was increasing/decreasing government revenue and increasing government capital expenditure considered to be productive.

The contribution of each active measure is examined based on the evolution of general government revenue and expenditure composition.

3.2. Empirical Evidences

Based on this methodology, fiscal adjustments are investigated among the newest Euro area countries based on annual data from AMECO database regarding general government data and cyclical adjustment of budget balances during 2000-2011 (historical data for 2000-2009 and forecasts for 2010-2011). It is considered this period to identify the fiscal adjustments that had been applied by governments in order respond to the current challenges that impose the need to reduce fiscal imbalances and public debt. The fiscal data use fiscal variables expressed as ratio to GDP, such as cyclically adjusted total revenue of general government (CATR), cyclically adjusted total expenditure of general government (CATE), cyclically adjusted budget balance of general government (CABB), cyclically adjusted primary balance of general government (CAPB) and public debt (PD).

Based on these findings and on the evolution of fiscal variables, it will be revealed as a case study for Cyprus, Estonia, Malta, Slovakia, and Slovenia. The results are presented below.

3.2.1. Case study – Cyprus

The governments’ interventions in the economy are identified based on the improvement of the CAPB. The results indicate the period 2004-2007, that is characterized by 3 types of fiscal adjustments (fig. 1). The compositions of these fiscal adjustments are presented in figure 2 and 3.
Fig. 1. Governments’ interventions (2000-2011) – Cyprus’ s case.
Source: own determination based on AMECO and EUROSTAT database.
Note: FA_A – fiscal adjustment of type A (reduction of primary deficit); FA_B – fiscal adjustment of type B (growing primary surpluses); FA_C – fiscal adjustment of type C (primary surpluses after a year with primary deficit).

Fig. 2. Governments’ interventions on revenue (2000-2011) – Cyprus’ s case.
Source: own determination based on AMECO and EUROSTAT database.
Note: all the variables are cyclically adjusted (% of GDP).
Fig. 3. Governments’ interventions on expenditure (2000-2011) – Cyprus’ s case.

Source: own determination based on AMECO and EUROSTAT database.

Note: all the variables are cyclically adjusted (% of GDP).

Deterioration of fiscal policy during 2002-2003 conducts to active measures that reduce the primary deficit in 2004, followed by increasing primary surpluses over 2005-2008 (fig. 1). Also, public debt grows sharply before 2004 with an average increase of almost 6.7 percentage points of GDP per year. The government interventions applied in 2004 and sustained in the next three years allow a decline of public indebtedness of 5.5 percentage points of GDP per year in 2005-2008. More precisely, the government interventions in 2004 were based on revenue increases (0.2 percentage points of GDP) and expenditure cuts (2.2 percentage points of GDP) and conduct to a decline of public debt growth rate with 3 percentage points of GDP (fig. 2 and 3). The CATR growth is based on a capital revenue increase (0.7 percentage points of GDP) and on a current revenue decrease (0.5 percentage points of GDP). For the current revenue, it had been an important short coming of current taxes on income and wealth (1.6 percentage points of GDP), mean while there was an increasing in social contributions (0.7 percentage points of GDP) and current taxes on imports and production (0.4 percentage points of GDP). Also, the CATE diminishes because of the reduction of current expenditure (2.4 percentage points of GDP) especially for intermediate consumption (1.2 percentage points of GDP) and compensation for employees (0.6 percentage points of GDP), interest and subsidies (0.1 percentage points of GDP, for each) and other current expenditure (1 percentage points of GDP). Social transfers are increasing with 0.6 percentage points of GDP. Capital expenditure continues to magnify with 0.2 percentage points of GDP.

Also, 2005 represents an interesting case because the fiscal adjustment measures involve the mix between revenue and expenditure increase (fig. 2 and 3). Government revenue increases with 2.5
percentage points of GDP especially for the current revenue who explains almost 92 percent of the CATR growth. Despite these measures, government expenditure increase is based on current expenditure growth expenditure (1.4 percentage points of GDP) and on capital expenditure reduction (0.6 percentage points of GDP). The expansion of current expenditure is due to the increase of social transfers (0.8 percentage points of GDP), interest (0.4 percentage points of GDP), and intermediate consumption (0.3 percentage points of GDP), mean while subsidies and compensation of employees are reducing. As a result of these government interventions, the public debt decreases with 1.1 percentage points of GDP.

During 2006-2007, there take place other government interventions based on revenue increase and expenditure cut in order to ensure the reduction of public debt with 4.5 percentage points of GDP, in 2006, and 6.3 percentage points of GDP, in 2007 (fig. 2 and 3). This short coming is continued in 2008 with almost 9.9 percentage points of GDP.

The government revenue increase in 2006 (0.8 percentage points of GDP) and 2007 (2.4 percentage points of GDP) as a result of the following measures:

- In 2006, capital revenue decline (1 percentage points of GDP) is compensated with a current revenue increase (1.8 percentage points of GDP), especially for current taxes on income and wealth (1.6 percentage points of GDP) and current taxes on imports and production (0.6 percentage points of GDP). There is a slight decline of social contributions (0.5 percentage points of GDP);
- In 2007, CATR improvement is based only on current revenue components, especially on current taxes on imports, production, income and wealth increase of almost 4 percentage points of GDP. The other components of current revenue decline with 1.6 percentage points of GDP.

On the other hand, expenditure cuts with 0.2 percentage points of GDP, in 2006, and 1.2 percentage points of GDP, in 2007. These changes in the level of total government expenditure reflect the movements in the spending categories such as:

- Capital expenditure increases (0.1 percentage points of GDP) while current expenditure declines (0.3 percentage points of GDP) in 2006. This decline of current expenditure is due to the reduction of social transfers (0.5 percentage points of GDP), interest and subsidies (0.2 percentage points of GDP, for each). Intermediate consumption is growing with 0.6 percentage points of GDP;
- CATE cuts in 2007 are reflected by current expenditure, especially for social transfers (0.8 percentage points of GDP), intermediate consumption (0.6 percentage points of GDP) and compensation for employees (0.4 percentage points of GDP).

In 2009-2011, primary deficit seems to be on an increasing path with an average of 3.7 percentage points of GDP per year. As a result, government will borrow more and will accumulate significant public debt stock (average increase of 6.4 percentage points of GDP per year).

The increase of primary deficit is due to the fact that government revenue declines rapidly (almost 2 percentage points of GDP per year) and government expenditure grows faster (almost 2.1 percentage points of GDP per year) during 2008-2009. This evolution is maintained for the government expenditure for the next two years in the context of an increase of government revenue in 2009.

3.2.2. Case study – Estonia

Government intervention in the economy took place in 2003 (fig. 4) based on:
- revenue increase (0.4 percentage points of GDP). Expansion of CATR is the result of current revenue evolution (0.3 percentage points of GDP), especially increase of current taxes on income and wealth (fig. 5);

- expenditure cut (1 percentage points of GDP). Expenditure cuts seem to be applied only for the capital expenditure because the current expenditure remains constant. Some of the components of current expenditure are increases (intermediate consumption and other current expenditure with almost 0.2 percentage points of GDP, for each) fact that would compensate the decrease of others (social transfers 0.2 percentage points of GDP; compensation of employees and subsidies 0.1 percentage points of GDP, for each) (fig. 6).

The years 2002 and 2009 are not considered as government interventions episodes because public debt, government revenue and expenditure continuous to increase despite of the improvement of CAPB of 0.1 and 5.5 percentage points of GDP.

![Diagram](image)

**Fig. 4.** Governments’ interventions (2000-2011) – Estonia’s case.

Source: own determination based on AMECO and EUROSTAT database.

Note: FA<sub>B</sub> - fiscal adjustment of type B (growing primary surpluses).
**Fig. 5.** Governments’ interventions on revenue (2000-2011) – Estonia’s case.

Source: own determination based on AMECO and EUROSTAT database.

Note: all the variables are cyclically adjusted (% of GDP).

**Fig. 6.** Governments’ interventions on expenditure (2000-2011) – Estonia’s case

Source: own determination based on AMECO and EUROSTAT database.

Note: all the variables are cyclically adjusted (% of GDP).
The evolution of fiscal variables are quite surprising in 2009 when it is reported important increase of government revenue, almost 10.9 percentage points of GDP, and government expenditure, almost 5.3 percentage points of GDP. These explain the improvement of CAPB of almost 5 percentage points of GDP.

Also significant primary surpluses are obtained during 2000-2006 and 2009-2010 with a decreasing general tendency, on average, of almost 0.2 percentage points of GDP per year. This tendency is changed in 2003 when government applied the fiscal adjustment measures.

Public debt is still under 10 percent during 2009-2010. Only in 2011, is estimated that the public indebtedness will be 12.4 percent of GDP.

The fiscal policy responses reveal a slow reaction of government expenditures that lead to a negative gap between the dynamic of government revenue and expenditure during 2002-2011, exception 2009.

### 3.2.3. Case study – Malta

During 2000-2011 it can be observed an improvement of CAPB only in 2001 and 2002 of almost 1 percentage points of GDP perhaps of other governmental intervention in the previous years (fig. 7). But in 2001-2002, government revenue and expenditure continuous to increase that lead to deterioration of fiscal position. In response, public debt is growing. For these reasons, 2001-2002 are not considered fiscal adjustment episodes.

![Fig. 7. Governments’ interventions (2000-2011) – Malta’s case.](source)

Source: own determination based on AMECO and EUROSTAT database.

Note: FA_A – fiscal adjustment of type A (reduction of primary deficit); FA_C - fiscal adjustment of type C (primary surpluses after a year with primary deficit); dotted line – spread effects on public debt that is on a decreasing path.
Fig. 8. Governments’ interventions on revenue (2000-2011) – Malta’s case.

Source: own determination based on AMECO and EUROSTAT database.

Note: all the variables are cyclically adjusted (% of GDP).

Fig. 9. Governments’ interventions on expenditure (2000-2011) – Malta’s case.

Source: own determination based on AMECO and EUROSTAT database.

Note: all the variables are cyclically adjusted (% of GDP).
Also, fiscal policy continues to deteriorate in 2003-2004, 2008, 2010-2011 (fig. 7). Therefore, the average primary deficit during 2000-2004, 2008, 2010-2011 is almost 3.2 percent of GDP.

Public debt accumulates during 2000-2011 in order to sustain these fiscal imbalances which conduct to an increasing path exception in 2002, 2005-2007.

The governments intervene in the economy during 2004-2005 and 2009-2010 based on revenue increase and expenditure cut (fig. 8 and 9) such as:

- In 2004: (i) revenue increases (3.5 percentage points of GDP). 57% of CATR increase is explained by the current revenue dynamic. There had been an improvement for current taxes on imports and production (1.9 percentage points of GDP), and social contributions (0.1 percentage points of GDP) despite of the decline of current taxes on income and wealth (0.4 percentage points of GDP); (ii) expenditure cuts (2.3 percentage points of GDP). The significant restraint of capital expenditure (3.5 percentage points of GDP) allows for an increasing path of current expenditure especially for intermediate consumption (0.5 percentage points of GDP), interest (0.3 percentage points of GDP), and social transfers (0.1 percentage points of GDP). Mean while, there are a decreasing path for subsidies (0.3 percentage points of GDP), compensation for employee (0.1 percentage points of GDP);

- In 2005: (i) revenue increases (0.7 percentage points of GDP). CATR is based on an important growth of capital revenue of almost 1.6 percentage points of GDP. The current revenue are on a descendent path (0.9 percentage points of GDP) caused mainly by a declining other current revenue (1.4 percentage points of GDP) and social contributions (0.2 percentage points of GDP). Current taxes on imports, production and income, wealth are increasing with almost 0.3 percentage points of GDP for each; (ii) expenditure cuts (0.7 percentage points of GDP). The evolution of CATE expresses an increase of capital expenditure (0.4 percentage points of GDP) even that current expenditure declines (1.1 percentage points of GDP). The current expenditure reduction is mainly for compensation of employees (0.6 percentage points of GDP), intermediate consumption (0.5 percentage points of GDP), and other current expenditure (0.2 percentage points of GDP). Subsidies and social transfers are increasing with almost 0.2 percentage points of GDP for each;

- In 2009 with a spread effects in 2010: (i) revenue increases (1.2 percentage points of GDP). 67% of the CATR increase is explained by the extension of current revenue especially for current taxes on income and wealth (1.2 percentage points of GDP), social contributions (0.2 percentage points of GDP); (ii) expenditure cuts (0.5 percentage points of GDP). It is continued the trend identified in 2005 because the CATE cuts is based mainly on current expenditure restraint (0.3 percentage points of GDP) especially for compensation to employees (0.1 percentage points of GDP) and other current expenditure (0.2 percentage points of GDP). The capital expenditure increases with 0.1 percentage points of GDP.

The fiscal adjustment in 2005 and 2009 reveals the concern for the quality of public finances because overall government expenditure decline in the context of an increasing capital expenditure. As a result, the public debt is on a declining path with a reduction of almost 9 percentage points of GDP.

The fiscal cost of crisis manifests immediately with a decline of government revenue and expenditure in 2007 of almost 1.2 percentage points of GDP. In 2008, government revenue is maintained at the same path as in 2007, but government expenditure increases with almost 2.3 percentage points of GDP.

In 2010, is estimated that government expenditure will growth faster than government revenue with almost 0.7 percentage points of GDP. This evolution is reversed in 2011, when the forecasts reveal a
rapid decline of government expenditure of almost 0.4 points comparative with government revenue. CATR reduction is based only on capital revenue while 60% of CATE decline is based on current expenditure. This evolution of fiscal policy conducts to an average increase of public debt to almost 2.7 percentage points of GDP per year during 2008-2011.

3.2.4. Case study – Slovakia


In Slovakia case, public debt in on a descendent path during 2000-2008 with an average decline of almost 2.8 percentage points of GDP per year, while there will be an increase of almost 5.4 percentage points of GDP per year during the crisis (2009-2011). Even so, the largest value of public debt is in 2000 of 50.3 percent of GDP.

Despite the fact that the dynamic of public debt reflects an improvement of fiscal stance, primary deficit deteriorates that show that is need for strong fiscal adjustments. During 2000-2002, there is an average primary deficit of almost 4.2 percent of GDP. The adjustment episodes in 2003, 2004, and 2007 and in the crisis period conduct to an average primary deficit of almost 3 percent of GDP per year.

**Fig. 10. Governments’ interventions (2000-2011) – Slovakia’s case.**

Source: own determination based on AMECO and EUROSTAT database.

Note: FA_A – fiscal adjustment of type A (reduction of primary deficit); FA_B - fiscal adjustment of type B (growing primary surpluses); FA_C - fiscal adjustment of type C (primary surpluses after a year with primary deficit); dotted line – spread effects on public debt that is on a decreasing path.
The fiscal adjustments in 2001 and 2002 involve expenditure cuts especially for capital expenditure (fig. 12). On average, 80 percent of the general government expenditure reduction is explained by capital expenditure cuts. This is changed in the next four episodes because only 12 percent of expenditure restraint is based on capital expenditure decline.

In 2003, the government intervenes in the economy based on (fig. 11 and 12):

- revenue increase (0.4 percentage points of GDP). Current revenue increased with 0.5 percentage points of GDP. This is generated by increases for current taxes on imports and production (0.6 percentage points of GDP), current taxes on income and wealth (0.1 percentage points of GDP) and other current revenue (0.7 percentage points of GDP). Social contributions are reducing with 0.9 percentage points of GDP;

- expenditure cut (4.9 percentage points of GDP). 70% of the CATE cut is explained by capital expenditure. The current expenditure is reducing especially for social transfers (1.2 percentage points of GDP), interest (1.1 percentage points of GDP), and compensation of employees (0.2 percentage points of GDP).

![Fig. 11. Governments’ interventions on revenue (2000-2011) – Slovakia’s case.](image)

Source: own determination based on AMECO and EUROSTAT database.
Note: all the variables are cyclically adjusted (% of GDP).
Also, government continue to intervene in the economy in 2004 with a spread effects during 2005-2006 when public debt follow a decrease path of almost 12 percentage points of GDP during 2004-2007 (fig. 11 and 12). These are the result of government revenue cuts (2.1 percentage points of GDP) and government expenditure reduction (2.4 percentage points of GDP). Current revenue decreases more (2.2 percentage points of GDP) in order to compensate the slight decline of capital revenue increase. The reduction is mainly on social contributions (0.7 percentage points of GDP), current taxes on income and wealth (0.9 percentage points of GDP). On the expenditure side, the CATE cut (2.5 percentage points of GDP) is based mainly on current expenditure cut such as compensation of employees (0.8 percentage points of GDP), intermediate consumption (0.5 percentage points of GDP) and interest (0.3 percentage points of GDP), other current expenditure (0.9 percentage points of GDP). Subsidies and social transfers have a slow increase of 0.1 percentage points of GDP for each.

In 2007, the crisis does not affect too much the fiscal variable because the government expenditure reduces more than government revenue (fig. 11 and 12). This is also the effects of the efficient active measures applied by the government before the crisis effects start to spread. Also, the government interventions in this year were based on revenue and expenditure cut mean while the public debt declines with almost 1.2 percentage points of GDP. In 2008 is maintained the reduction of public debt with almost 1.6 percentage points of GDP. Therefore, it must be noticed the spread effects in 2008. The revenue reduction (2.3 percentage points of GDP) is the reflection of the capital revenue increase of 0.1 percentage points of GDP is attenuated by the cut of current revenue (2.4 percentage points of GDP) such as current taxes on imports and production (0.6 percentage points of GDP), social
contributions (0.6 percentage points of GDP), current taxes on income and wealth (0.2 percentage points of GDP) and other current revenue including sales (1.1 percentage points of GDP). The CATE cut is based especially on current expenditure (2.3 percentage points of GDP). The reductions are applied for intermediate consumption (1.1 percentage points of GDP), compensation of employees (0.6 percentage points of GDP), social transfers and other current expenditure (0.2 percentage points of GDP for each), interest and subsidies (0.1 percentage points of GDP for each).

But the negative gap between the dynamic of government revenue and expenditure conducts to a rapid deterioration of fiscal position manifested with increasing deficit and public debt. Therefore, based on forecasts date, there are identified two episodes for fiscal adjustment during the crisis (2010 and 2011) in order to improve the fiscal variables. In 2010, the CATR improves based on current revenue, especially for other current revenue including sales (1 percentage points of GDP) (fig. 11). Social contributions and current taxes on imports and production reduce with 0.2 percentage points of GDP for each. Also, current taxes on income and wealth are reducing with 0.1 percentage points of GDP. Therefore, the revenue increases is almost 0.5 percentage points of GDP. The 80% of the expenditure cuts (0.5 percentage points of GDP) are reflecting the decline of social transfers and compensation of employees (0.2 percentage points of GDP for each) (fig. 12). As a result, public debt growth rate is estimated to decline with almost 3 percentage points of GDP, in 2010, and 2 percentage points of GDP, in 2011.

For 2011, is expected to take place another government intervention which will generate a CATR reduction because of the decline with almost 0.1 percentage points of GDP of the current taxes on income and wealth, social contributions and current taxes on imports and production ((fig. 11). Also, will be applied expenditure cuts (1 percentage points of GDP) (fig. 12). The reductions will be applied for social transfers (0.6 percentage points of GDP), compensation of employees (0.2 percentage points of GDP), subsidies (0.2 percentage points of GDP) and capital expenditure (0.1 percentage points of GDP). Intermediate consumption is estimated to increase with 0.1 percentage points of GDP.

3.2.5. Case study – Slovenia

Investigation of the CAPB improvement and of the evolution of other fiscal data reveals the extension of the fiscal adjustment effects in the next years (fig. 13). For instance, after the government intervention in 2002, there was a continuous decline of public debt for the next six years, with an average of almost 1 percentage points of GDP per year. Also, in 2009 was registered an important improvement of CAPB of almost 1.3 percentage points of GDP even that it seems not sustained by the fiscal policy actions during this year. In 2009, there was a significant increase of almost 6 percentage points of GDP in government expenditure and revenue. Therefore, despite of the CAPB improvement, 2009 is not taking into account as an adjustment period because it seems to be more a spread effects of other previous fiscal adjustment episodes.

For the same reasons presented above, 2001 is not an adjustment episode even that there was a slight improvement of CAPB of almost 0.2 percentage points of GDP in the context of an expansion of government revenue, expenditure and public debt. This improvement of CAPB is attributed to the spread effects of other adjustments applied before 2000.
Fig. 13. Governments’ interventions (2000-2011) – Slovenia’s case.

Source: own determination based on AMECO and EUROSTAT database.

Note: FA_A – fiscal adjustment of type A (reduction of primary deficit); FA_C - fiscal adjustment of type C (primary surpluses after a year with primary deficit); dotted line – spread effects on public debt that is on a decreasing path.
Fig. 14. Governments’ interventions on revenue (2000-2011) – Slovenia’s case.
Source: own determination based on AMECO and EUROSTAT database.
Note: all the variables are cyclically adjusted (% of GDP).

Fig. 15. Governments’ interventions on expenditure (2000-2011) – Slovenia’s case.
Source: own determination based on AMECO and EUROSTAT database.
Note: all the variables are cyclically adjusted (% of GDP).
The government interventions in the economy in 2002 are based on (fig. 14 and 15):

- revenue increase (0.2 percentage points of GDP). CATR increase is based on the current revenue. Social contributions starts to decline (0.2 percentage points of GDP), event that current taxes on import, production and income, wealth increase with 0.2 percentage points of GDP for each;

- expenditure cut (1.2 percentage points of GDP). 58% of CATE cut is based on capital expenditure. The current expenditure is also decline, especially for compensation of employees (0.2 percentage points of GDP), interest (0.2 percentage points of GDP) and social transfers (0.1 percentage points of GDP).

The capital expenditure cut (0.7 percentage points of GDP) in 2002 is followed by an increase in 2003 in order to attenuate its effects. This kind of action is not maintained in the next fiscal adjustment episodes which rely on important reduction of capital expenditure. Consequently, the public debt still increase, but the positive effects of these interventions are observed only in the next years.

In 2005, public debt is reducing with 0.2 percentage points of GDP. This trend is maintained in the next three years. There is a reduction of PD of 4.6 percentage points of GDP in four consecutive years (2005-2008).

The effects of this government intervention caused an improvement of CAPB of 1.3 percentage points of GDP in 2009, even that government revenue and expenditure had a significant increase of almost 6 percentage points of GDP. Therefore, the government interventions in 2005 have a spread effects during 2006-2009 (fig. 13).

During government interventions in 2005 and 2011, the government revenue and expenditure are declining (fig. 14 and 15).

In 2005, the current revenue declines with 0.4 percentage points of GDP in the context of a slow improvement of capital revenue (0.1 percentage points of GDP) (fig. 14). The reduction is in current taxes on imports and production (0.4 percentage points of GDP), social contributions and other current revenue including sales (0.2 percentage points of GDP for each). Current taxes on income and wealth increase with 0.4 percentage points of GDP. On the expenditure side, almost 83% of the CATE decline (0.6 percentage points of GDP) is explained by capital expenditure (fig. 15). For the current expenditure component, it had been a slow increase of intermediate consumption (0.1 percentage points of GDP) and a decrease of 0.1 percentage points of GDP for the others.

On average, in 2005 and 2011 it is established that 63% of expenditure cut rely on capital expenditure decrease (fig. 15). This is not a measure that can be used without negative impact on long run fiscal sustainability. Therefore, governments must reconsider the measures based on expenditure cuts.

The crisis effects seem to be absorbed quite well by the fiscal variables in 2007 when government revenue decreases more than government expenditure. Also, a positive gap between the increase of revenue and the rise of expenditure is maintained in 2009 (almost 1.1 percentage points of GDP), 2011 (almost 0.5 percentage points of GDP).

4. CONCLUDING REMARKS

In recent years many academic and political debates reveal the current challenges for fiscal policies. Synthesizing, the challenges for fiscal policies are represented by three major objectives (debt sustainability, economic stabilization, government size) for which had been taken important measures
based on governmental revenue and expenditure. Also, the challenges for fiscal policies will induce more pressure on governments that must undertake active measures to assure the objectives in the condition of the risk exposure reduction.

In order to face those challenges, governments must apply active measures to limit the budget deficit and the accumulation of an excessive public debt. These active measures are represented by tax increases and/or public expenditure contraction independently on economic cycles. Therefore, based on AMECO database, this paper analyzes who fiscal policies respond to the current challenges based on fiscal adjustments in the newest Euro Area members (Cyprus, Estonia, Malta, Slovakia, and Slovenia).

In the case studies are presented, for each identified fiscal adjustment episode, the type, size, duration, active measures, and effects on budget deficit and public debt. Also, the paper presents the composition of general government revenue and/or expenditure for the identified active measures as a reflection of government intervention to reduce fiscal imbalances and public debt.

The results reveal that almost 56 percent of the active measures involve measures based on government revenue increase and government expenditure cut, while only 39 percent are represented by government revenue and expenditure cut. An interesting case is Cyprus that during 2005 applied fiscal adjustment measures based on the mix between revenue and expenditure increase. Despite these measures, government expenditure increase is based on current expenditure growth and not on capital expenditure expansion.

The most important improvement of the CAPB took place in Malta of almost 6 percent during 2004, and in Slovakia of almost 5.6 percent in 2001.

Also, the measures undertaken by the governments after the crisis are concentrated on government revenue and expenditure cut especially in Slovakia and Slovenia.

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IDENTIFYING THE SHOCK EXPOSURE BASED ON FISCAL POLICY WITHIN EUROPEAN UNION MEMBER STATES

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Abstract

Currently, national and coordinated fiscal policies among states are used in the exit process from the financial crisis. This is possible because fiscal policy instruments can be used to assure economic growth and to absorb the external shocks. Paper aim is to identify the shock exposure based on fiscal policy within European Union member states. In this context, fiscal policy indicators are used as signs of the “weak points” that are under the control of governments. Once known these sources of risks, states may apply active fiscal policy measures to help reduce the spread and effects of the identified risks without compromising the assessment of fiscal sustainability on long term.

Key words: fiscal policy; shock; vulnerability; fiscal sustainability.

1. INTRODUCTION

In the current economic context, it is necessary to address the following questions: “Which are the risks that a country’s economy is exposed?”; „Which are the shocks that an economy can be exposed?”; „Which are the measures to reduce the effects of the shocks?”

These are legitimate questions when countries all over the world face important economic downturn in a fragile fiscal environment. The contemporaneous conditions can be considered the results of the policies promoted in the past at both national and international level. Following a backward looking and considering the magnitude and cumulative effects of the economic crisis since the summer of 2007 (EC, 2009), it seems that the applied policies failed in the assessment process of economic growth and macroeconomic stabilization. This is due to inadequate policies promoted during the periods of economic growth when governments have increased the expenditure which led to a trend of a continuous expansion of state activities in a faster rate than the economy's ability to generate financial resources. Therefore, today it is necessary a new policy framework constructed based on so called process “learning from the past mistakes in order to not repeat them further” in order to achieve their macroeconomic objectives without neglecting their pure economic objectives on medium and long term.

Shock exposure is differentiated across countries by the fiscal policy set promoted over the years in the context of the economic evolution. Therefore, the government actions conduct to the accumulation of the risks that generate a more vulnerable economy. When these risks materialize in a decreasing economic background and a deteriorated fiscal position then the shock occurs. These shocks have a
bearing on the evolution of the economy in the next period which will be reflected by the deterioration of fiscal and macroeconomic indicators. The shock effects can be mitigated if measures are taken in advance so as to correct those “weak points” of the economy. For instance, excessive fiscal imbalances and public debt stocks are signals for a vulnerable economy on short term. If governments do not interfere to take consistent adjustment measures for restoring the cautious level of fiscal indicators, the probability that vulnerable fiscal policy to become a non-sustainable one increases on long run. Therefore, governments’ interventions are necessary in order to avoid the economy exposure to different shocks and unsustainable fiscal policy on long run.

Therefore, the starting point in investigation of the shock exposure based on fiscal policy instruments is represented by the need to identify those indicators that are capable to reveal the weakness of the government actions. The paper aim is to identify the shock exposure based on fiscal policy within European Union (EU) member states. In this context, fiscal policy indicators are used as signs of the weakness that are under the control of governments. Once known these sources of risks, states may apply active fiscal policy measures to help reduce the spread and effects of the identified risks without compromising the assessment of fiscal sustainability on long term. The paper is structured as follows. The Section 2 presents the theoretical background. The next section consists in identifying the shock exposure based on the proposed indicators that we considered adequate for this investigation. Section 4 is dedicated to the conclusions.

2. SHOCK EXPOSURE AND THEIR EFFECTS: THEORETICAL BACKGROUND

Shock exposure expresses the act of subjecting or of being in a dangerous situation that will lead to a general and sudden disorder in the economic activities which is caused by various external causes. This is manifested by an imbalance. Also it can mean the act of being subjected to a likely event, generating losses more or less predictable. The shock occurs after accumulating risks that make an economy more vulnerable. Therefore, we may consider the shock exposure as an exposure to different risks that will lead to a loss or even to an undesirable outcome. Meanwhile, the risks involve the probability of a threat that will induce vulnerabilities and it is possible to have an impact on the economy.

At the economic level, the shock can be described as an unexpected or unpredictable exogenous event that has a positive or a negative incidence on the economy. The actions taken by the governments can also induce some risks; some of this can be more risky than other. The investigation of the shock is closely related with the risk analyze. This is based on the past behavior analyze of the governments given the economic context in order to reveal the measures for the assessment of the fiscal sustainability. For instance, Cuddington (1997) defines fiscal sustainability starting from the following question „could the past behavior of key fiscal variables and the implied fiscal deficit or surplus, …, be continued indefinitely without encountering resistance by lenders?” (Cuddington, 1997, pp. 1). Therefore, fiscal sustainability involves the capacity or willingness of the governments to continue their fiscal policies in such a way capable to finance primary expenditure and to absorb all other shocks on budget spending. The ability of the governmental policies to recover from the effect of such shocks diminishes the economic vulnerability.

Also, the past behaviors of fiscal variables permit to analyze the policy consistency in order to face the shock and to assure sustainability of fiscal policy and to integrate it with macroeconomic policy targets such as economic growth or public indebtedness. Cuddington (1997) express these as „policy targets mutually consistent” (Cuddington, 1997, pp. 6) while „fiscal policy variables satisfy both a
period-by-period or flow budget constraint and an inter-temporal or solvency budget constraint” (Marin, 2002, pp. 7). Also, Cuddington (1997) focuses on steady-state debt ratios which imply that public debt to GDP ratio is constant even if budget deficits are financed by governmental loans with a growth rate equal with the economic growth. There are some indicators capable to reveal the shock exposure. The indicators are also subjects to the constraints imposed on fiscal policy who must sustain budget deficit.

Identifying the shock exposure, government can take actions in order to reduce or avoid the effect of the liquidity or solvability risks. Also, governments can reduce the vulnerability of the economy that is defined as a „risk to enter in a crisis” (IMF, 2002, pp. 5). As the economy is more vulnerable the more it will face sustainability issues (IMF, 2002; Briguglio, Cordina, Farrugia, and Vella, 2008). According to this issue, a country that is highly exposed to different shocks induced by the fiscal imbalances and public debt has an unsustainable fiscal policy that makes it vulnerable to exogenous shocks. More exposed to external shocks are emerging and low income countries that have unsustainable fiscal position. For these countries there is a higher probability to „collapse following exogenous shocks” (Chauvet, and Guillaumont, 2003, pp. 6) which will involve policy reforms through restrictions for budget deficit financing, import. These effects can be attenuated by important external financial support in order to assure sustainable fiscal policy, economic growth, low inflation rate and unemployment, improvement of current account position (Chauvet, and Guillaumont, 2003).

Also, the shock exposure of a vulnerable economy is associated with economic or politico-economic instability and, therefore, unsustainability and express „simply the risk that the liquidity or solvency conditions are violated and the borrower enter a crisis” (IMF, 2002, pp. 5).

EC (2006) demonstrated that a country is more vulnerable when it has high public indebtedness, negative economic growth and/or interest rate (EC, 2006, pp. 53). On long term these will conduct to shocks represented by increased interest burden and excessive budget imbalances that would increase public debt and would expose fiscal policy and the entire economy to vulnerability on medium to long term. But, there are also countries like Romania which is more vulnerable to exogenous shocks that cannot be easily absorbed when the economy is decreasing.

These induced effects of the shock exposure such as vulnerability, and liquidity or solvability risks should be treated separately, each having their identities leading to the sustainability of fiscal policy, which express „an entity is solvent if the present discounted value (PDV) of its current and future primary expenditure is no greater than the PDV of its current and future path of income, net of any initial indebtedness.” (IMF, 2002, pp. 5). So, solvency can be investigated in correlation with the adjustments that must be economically feasible and socially and politically acceptable.

Schick (2002) analyses the possibilities to ensure fiscal sustainability in a vulnerable economy exposed to different risks by explaining their role in budgeting especially for „governments with a budget horizon beyond a single fiscal year” (Schick, 2002, pp. 17). Also, the author defines fiscal sustainability as „the capacity of government to continue on its present fiscal course in the light of prospective economic conditions and its revenue/expenditure position” (Schick, 2002, pp. 17), which can be quantified based on risk measurement. Countries with high risk of unsustainable fiscal position are more exposed to shocks which it is expressed by vulnerability. For instance, EC (2010) identifies the overall risk classification for EU member states considering the fiscal and the macroeconomic risks.

Excessive budget imbalances and public debt are considered as sign of „fiscal deterioration … and lack of public finances sustainability” (Afonso, Agnello, Furceri, and Sousa, 2009, pp. 5) who can be
investigated considering responsiveness, persistence and discretionary (Fatas and Mihov, 2003, 2006; Afonso, 2008; Afonso et al., 2008, 2009).

Also, there are studies who demonstrate that the public indebtedness threshold vary across countries according to their economic development. For instance, IMF (2003) identifies the public debt threshold at 50 percent of GDP for emerging market economies and at 80 percent of GDP for industrial countries. At these critical thresholds governments react different based on the initial fiscal position, the ex-ante experience in facing with growing fiscal imbalances and public debt and the willingness and adaptive capacity to react. Therefore, in emerging market economies “the response of the primary surplus weakens as the debt-to-GDP ratio rises, and this response stops altogether when debt exceeds 50 percent of GDP” (IMF, 2003, pp. 128), even that “industrial countries respond strongly to rising debt when debt is ... above 80 percent of GDP” (IMF, 2003, pp. 128). This reveals the fact that fiscal policy in emerging market economies will not be able to assure fiscal sustainability on long term when public debt is above 50 percent of GDP.

3. SCHOCK EXPOSURE: EMPIRICAL INVESTIGATION

Vulnerability deriving from fiscal policy expresses the “weak points” of fiscal policy that increase the negative effects of the shocks. These “weak points” are under the control of governments and involve the necessity to identify the sources of fiscal vulnerability in order to establish the adequate government comportment on short term without compromising the assessment of fiscal sustainability on long term. Fiscal policy indicators used as signs of short term vulnerability are represented by: (i) budget deficit; (ii) public debt; (iii) government expenditure; (iv) government revenue.

According to the EC (2010), the country risk can be reflected by some indicators capable to reveal the country position and the degree of the risk expose. These indicators are: (i) budgetary risk indicators who aim to highlight the risks of sovereign financial needs; (ii) macro-financial risk indicators that will generate more pressure on sovereign financial needs; (iii) short term budgetary adjustment rigidity that is useful to indicate the difficulties in applying fiscal adjustments based on government expenditure cut and/or revenue increase. The indicators that serve to the determination of a composite indicator are presented in table 1.

<table>
<thead>
<tr>
<th>Categories of indicators</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budgetary risk indicators</td>
<td>Public debt/GDP</td>
</tr>
<tr>
<td></td>
<td>Implicit interest rate on government debt</td>
</tr>
<tr>
<td></td>
<td>Maturing debt/GDP, in year t and t+1</td>
</tr>
<tr>
<td></td>
<td>Primary balance gap that would lead to debt converging to 60% GDP by 2020</td>
</tr>
<tr>
<td>Macro-financial risk indicators</td>
<td>Current account /GDP</td>
</tr>
<tr>
<td></td>
<td>Private sector credit indicator</td>
</tr>
<tr>
<td></td>
<td>Maturing external debt/GDP in t and t+1</td>
</tr>
<tr>
<td></td>
<td>Construction to GDP</td>
</tr>
</tbody>
</table>
Global competitiveness index

GDP/capita

Revenues/GDP (adjusted for GDP/capita)

Expenditure inflexibility (composition)

Increase in cost of ageing by 2015/GDP

Liquid government assets/GDP

Fiscal governance indicator

Institutions indicator

Based on these indicators, the EU countries can be grouped into four categories according to the fiscal and macro-financial risks (fig. 1).

**Fig. 1.** Indicators of macro-financial and fiscal risk for EU Member States (2010).


But, the paper aim to investigate the shock exposure based on fiscal policy instruments. Therefore, this scientific research is based on other set of indicators involving the public debt structure that we considered adequate for this purpose. The methodology used in the paper contributes to the extension of the approaches that are already applied. The indicators are useful to make a screening of country risks and allow the comparisons across countries. The risks must be known by the governments in order to take actions for the assessment of the fiscal sustainability in the context of the need to sustain economic growth.

The shocks can be identified by a simple analyze of the deviation of the fiscal variable from the Bollinger bands. Variables within this band indicate that they follow the normal behavior of indicators evolution. The points that are not in this band indicate the moments when the economy was exposed to a shock. This so called external point’s highlight that there is a pronounced instability and, consequently, vulnerability. The statistical profile of the principal fiscal variables is presented in figures 2-3 based on Eurostat data. These figures reveal the existence of an important fluctuation for public indebtedness reflected by a great variability of almost 19.4 percentages of GDP despite of the relative small variation of budget balance and primary balance of almost 2 percentages of GDP. This can be considered as “weak point” that may expose the economy to some risks and may generate negative effects when there are exogenous shocks. For government revenue and expenditure, the results indicate a variation of almost 4.8 percentages of GDP which may be taken as a shock inducer. All these findings are formulated based on the fiscal variables represented in figure 2 and 3. In these figures, are also represented the variation interval according to the Bollinger bands based on average and standard deviation. This interval is for EU-27 between: (i) 25.5 percent of GDP and 64.3 percent of GDP, for public indebtedness; (ii) 36.8 percent of GDP and 46.6 percent of GDP, for government revenue; (iii) 40.1 percent of GDP and 49.8 percent of GDP, for government expenditure.

![Graph showing statistical profile of government revenue and expenditure for EU Member States (1970-2008). Source: own determination based on EUROSTAT database.](image-url)
Higher frequency of budget imbalances is a sign that governmental policies are weak because the expenditures are over the revenue. In this case, governments must identify financial resources in order to fulfill this gap. The fiscal deficit can be only a temporary imbalance that will be covered by governmental loans on short term. If this became a current practice in the governmental activities, this fiscal disequilibrium will lead to new loans necessary to repay the public debt and to finance the fiscal imbalances. Therefore, gradually, the fiscal imbalances will have a higher frequency with values of increasingly large and will conduct to more public debt stock. It will become a convenient and common practice for government in order to avoid or to postpone the fiscal adjustments based on increasing taxation and/or spending cuts (Campeanu, 2011). Moreover, fiscal adjustments, even if they are badly needed, are postponed by governments in order to do not loss political capital. Also, the reaction of governments can be motivated by the time horizon needed to assess fiscal sustainability. Therefore, the governments’ measures should be viewed as potential sources to cause the boomerang effect because the interventions in the economy produce a series of effects that can return without anticipated which will be their tangible results on medium to long term. In this case matter not only the nature of the imposed measures but also the economic context. Thus these effects can cause vibrations in the economic system in place to manage the expected objectives will be reflected by adverse developments in the macroeconomic and fiscal policy. As a result, requires a cautious policy and long-term unit to obtain the desired effect on medium-term.

Also, the shock exposure requires immediate interventions based on specific measures according to the cause and the severity in order to avoid the evolution of the shock from reversible to irreversible one. Therefore, it is necessary a gradual therapy or a shock therapy (“cold shower”). The measures involve fiscal adjustment in order to reduce the budget deficit and the public debt which are the starting point in achieving the fiscal sustainability. The countries experiences reveal that the government expenditure cut are more suitable than one based on tax increases. Also, the gradual
consolidations are more successful than “cold shower” for countries with relative low public indebtedness while for high indebted countries a shock therapy represents a better approach (EC, 2010).

Consequently, the level of public debt represents a good indicator that might signal some fiscal problems. In this context, Mendoza and Oviedo (2004) highlight the importance of growing public debt as indicator to signal the vulnerability and the need for an immediate policy reaction. Also, structure of public debt has an important role in increasing or decreasing the vulnerability of an economy on short term shocks. In this case, it is necessary to investigate the profile of public debt based on currency of issue and on maturity. This investigation is based on Eurostat data regarding the public debt and its components expressed as percent of GDP, over the period 1998-2008. It is considered this period because of the data availability for all the EU member states.

According to the currency of issue, public debt can be analyzed based on the following two components: (i) public debt in national currency; (ii) public debt in foreign currency. Based on this structure, many studies reveal the fact that a country with more public debt in foreign currency is more vulnerable to shocks represented mainly by fluctuation of exchange rate (Hemming and Petrie, 2000; Yeyati and Sturzenegger, 2007). Consequently, EU member states that accumulated more public debt in foreign currency are vulnerable on short term shocks on exchange rate. These are emerging economies with public debt in foreign currency over 50 percent of total public debt (table 2) such as: (i) Bulgaria; (ii) Estonia; (iii) Lithuania; (iv) Latvia; (v) Romania. Slovenia is also vulnerable on short term shocks on exchange rate because, on average during 1998-2008, foreign public debt is almost 43 percent on total public debt.

Table 2. Countries vulnerable to external shocks through exchange rate (1998-2008).

<table>
<thead>
<tr>
<th>Countries</th>
<th>Size of the vulnerability to external shocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>BG</td>
<td>84.1</td>
</tr>
<tr>
<td>EE</td>
<td>86.3</td>
</tr>
<tr>
<td>LT</td>
<td>69.6</td>
</tr>
<tr>
<td>LV</td>
<td>57.8</td>
</tr>
<tr>
<td>RO</td>
<td>75.2</td>
</tr>
<tr>
<td>SI</td>
<td>43.3</td>
</tr>
</tbody>
</table>

Source: own determination based on EUROSTAT database.

In contrast, more public debt in national currency may also involve vulnerability on shocks such as interest rate (Budina and von Wijnbergen, 2008). This is the case when governments borrow more money from internal sources that will increase the demand for loans and therefore will conduct to important growth of interest rate. As consequences, governments will have to pay more interests on their loans which will create pressure on budgetary expenditure.

In order to demonstrate this kind of exposure on short term shocks, it is useful to present the Romanian case which in 1997 was borrowed even at an interest rate of 186 % for an issue of Treasury bills. The result was represented by an important increase of interest from 5.5 percent of total
government expenditure in 1996 to 12.9 percent of total government expenditure in 1997. In that year, government reacted by important changes in public debt management involving diversification of public debt instruments, new methods of selling the government securities, borrowing more from external creditors, maturity extension. All these governmental actions conduct to a level of interest on public debt of 2.1 percent of total government expenditure in 2008.

Interest on public debt over 20 percent of total government expenditure was obtained in countries with public debt of almost 100 percent on GDP such as: (i) Belgium, in 1990 (interest of 22.2 percent of total government expenditure, public debt of 125.7 percent of GDP); (ii) Greece, in 1994 (interest of 27.8 percent of total government expenditure, public debt of 96.3 percent of GDP); (iii) Italy, in 1993 (interest of 22.6 percent of total government expenditure, public debt of 115.7 percent of GDP). Governments from these countries applied important measures which conduct to a continuum decrease of interest on public debt as government expenditure ratio. Also, in Portugal, in 1986, interest on public debt ratio was 20.20 percent of government expenditure in the condition of a public indebtedness of 58.6 percent of GDP.

Based on the maturity, public debt can be divided into public debt on short term (less than 1 year) and public debt on medium-long term (over 1 year) (fig. 4). Short term public debt reflects the countries exposure to short term shocks generated by the immediate need to identify new financial resources necessary to pay the short term loans. In this case, government may seek to rollover the public debt which will expose economy even more in medium and long term. Long term public debt is determined by the rollover public debt and short term public debt. The public debt rollover will conduct to the increasing of public debt on long term. Also, calling for the public debt rollover is a way by which governments postpone fiscal adjustments with negative consequences for future generations. No matter how much is really short-term debt but rather how the government manages to cover short-term resource requirements for current outstanding.

In figure 4 it is presented the public debt profile based on maturity and the vulnerable countries on short term shocks. Interesting cases are represented by ten old EU member states (Belgium, Denmark, Finland, France, Ireland, Italy, Luxembourg, Netherlands, Portugal, and Sweden) and five new EU member states (Czech Republic, Hungary, Latvia, Malta, and Romania).

Synthesizing the results of our investigation it can be identified four categories of countries according to their shock exposure (fig. 5). This analyze does not include Cyprus, Finland, Sweden and United Kingdom because of the data availability. The higher exposed countries at shocks that are induced by the governments’ interventions are represented by Romania, Latvia and Hungary, while the higher exposed to external shocks are Bulgaria and Estonia. Greece is an interesting case because it is exposed to minor risk but the current problems consist in the past behavior that conduct to the accumulation of an important public debt stock in the context of a significant fiscal imbalance.
Fig. 4. Public debt maturity for EU Member States (1998-2008).
Source: own determination based on EUROSTAT database.

Fig. 5. Shock exposure for EU Member States (1998-2008).
Source: own determination based on EUROSTAT database.
Also, considering the economic system as a living system like the human body, it is possible to identify four stages of shock exposure without a sudden transition from one stage to the next one: (i) initial stage of shock exposure manifested by the deterioration of the macroeconomic indicators. This will “attack” different parts of the economic system that are chained. Therefore, if a component suffers then the others will be affected; (ii) compensatory stage of shock exposure is characterized by the attempt to reverse the conditions, therefore, the whole system begins to work to restore the equilibrium situation; (iii) progressive stage of shock exposure is that situation when the crisis causes are not adequate treated and the shock will step to a progressive stage and the compensatory mechanisms start to fail; therefore, the pressures will increase and the interventions in the economy will be based on a shock therapy and not a gradual one; (iv) refractory stage of shock exposure when the measures taken by the governments will fail and the shock effects can no longer be reversed. Also, we can identify other type of shock such as distributive and obstructive shock. Considering the present economic context it can be demonstrated by the governments’ undertaken measures that today we are in the compensatory stage. Therefore, the governments must apply the adequate measures which depend on the threats perception, and the willingness and ability to react by taking the efficient policy actions in the context of increasing vulnerabilities. In order to do so, all the governments must know their degree of the shock exposure based on fiscal variables that are under the control of governments. These degrees are presented in table 3.

Table 3. Countries categories based on the shocks exposure degree (1998-2008).

<table>
<thead>
<tr>
<th>Category</th>
<th>Score</th>
<th>Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (low shock exposure)</td>
<td>1</td>
<td>BE, DE</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>AT, GR</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>ES</td>
</tr>
<tr>
<td>2 (medium shock exposure)</td>
<td>4</td>
<td>IE</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>FR, NL</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>SI</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>EE, SK</td>
</tr>
<tr>
<td>3 (high shock exposure)</td>
<td>8</td>
<td>DK, PL</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>LT</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>IT, LU, PT</td>
</tr>
<tr>
<td>4 (very high shock exposure)</td>
<td>11</td>
<td>CZ, LV, MT</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>BG</td>
</tr>
<tr>
<td></td>
<td>13</td>
<td>HU, RO</td>
</tr>
</tbody>
</table>

Source: own determination based on EUROSTAT database.
4. CONCLUDING REMARKS

In the present economic context, when countries all over the world face important economic downturn in a fragile fiscal environment, it is necessary to find the answers for the legitimate questions regarding the shock exposure of an economy. The first step in identifying the answer consists in the investigation of the shock exposure that can be induced by the governments’ actions. The government’s policies can expose the economy to vulnerabilities that will generate negative effects on the economy.

Shock exposures differ across countries by the set of fiscal and macroeconomic policies applied in the past. Investigating the past behavior of governments can offer important signs for the need to improve or to continue the current policies. But in the presence of the accumulated risks, the governments must undertake actions in order to prevent the shift of the current challenges for a reversible situation to an irreversible one. These depend on the threats perception, on the willingness and ability to take the adequate measures in order to ensure the fiscal sustainability without compromising the economic growth and the quality of public finance.

The paper aim is to identify the shock exposure based on fiscal policy within EU member states. The scientific research starts from the indicators used by the EC and proposed a new set of indicators that are capable to reveal the shock exposure of a country. These indicators, that we consider more suitable for the investigation, take into consideration the public debt structure. Therefore, are identified the most exposed countries and the degree of the exposure base on the screening analysis using Eurostat data for the EU member states. The results indicate the need for rapid interventions of the governments to reduce the shock exposure for countries like Romania, Latvia and Hungary, while the higher exposed to external shocks are Bulgaria and Estonia.

Also, synthesizing the results is obtained four categories of countries according to their exposure to shocks. These classes are taking into account both short-term shocks and external shocks.

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FLAT RATE TAX IN HUNGARY
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Abstract

Paper presents the results of the impact assessment of the flat rate tax introduced in Hungary in 2011. First the main characteristics of the Hungarian personal income tax system are outlined. The effects on income distribution are presented then. These effects of the tax regime are quantified by the microsimulation model ECOS-TAX, which was developed in the ECOSTAT Institute. Also the expected impacts on consumptions have been analysed.

Key words: microsimulation model, income inequality, taxation

1. INTRODUCTION

Hungary introduced a new flat rate family taxation in 2011. Its purpose is to ease the demographic problems, to decrease the costs of employment, therefore to increase competitiveness and to enlarge the level of employment. The austerity measures enforced by the economic crisis supported the reduction of the state budget deficit, but they were obviously procyclical setting the domestic demand back. In what follows, we will overview first the taxes of employment in the EU. Then we will present our forecasts on the development of net incomes in Hungary, and the specific effects of the new tax system on different social strata will be analysed. These effects have been quantified by the microsimulation model ECOS-TAX developed in the ECOSTAT Institute (Cserhati, et al 2007, 2009). Also the expected volume of VAT will be assessed on the basis of the model runs.

2. TAXES ON LABOUR AND THE APPLICATION OF FLAT RATE

The income tax rates are traditionally higher in Europe than those in the USA. However, the mean of the highest rates decreased by about 10% in the EU during the past 15 years. Flat rate has been introduced in 7 member states. The average implicit tax rate (i.e. the sum of taxes and social contributions divided by the amount of salaries) hardly decreased only, which means that tax systems tended to be more regressive. The highest personal income tax rate was 41% of the gross salary in Hungary in 2010 (Figure 1), which was close to the mean of the EU member states, but it was far higher compared with the competitors of the Central European Region. The 42.4% implicit tax rate of labour incomes was the third highest in the Union, which preceded even that of Holland, Sweden and Denmark having a high level of social protection (Figure 2). The flat rate was introduced primarily in the Central and Eastern European countries (Figure 1). Theoretically, the decrease of the marginal tax rate increases the labour supply, decreases the tax evasion, improves the transparency, reduces the
administrative costs, therefore the competitiveness of the corresponding countries may improve. However, the absence of progressivity can increase the income polarisation quite sharply which can decrease the potential growth rate (Kuznets, 1955, Cornia et al 2001, Ferge, 2005).

The application of flat personal income tax rate and the decrease of the rates may have multiple effects on the boom, although these positive effects may succeed only in mid term. The direct short term effect is the relevant decrease of the incomes of the government budget as it was seen in Hungary in the beginning of 2010. The reduced tax load results in the increase of the disposal incomes, which raises the level of consumption in mid term and the households’ saving may convert to sources of new investments. Furthermore, the flat rate may render the corporate sector more competitive for long term, since employees will be satisfied by a relative low increase of gross salaries, that is the labour becomes relatively cheaper. We note however that flat rate can stimulate economic growth primarily in the case of boom, it might deepen the recession (e.g. as it was experienced in the Baltic states during the economic crisis). The consumption of the residential sector is expected to grow only at a low rate in Hungary in 2011; the Hungarian Central Statistical Office reported even a slight setback in the first quarter. The main reason of this expected moderate increase is that the disposal income is growing primarily in the high income deciles, where the marginal propensity to consume is relatively low. Furthermore, a relevant part of the increased realized income is being paid off the previous debts, and it is not expected that the propensity to save will decrease. Most of the private pension funds have been nationalized in Hungary lately, the real incomes of these funds is now being divided among owners, which may support the increase of consumption. Also the realized VAT revenues of the state budget increases as an indirect effect. The increase of investment is however restrained by the relatively low level of credit activity of commercial banks due to the special bank tax introduced in 2010. In order to assess the effects on investment, one should be aware of the saving structure of the richest strata, but there are still no reliable statistics or surveys on it. When assessing the effects of the flat rate one should be aware of the fact that the surplus income of the rich may generate a great amount of import consumption, which reduces the GDP on the demand side.

**Figure 1**

*The highest personal income tax rates in EU member states in 2010 (in percentage of gross wages)*

*Note.* Instead of country names, ISO country codes are used.

*Source:* Eurostat
Implicit tax rate on labour in 2008
(Ratio of taxes and social security contributions on employed labour income to total compensation of employees)

Source: Eurostat

Table 1

<table>
<thead>
<tr>
<th>Year of implementation</th>
<th>Country</th>
<th>PIT rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>Estonia</td>
<td>21</td>
</tr>
<tr>
<td>1994</td>
<td>Lithuania</td>
<td>26</td>
</tr>
<tr>
<td>1995</td>
<td>Latvia</td>
<td>15-26</td>
</tr>
<tr>
<td>2001</td>
<td>Russia</td>
<td>13</td>
</tr>
<tr>
<td>2003</td>
<td>Serbia</td>
<td>14</td>
</tr>
<tr>
<td>2004</td>
<td>Slovak Republic</td>
<td>19</td>
</tr>
<tr>
<td>2004</td>
<td>Ukraine</td>
<td>13</td>
</tr>
<tr>
<td>2005</td>
<td>Georgia</td>
<td>12</td>
</tr>
<tr>
<td>2005</td>
<td>Romania</td>
<td>16</td>
</tr>
<tr>
<td>2008</td>
<td>Czech Republic</td>
<td>15</td>
</tr>
<tr>
<td>2008</td>
<td>Bulgaria</td>
<td>10</td>
</tr>
<tr>
<td>2011</td>
<td>Hungary</td>
<td>16</td>
</tr>
</tbody>
</table>

Source: IMF
The application of flat rate may support the creation of jobs and the whitening of the economy. It may increase the tax revenues also, as more and more people evading tax will declare their income, that is the tax base may increase. This latter effect is however controversial, since it may not succeed in a country with relatively low tax morals.

3. THE MAIN CHARACTERISTICS OF THE TAX SYSTEM OF HUNGARY IN 2011

During the past three years, the main parameters of the Hungarian tax system developed as shown in Figures 2 through 4. This means that the two most important changes were the introduction of the flat rate and the extension of family allowances in 2011 (ECOSTAT, 2010).

The base of the present 16% flat rate is the whole labour cost, which is called in Hungary as ‘supergross salary’ including all taxes and social contributions paid by the employer and the employee. The base is 127% of the actual gross salary. It is planned that the base of the personal income tax will be only 113.5% of the actual gross salary, and the base will be later only the gross salary excluding the “supergross”. The amount of applicable tax credit has been reduced in the case of low salaries when the flat rate was introduced. This tax credit will further decrease in 2012 according to the present plans, and later it will be ceased. We note that in most countries applying flat rate there is an applicable tax credit close to the minimum wage, but the Hungarian tax system will be clearly linear after two years.

The extension of family allowances was also a relevant change in the personal taxation system, since its amount has changed and the extended allowances can be realized by the two parents together summing up their incomes. Earlier the allowance could be realized with minimum three dependant children only up to 8 million HUF income, it could not exceed 4000 HUF (15 EUR) per month. From 2011, the tax base can be reduced by 62 500 HUF (230 EUR) per month per dependant child independently from income level, if parents have one or two children, but the reduction is as large as 206 250 HUF (765 EUR) per child per month if there are at least three dependant children in the family.

Although the reduction of the tax rate itself increased the disposable income, the decrease of the applicable tax credit set back even the nominal wages in the lower income deciles. This nominal reduction was however compensated in the government sector. According to a new report of the Hungarian Statistical Office, 46% of the government employees had to be compensated, the amount of the average compensation was 5 200 HUF (20 EUR). This will load the state budget by about 20 billion HUF (75 M EUR) according to our estimation. We have to take into account a similar effect in 2012, when the applicable tax credit will be further reduced. This reduction may neutralize the effect on the disposable incomes, or it might cause even a nominal income decrease in the lowest deciles as it happened this year.
Table 2

Personal Income Tax regulations in 2009
(HUF and %)

<table>
<thead>
<tr>
<th>Employee's tax credit in the percentage of wage</th>
<th>18%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legitimacy limit of employee's tax credit</td>
<td>1 250 000</td>
</tr>
<tr>
<td>Upper limit of employee's tax credit</td>
<td>2 762 000</td>
</tr>
<tr>
<td>Measure of decrease in case of incomes between the two limits</td>
<td>9%</td>
</tr>
<tr>
<td>Maximum value of the employee's tax credit/month</td>
<td>11 340</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lower income limit</th>
<th>Upper income limit</th>
<th>Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1 900 000</td>
<td>18</td>
</tr>
<tr>
<td>1 900 001</td>
<td></td>
<td>36</td>
</tr>
</tbody>
</table>

Family allowances:
3 or more children (per child) | 4 000 |
Upper income limit needed to legitimacy | \(6 000 000 + 500 000/\text{child}\) for the 4th, 5th, .. child, but max. 8 000 000

Table 3

Personal Income Tax regulations in 2010
(HUF and %)

<table>
<thead>
<tr>
<th>Employee's tax credit in the percentage of compensation of employees</th>
<th>17%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legitimacy limit of employee's tax credit</td>
<td>3 188 000</td>
</tr>
<tr>
<td>Upper limit of employee's tax credit</td>
<td>4 698 000</td>
</tr>
<tr>
<td>Measure of decrease in case of incomes between the two limits</td>
<td>12%</td>
</tr>
<tr>
<td>Maximum value of the employee's tax credit/month</td>
<td>15 100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lower income limit</th>
<th>Upper income limit</th>
<th>Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>500 000</td>
<td>17</td>
</tr>
<tr>
<td>500 001</td>
<td></td>
<td>32</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.27</td>
</tr>
</tbody>
</table>

Family allowances:
3 or more children (per child) | 4000 |
Upper income limit needed to legitimacy | \(6 000 000 + 500 000/\text{child}\) for the 4th, 5th, .. child, but max. 8 000 000
4. IMPACT ASSESSMENT OF THE FLAT RATE BY A MICROSIMULATION MODEL

The ECOS-TAX model has been used to simulate the effect of the new tax system. This is a microsimulation model based on the Household Budget Survey of the Hungarian Central Statistical Office. This survey contains detailed income and consumption data for a representative sample of households of Hungary.

We examined in the first model run, how the income positions of different strata may change as a result of the new tax system introduced in 2011 compared to the previous year. It was necessary first to forecast the gross salaries. The gross salaries will increase in the competitive sector by 4.7%, and they will decrease in the government sphere by 1.8% in 2011 according to our estimations. First we determined the supergross salaries for each person, and also simulated the other types of incomes, and then we applied the tax rules of 2011 to determine the net incomes. The model results show that a 6.1% nominal income increase can be expected in Hungary in 2011.

A great number of papers analysed the tendencies of Hungarian inequalities during the previous periods (Éltető, 1997, Ferge 2005). The effects of the changes of the personal tax system on the different social strata are shown by Table 5. This means that income inequalities will slightly increase in 2011. The indicator S80/S20 showing the ratio of the richest and poorest 20% may increase from 5.58 to 5.87. The net income of the lowest decile is expected to grow by 1.5%, and this rate is gradually increasing moving towards higher deciles. The income of the highest decile may be greater by 7.8 than that of the previous year. The real incomes increase altogether by 2%.

It was examined in the second model run how the change of the new tax system itself has modified the income distribution, that is what changes could be observed in the absolute and relative income positions of the different strata as a result of the new tax system. This means that we quantified what could have happened if the previous tax system had been further valid, and the direct effects on strata are defined as a deviation from it. According to our estimations, the introduction of the new tax system resulted in 3.4% additional income in the residential sector. This effect is 0.7% in the poorest and 4.8% in the richest stratum.

| Employee's tax credit in the percentage of compensation of employees | 16% |
| Legitimacy limit of employee's tax credit | 2 750 000 |
| Upper limit of employee's tax credit | 3 960 000 |
| Measure of decrease in case of incomes between the two limits | 12% |
| Maximum value of the employee's tax credit/month | 12 100 |

**Table 4**

| Tax rate (%): | 16 |
| Super grossing parameter | 1,27 |

| Family allowances: |
| Number of dependant children | Decrease in the tax base per month and per child |
| 1, 2 | 62 500 |
| 3 or more | 206 250 |
One can observe that there was altogether a perceptible increase of net incomes in all strata. However, the income inequalities increase. The polarization is characterized by the fact that the poorest households do not reach even 30% of the average income, while households in the richest decile realize 260% of it.

Table 5

<table>
<thead>
<tr>
<th>Households’ incomes per deciles</th>
<th>2011/2010</th>
<th>From which: effect of PIT regime change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decile 1 (the lowest)</td>
<td>101,5%</td>
<td>100,7%</td>
</tr>
<tr>
<td>Decile 2</td>
<td>102,8%</td>
<td>101,0%</td>
</tr>
<tr>
<td>Decile 3</td>
<td>102,8%</td>
<td>101,3%</td>
</tr>
<tr>
<td>Decile 4</td>
<td>103,9%</td>
<td>101,9%</td>
</tr>
<tr>
<td>Decile 5</td>
<td>104,8%</td>
<td>102,5%</td>
</tr>
<tr>
<td>Decile 6</td>
<td>105,5%</td>
<td>103,0%</td>
</tr>
<tr>
<td>Decile 7</td>
<td>106,3%</td>
<td>103,5%</td>
</tr>
<tr>
<td>Decile 8</td>
<td>107,1%</td>
<td>104,0%</td>
</tr>
<tr>
<td>Decile 9</td>
<td>107,3%</td>
<td>103,8%</td>
</tr>
<tr>
<td>Decile 10 (the highest)</td>
<td>107,8%</td>
<td>104,8%</td>
</tr>
<tr>
<td>Total</td>
<td>106,1%</td>
<td>103,4%</td>
</tr>
</tbody>
</table>

Source: ECOS-TAX model results

Figure 3

Change in relative position of income deciles (change in ratio of income of the specific decile regarding to the national average) of Hungarian households

(2010=100%, for each income decile)
We also estimated the dynamics of the households’ consumption on the basis of the expected incomes in 2011 and on the consumption ratios based on the data of the Household Budget Survey. It was assumed that these consumption ratios (moving contrary to incomes) have not changed since the date of the latest survey. The calculations show that the income polarization caused a 0.3% pts real loss in the consumption of the households.

Model runs showed that the introduction of flat rate combined with the extension of family allowances resulted in a nominal increase altogether in all income deciles. The polarization of incomes increase that restrain the increase of consumption, the positive effect of the flat rate on economic growth can be expected only in long term. The analysis of the long term effects is also important from the viewpoint of sustainable development. However, this issue is beyond the scope of present paper, but it has been analysed by the model SOCIO-LINE (Cserhati et al 2006).

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METHODS OF ESTABLISHING THE EARNINGS

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Abstract

For a company to be successful in its work and at the same time to go forward with everyday changes in its surrounding, it has to have great and qualified employees.

Subject of this research is to measure (estimate) i.e. evaluate the job and the methods of establishing the salary.

The meaning of the evaluation is often called job estimation. The evaluation or job estimation is actually determining the difficulty of separate jobs and their mutual relations. Special stress is put on the most commonly used practical methods of evaluation such as method of establishing the job by ranking and classification as well as the method of evaluation the employees’ knowledge, abilities and professional skills.

Analyzing these methods is proved to be the best, the fastest and the most objective way. Also, the basic salary of each employee can be determined by the lowest expenses.

Key words: evaluation, estimable methods, earnings, expenses, salary.

1. INTRODUCTION

Practice shows that public and private companies should and can make profit, should invest, expand and open new working positions.

In the current economic climate the most important thing for accomplishing success is good management.

If a company doesn’t make enough income and cannot pay off its employees then there are too many employees or bad management that cannot find a solution to keep the employees that helped them to get to the target.

A lot of researches showed that the world suffers from bad employment and not from unemployment. In today’s world where changes occur constantly, each of the employees should be responsible for personal improvement of their professional skills and knowledge and therefore to be more valued by the employer and appropriately rewarded.

Different salaries and rewards to the employees for certain abilities and skills they perform in their job is not only their success but also a success to the managers and a success to the whole company in general.

The evaluation of the completed work is conducted with different methods and patterns. Regardless of what type of method is used for the evaluation, the main goal is to help establish the final earnings of each employee.
2. WHO SHOULD DETERMINE THE METHODS OF ESTABLISHING THE EARNINGS?

Each method of establishing the earnings should describe, define and give information to the employees for the difference in rewarding.

There are different understandings to the issue who conducts the evaluation of the employees and practically a lot of structures can perform this role depending on the working position that needs to be evaluated.

-A lot of researches showed that almost 80% of the database and methods of evaluation derive from the managers themselves (E.Jackson, Rantoll. Schuter, J.Karlos Rivero-Organizational characteristic as predictors of personnel practices, personnel psychology,42, 1989, p.727-786). One of the reasons for this frequency is that the managers themselves have a great experience in the department they evaluate as they spend a lot of hours with their employees. This gives them a clear picture for each working position and the effort needed for completing certain task.

However, there is a negative side to this way as the superior can be biased and too soft in estimating its employees.

-Forming teams from the employees themselves with a representative of the employees from the same area in a way mutual estimation. But there is also a drawback in this estimation as certain number of employees may not have big experience in the job and this can lead to wrong information. And this information should represent a main source of further estimation.

With this way of estimating there is a high possibility of destroying the employees’ relations.

-Moreover, the estimation of the employees in certain companies can be done by external users of their services. The external users are actually the most informed ones of the behavior, expertise and training of the employees because of the everyday communication and completion of their services in that certain company.

Conducting this type of estimation is of great importance and help for the management in determining the correct method of establishing the earnings.

The approach of forming working groups for determining the methods and patterns for establishing the earnings to the employees is of great significance not only for the employees themselves and the managers but also for the company itself in whole.

3. FACTORS FOR DETERMINING THE BASIC SALARY

The salary of each employee is always connected with the quantity of effort required for completing a previously given working task.

Determining the basic salary appeals great interest. All salary benefits, whether they are direct or indirect, complement the basic salary. Because of these reasons, it is said that the stimulation of the total payroll system mostly depends on the way that the first step is made i.e. how the basic salary is formed.

All other supplements are formed on the basis of the first salary and this provides the employee’s total earnings.

In theory and in practice, there are methods of establishing the basic salary and salary supplements in forming the earnings. The most frequently used methods in this area, in theory and in practice, are:
4. METHODS OF EVALUATING THE WORK

Rewarding or paying the employee for the completed task represents one of the most subtle aspects in the operation of the companies. Finding the right approach for rewarding is one of the most complex issues and serious decisions need to be made.

The employees in a company very frequently contrast their own tasks and conditions involved with the tasks and conditions in other companies. If by any chance, when contrasting a lot of similarities appear and the evaluation differs then subjectivity is found in the estimation of the completed task.

In the more developed countries of Europe, great deal of attention is dedicated to the evaluation of the employees’ job in order to set the measures and criteria for more objective job evaluation and their mutual relations.

The evaluation of the work is in a way answer to the question: what tasks are performed at the working position, what knowledge and skills are necessary for completing the given task, what responsibilities each employee has, what physical effort is needed for the tasks and what working conditions are at the place where the task is being completed.

A recent survey on this problem showed that in a large number of countries different methods are applied for job evaluation. In principle, all these methods lead down to two basic groups: global and analytical.

- Qualitative (global) methods:
  a) method of ranking
  b) method of qualification

- Quantitative (analytical) methods:
  a) method of factors contrasting
  b) method of points

4.1. Qualitative (global) methods

Method of ranking is one of the easiest and simplest methods of job evaluation and at the same time is a method that requires the lowest expenses for its conducting.

The person in charge of the evaluation starts from personal experience so that he can establish what knowledge and experience are required for each task, what physical and mental effort is required for certain working positions etc.

According to these circumstances, groups for ranking are formed. Ranks are made in the formed groups to serve as a basis for establishing the employees’ salaries.

The method of ranking is usually used in smaller companies because in bigger companies there is a larger number of different departments with different tasks and working positions. In these cases, ranking of related working tasks is much more difficult to be made.
This method is subjected to a lot of criticism because there are doubts for the objectivity and accuracy in the evaluation.

Method of classification is carried out in a way that a certain number of working classes are formed in one company.

In this method there is a global evaluation similar to the ranking. The jobs are evaluated according to the requirements all together (knowledge, skills, responsibilities, working conditions etc.) and not according to each requirement separately. According to the number of the formed classes, salaries are formed for each class. It is clear that every company should have an internal act to determine the tasks that belong to certain classes.

The method of classification as well as the method of ranking is easy and with low expenses and what is even more important the results are satisfactory. The disadvantage of this method is the subjectivity in defining the classes of the person in charge of the evaluation because there are no concise instructions for the classification only the personal experience of the person in charge.

4.2. Quantitative (analytical) methods

The direct money method varies from the other methods because the expertise, professional skills, mental and physical efforts, responsibilities and working conditions are evaluated separately and are expressed in units of currency.

In the evaluation with this method one of the most important thing is to measure the key i.e. representative jobs that are being analyzed in details and a ranking list is set for every factor separately with appropriate money amount.

Example: If the money amount for a manager’s job of one department lead by a highly educated person is 1500 units then these units can be divided in different factors: for expertise and skills 500, for mental effort 300, for physical effort 100, for responsibility 400 and for working conditions 200 units.

More precise evaluation is set by using this method because there is more accurate documentation and tasks description on disposal.

However, there are two disadvantages in this method. Firstly, it is rather complex and difficult to explain to the employees. Secondly, the division of the value of separate jobs is often done arbitrary and doesn’t have any convincing arguments.

Method of points is one of the most frequently used and the most modern method because each job is measured in points depending on the requirements and difficulty of the job. By collecting the points for each work, we obtain the value i.e. difficulty of the job expressed in points.

Conducting this method requires certain procedures with many activities such as:

a) The register of the working tasks needs to contain (Dr. Jovo Todorovich, “Studying and measuring the work with basic evaluation” Belgrade, 1979, p.314):

- what is being done and not how during the working hours
- certain and significant working tasks for the working position
- sequence in the working tasks that are being registered, starting from everyday ones to the temporary ones and
The register is being done on previously prepared forms for that purpose, adjusted to the certain company and working positions in it.

b) All working tasks in order to be evaluated, first need to be described. The description and the register of the working tasks serve not only for the evaluation but also gives information how many employees are needed for certain task and how many working positions are unnecessary. The description is carried out in each working position by observing, analyzing and consulting the one that does the work and its manager.

c) Analyzing the work is a procedure in which we need to make a choice of the most significant criteria for analyzing that are in a way common for all tasks in the evaluation.

The most significant criteria in the analyzed task are obviously the basic criteria in the evaluation such as:

Knowledge and abilities especially the degree of education, additional knowledge acquired in the process of working, skilled, initiative for work, mental and personal abilities etc.

Responsibilities in the job: responsibility for proper functioning and procedures in the work, responsibilities for the equipment, responsibility in the approach with clients, responsibility for correct coordination in the duties etc.

Efforts: physical, mental efforts because of relation with people from outside etc.

Working conditions: danger from injuries, dust, working on height, working underground, high temperatures etc.

d) Grading of the work is actually evaluating the work in which the degree of intensity should be specified. The grading is done on each criterion separately. The number of degrees is different depending on the work but this number shouldn’t be too big because the system of evaluation becomes too big as well and therefore it loses or declines its accuracy.

e) Determining the total number of points is carried out by giving points to every stated criterion separately and the total number of points is formed for the certain task.

f) Ranking of the work is the last phase in the evaluation with the method of points. By establishing the ranking list of points in some way the height of the salary of each employee is determined separately shown in points.

The value of the work and the accomplished results of the employee measured with many different elements lead to a realistic picture for each employee’s salary.

This method is widely used in the European countries because a lot of shortages are eliminated and it is rather realistic and useful as an instrument for establishing the basic salary.

5. METHOD OF EVALUATING THE EMPLOYEES’ KNOWLEDGE, ABILITIES AND PROFESSIONAL SKILLS

In the last decade more than in any other time in history, a lot of changes occur in the companies in all European countries. Operating in modern conditions with high technology has a double challenge on the companies: with greater turbulence in the working and living environment as well as with greater
global competition. These conditions ask for flexibility and adjustment to the current changes. Every company tends to apply the most recent patterns and methods of job evaluation.

The method of establishing the salaries based on knowledge, skills and abilities for each individual illustrates the statement that if an employee studies more, it will earn more.

This is totally opposed to the method of evaluation according to the value of the work that an individual performs regardless of the knowledge and skills he possesses.


<table>
<thead>
<tr>
<th></th>
<th>Based on the work</th>
<th>Based on knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure of the salary</td>
<td>It is based on the work that is being completed</td>
<td>It is based on the skills that the employees possess</td>
</tr>
<tr>
<td>Managers’ focus</td>
<td>Work brings salary</td>
<td>Employees bring salary</td>
</tr>
<tr>
<td></td>
<td>Employee attaches to work</td>
<td>They attach to skill</td>
</tr>
<tr>
<td>Employees’ focus</td>
<td>Promotion for higher salary</td>
<td>Acquiring skills in order to get higher salary</td>
</tr>
<tr>
<td>Procedure</td>
<td>Estimation of the content of the work</td>
<td>Estimation of the skills</td>
</tr>
<tr>
<td></td>
<td>Value of the work</td>
<td>Value of the skills</td>
</tr>
<tr>
<td>Advantages</td>
<td>The salary is based on the value of the completed work</td>
<td>Flexibility</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Smaller number of employees</td>
</tr>
<tr>
<td>Limitations</td>
<td>Potential bureaucracy</td>
<td>Potential bureaucracy and possibility for higher expenses</td>
</tr>
<tr>
<td></td>
<td>Non-flexibility</td>
<td></td>
</tr>
</tbody>
</table>

This chart shows the differences between the two systems of establishing the salary. When this method is used, the skills of the employees play a vital role in estimating the depth and width of the abilities.

Each working position asks for special abilities, skills and knowledge in order to function in its best. If for example we take the working positions: finances, marketing, production etc. they all separately require special skills and knowledge. Each company as well as each internal department has a need for different skills in completing certain phases in the process of working (G.T. Milkovich, Jerry M. Newman, Salaries and patterns of rewarding, Masmedia, Zagreb,2006, p.181-188).

This method is subjected to a lot of criticism because if all the employees reach the highest level of the necessary abilities and skills then there is a significant increase in the expenses for salaries.
Because of these reasons, it is the best policy in practice to be taken into consideration only those characteristics of expertise that can be measured and directly influence on the results of the company’s functioning.

Nevertheless, this method has its own positive and negative sides.

The positive sides are that:

- It provides training of the employees for completing more different works
- It enables replacing the absent workers because they possess much more knowledge and skills
- It leads to creating more favorable climate for training the employees
- It increases the motivation of the employees because their promotion doesn’t mean opening new working positions but acquiring new knowledge, abilities and skills that need to be used in practice.
- Knowledge of more working tasks enables the employee to take responsibility for the whole working process
- The most important thing is that the employees accept this method of evaluation because it leads to their own personal development.

The negative sides are that:

- The expenses for this kind of introduction are rather high
- The abilities and skills in time get older and they can be paid for something that is no longer needed in the newly developed situation
- Investing in the employees is huge and keeping those employees is rather uncertain.

6. CONCLUSION

From this research, it can be concluded about these two methods that:

The method of ranking is not appropriate for big companies, in which we can find bigger number of working units, because doubts can appear regarding the objectivity of the people that carry out the evaluation.

As far as the method of classification is concerned, here the classes and salaries of each class are determined so it means that it is done global evaluation of each class. The person in charge of the evaluation conducts this method on the basis of his personal views, without having any concrete or convincing documentation.

With the direct money method, there is a ranking list of the value of separate tasks and according to that list it is being measured and expressed in units of currency. This method of evaluation is more accurate than the method of ranking and classification. Therefore this method of evaluation has a wide application in practice and it represents useful instrument in establishing the basic salary and their structure.

Finally, using the method of evaluation of an employee’s knowledge, professional skills and abilities is the best and the most realistic method because it illustrates the statement that if an individual studies more, it will earn more.
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AN INSOLVENCY PETITION IN THE PERSONAL
BANKRUPTCY PROCEDURE IN LATVIA
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Abstract

The New Law “Insolvency Law” came into force in Latvia on 1st of November 2010, and together with Civil Procedure Law establishes the rules of implementation of personal bankruptcy.

The legislation which regulates bankruptcy process contains gaps and collisions and, as a result, they make the insolvency procedure more complicated. In the New Law and Civil Procedure Law there have not been worked out thoroughly various aspects of legal regulation of the bankruptcy process; that is why the legal use of the indicated norms is rather difficult. In order to achieve the principle of efficiency of the process it is important to revise the legislation and make it perfect.

The article studies unclear and contradictory norms of the Civil Procedure Law – the legal regulation of the Insolvency Petition in the Personal Bankruptcy Procedure in Latvia. There have been made certain proposals related to the Latvian law.

Key words: Insolvency Procedure, Personal Bankruptcy, Insolvency Petition, Court, Judgment, Civil Procedure Law, Interested Persons.

The aim of the given article is to analyse the peculiarities in the initiation of personal insolvency case in the legal frameworks of Latvian legislation, to expose problems which appear in the use of law, as well as to work out proposals for the perfection of legal norms which regulate the conditions of an insolvency petition and initiation of case.

THE MAIN PROBLEM OF RESEARCH

The legislation, which regulates personal insolvency procedure in Latvia, has to be modernized, because the gaps and the collisions of Latvian New Insolvency Law and Civil Procedure Law make personal bankruptcy process inconvenient in apply. In order to enforce the fundamental principles of insolvency law and legal standards of the civil procedure, which have been envisaged in science and in the rules of law, it is important to work out the legislation, which is able to regulate the personal bankruptcy procedure in Latvia, and make it perfect.

The object of research – legal provisions of personal bankruptcy procedure.

The subject of research – legal relationship of personal bankruptcy procedure and creation of the model of personal bankruptcy process, which covers all fundamental principles of Insolvency Law.

In order to archive this aim the author puts forward the following objectives:

- to analyse legal norms which regulate the order of personal insolvency petitions;
- to find out problems in the use of law at the stage of accepting the debtor’s insolvency petition;
- to work out proposals for the perfection of legal norms which regulate legal norms in order to initiate the case.

THE METHODS OF RESEARCH

THE NOVELTY OF RESEARCH
The investigation of personal insolvency procedure has become extremely important in contemporary Latvia. The modernization of personal insolvency procedure has not been analysed before in Latvia.

The novelty of research lies in the author’s summary of theoretical and legal bases of development of the institute of the personal bankruptcy, in the systematic analysis of the practical experience in the use of legal norms, which lead the process, in accordance with the legislation perfection. The author has worked out the possible ways of solving the most urgent problems in the given field of the Latvian legislation on the basis of the analysis of contemporary tendencies in the development of the institute of personal insolvency.

INTRODUCTION
Bankrupt (English – bankrupt German – bankrott, Italian – bancarotta) – is an insolvent debtor; an organisation or an entrepreneur, who crashed being financially insolvent...(Tikhomirova and Tikhomirov 1998, p.266).

In Ancient Rome the debtor was the person who was claimed money against his wish: “debitor – intellegitur is, a quo invito exigi pecunia potest” (Mod. D 50, 16, 108), and he stopped to be a debtor if he was given a legal exception which did not contradict the justice: “desinit debitor esse is, qui nancus est exceptionem iustam nec ab aeguitate naturali abhorrentem.” (Marcell y Iul. D.50, 17, 66) (Bartoshek 1989, pp.389-390).

Ancient Romans had some more definitions: decoquere – to bankrupt and decoctor – a bankrupt. The bankrupt was an insolvent debtor whose property was sold in public sales.

That is why, the main rules of debtor’s insolvency (personal bankruptcy) had been known in Roman Private Law.

In Medieval Europe debtors were punished by imprisonment. In 1542 England held the Law of bankruptcy which proclaimed some other, as before, criminal measures of debtors’ punishment.

Later the legislation was changed consequently.

Firstly, there was a wave of law confirmation: according to the 1604 amendment to law it was possible to cut an ear; moreover.
In 1705 a repentent debtor could be forgiven to pay a part of insolvency or was allowed to save and own a part of insolvency in accordance with the size of property; otherwise, if a bankrupt was in the evidence of intentional creditors’ decease, he could be sentenced to death penalty.

According to the law of bankruptcy in 1841 the USA authorities abolished imprisonment; some debts of insolvents were written off from creditors’ taxes, and debtors could appeal to the court on the case of financial insolvency.

Since then the laws of insolvency have been changed, although the main aims and principles of bankruptcy procedure have stayed invariable.

PERSONAL BANKRUPTCY PROCEDURE

First of all, bankruptcy is a judicial procedure in the frameworks of special legislation under the court jurisdiction which is aimed to help debtors, who are not able to pay their debts back to creditors, to order and start their financial business, as well as to return creditors, at least, part of indebtedness.

Bankruptcy is the process by which the debtor in effect hands over whatever assets he or she has, to an official who will usually sell them and distribute the proceeds of sale among the debtor’s creditor. (Keay and Walton 2003, p.38).

Personal bankruptcy process means the aggregate of legal measures, the aim of which is to fully satisfy the creditors’ claims from the debtor’s property, and to give the debtor, whose property and profits are not enough for the redemption of all obligations, opportunity to be released from the unfulfilled obligations and renew his/her solvency.

If an entrepreneur is deemed to be a bankrupt, creditors’ demands are satisfied at the expense of the debtor’s property which is possible to be recovered. After settling account with creditors, the person deemed to be insolvent, is free from executing other obligations and demands which were claimed to be executed and taken into account in the procedure of bankruptcy deeming...(Tikhomirova and Tikhomirov 1998, p.266).

The first personal bankruptcy procedure was carried out in Latvia in 2008; its possible was under Insolvency Law (Insolvency Law 2007).

The New Law “Insolvency Law” came into force in Latvia on 1st of November 2010 (Insolvency Law 2010).

INSOLVENCY PETITION OF A DEBTOR

Contents of an insolvency petition of a debtor is defined in the Chapter 46 “Matters Regarding Insolvency of an Undertaking or a Company” of Division Six “Special Adjudication Procedures” of Civil Procedure Law (Civil Procedure Law 1998).

A debtor has the right to file the insolvency petition to the court in the the case if he has been a tax payer in the Republic of Latvia in the previous six months and who is in financial difficulties and if he is not an individual merchant (Insolvency Law 2010, section 127) as well as having one of two features of insolvency proceedings:
a) this person does not have the possibility of settling debt obligations whose term of execution has taken effect and the debt obligations exceed five thousand LVL (EUR 7114,36 by the author’s example) in total; or

b) in connection with provable circumstances, it will not be possible for this person to settle debt obligations whose term of execution will take effect within a year and the debt obligations exceed ten thousand LVL (EUR 14228,72, by the author’s example) in total.

(Insolvency Law, 2010, section 129).

Besides personal data a debtor in the insolvency petition has to point out circumstances why an individual is not able to fulfill obligations, total amount of obligations, list of debtor’s property and the necessity of using Council Regulation (EC) No 1346/2000, if there is such (Civil Procedure Law 1998, section 363.23).

In practice judges arbitrarily interpret the demands of legal norms which regulate the order of applications to the court (Judgments of Daugavpils Court 2011b, 2011c, Judgment of Rezekne Court 2011a).

In this case, judges repeatedly point out the necessity to show all interested persons in relation to a debtor and consider them interested in civil procedure according to the norm of the section 131 of Insolvency Law, 2010 and to the norm of Civil Procedure Law (Judgment of Daugavpils Court 2011a, Judgment of Rezekne Court 2011b).

Persons interested in civil process are not those who are considered to be interested in the bankruptcy procedure.

In the procedure of insolvency administrator has the duty to evaluate the debtor’s transactions and bring an action to court regarding the recognition of the respective transaction as invalid regardless, if transactions through which losses have been caused to the debtor has been concluded with interested persons with respect to the debtor or for the benefit of such persons (Konopecka 2011, p.337).

That is why, the Insolvency Law defines persons, as interested persons in relation to a debtor:

a) the debtor’s spouse;

b) a person who is in relation or affinity to the debtor to the second degree;

c) the debtor’s guardian or trustee; or

d) a commercial company in which the debtor has a decisive influence within the meaning of the Group of Companies Law.

(Insolvency Law 2010, section 131).

In civil procedure interested persons are those who are involved into the suit if there is a demand or interest to disseminate the power of judicial decision. In the cases of Special Adjudication Procedures a judge is able to involve into the procedure those, whose rights and duties in the relationship to one of the parties can be infringed on by the adopted decision (Nouveau Code de Procedure Civile, 1976, section 331).

In this case persons, who participate in the suit, are able to influence the procedural process (Civil Procedure Law 1998, section 78).
These persons in Latvia are creditors, involved into the procedure of insolvency, an administrator, the Agency of Insolvency. (Insolvency Law 2010).

Therefore the legislation (Law On the Insolvency of Undertakings and Companies 1996, section 4) has to consolidate the notion of persons involved into the process of insolvency as it was prescribed by the Law “On the Insolvency of Undertakings and Companies” in order to liquidate collision.

While declaring insolvency a debtor has to attach documents which prove the following facts:

a) a debtor owns monetary means and property in order to compensate an administrator the full remunerations provided by the law;

b) circumstances, which prove the petition.


The legislator does not establish the documents, which are necessary to prove monetary means at a debtor’s disposal.

A debtor also has to prove circumstances which confirm the request of bankruptcy procedure initiation.

If the legislation of debt recovery has been initiated in the relation of a debtor, or there have been creditor’s claims, as well as the executive proceeding has been started and the amount of demand or demands has exceeded five thousand LVL (EUR 7114.36, by the author’s example) in total, it is enough to provide the trial with the evidence of these facts.

Otherwise, if there are debts, but the procedure of recovery has not been started, in this case, the size of obligations has to be proved by other means.

The participants of civil procedure are allowed to use all means of proof provided by the law in order to prove their demands, unless the law provides certain limitations (Licis and Rozenbergs and Torgans 2006, p.178).

The norm of the second part of section 363.23 of Civil Procedure Law does not provide the necessity of supporting the trial with the evidence of other circumstances (Civil Procedure Law 1998, section 363.23).

The insolvency procedure is also regulated by the norms of Insolvency Law (2010); therefore, the court is able to demand the fact that debtor is not an individual merchant and he has been a tax payer in the Republic of Latvia in the previous six months and who is in financial difficulties (Insolvency Law 2010, section 127).

The question of interpreting the notion ‘tax payer’ in the context of Insolvency Law has been discussed any times.

Abelis considers that an individual, who declares insolvency, should be economically active in the previous six months before the petition – it means, economically active in Latvia, by the author’s example (Abelis 2010, p.37).

Abolihsh J., who offered to involve the disputed norms into Insolvency Law, confirms that Insolvency Law does not establish the amount of tax for an individual to be proved; that is why, a plaintiff could be a personal income tax payer, as well as an immovable property tax payer (Abolinsh 2011, p.19).
His opinion is proved by the data of forensic practice (Judgment of Zemgale District Court 2010 and Judgment of Latgale District Court 2010, Judgments of Daugavpils Court 2011b, 2011c, Judgment of Rezekne Court 2011a).

There are certain advantages of Insolvency Law (2010), such as availability, much cheaper procedure of personal bankruptcy, as well as its shorter terms, than by Insolvency Law (2007).

Nevertheless, legislation which regulates personal insolvency procedure contains gaps and collisions and, as a result, they make the insolvency procedure more complicated.

In the New Insolvency Law (2010) and Civil Procedure Law there have not been worked out thoroughly various aspects of legal regulation of the bankruptcy process; that is why the legal use of the indicated norms is rather difficult.

In order to achieve the principle of efficiency of personal insolvency procedure, the rules of application to the court should be clearly defined.

It is important to revise the legislation and make it perfect.

In this case there has been worked out the proposal to set up section 363.23 of Civil Procedure Law (1998) in the following edition:

“SECTION 363.23 INSOLVENCY PETITION OF AN INDIVIDUAL.

1. An insolvency petition may be submitted to the court by a debtor with the following simultaneous circumstances:

a) in the previous six months the person’s declared place of residence is the Republic of Latvia;

b) a debtor is not an individual merchant;

c) person does not have the possibility of settling debt obligations whose term of execution has taken effect and the debt obligations exceed five thousand lat (EUR 7114,36 by the author’s example) in total or in connection with provable circumstances or it will not be possible for the person to settle debt obligations whose term of execution will take effect within a year and the debt obligations exceed ten thousand lat (EUR 14228,72, by the author’s example) in total;

d) if an applicant has not been sued with the insolvency procedure in the previous ten years, in the frameworks of which the demands were cancelled.

2. There shall be set out in the petition:

e) the name of the court to which the petition is submitted;

f) the given name, surname, personal identity number and place of residence of debtor;

h) the amount of the obligations not executed by the moment, terms and conditions of demand, as well as circumstances why an applicant is not able to pay obligations;

i) the amount of demands to an applicant when the period of execution will ensue in one year, as well as circumstances why an applicant is not able to fulfil obligations;

j) the facts on which the petition bases;

k) the law on which the petition is based;
l) a list of documents appended to the statement of petition;

3. Documents appended to the petition should prove the following:

m) payment of state duty and other trial expenses in the size and order provided by the law;

n) a list of creditors in which the following information is included: name (for legal persons), given name, surname (for natural persons), address, amount and time period of the debt, the type of debt and the basis of its creation;

o) circumstances regarding the actual state of insolvency;

p) evidence of debtor’s income in the previous six months;

q) if a debtor has not had permanent income in the size of minimal salary in the previous six months or there is no evidence which proves the appropriate income, in this case a debtor should present document which prove monetary means at debtor’s disposal and they are reserved in bank account in order to pay remuneration to the administrator;

r) report of debtor’s assets (extraordinary balance sheet of the debtor) that has been prepared not earlier than one month prior to the day of submission of the insolvency petition and documents which prove their possessions;

s) information about marriage contract, contracts of maintenance and contracts of inheritance and documents which prove it;

(t) list of debtor’s property;

u) enumeration of property belonging to third persons, as is in the possession of or held by the debtor.

CONCLUSION

In conclusion we hope the discussion of unclear and contradictory norms of law will serve as base of their perfection, eliminate gaps and collisions and lead to modernization of the norms of law which regulate personal bankruptcy procedure.

The conclusion made by the author is able to be used for the creation of more perfect model of bankruptcy procedure by making the appropriate changes in the present Latvian legislation.

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Islamic Financial Institutions and the Possibilities of Their Functioning in Kazakhstan

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Abstract

This article determines the Islamic economical model which is based on the rules and principles of Muslim law. The main aim of Islamic economics is to find alternative solutions, to solve the problems of today, primarily in the field of finance. It is important to understand that the Islamic financial system is a combination of methods and mechanisms that allow for economic activity without violating the basic principles embodied in Sharia (Islamic law). The article gives some introduction examples of a legislative framework for the Islamic finance development and gives analysis of prospects of functioning Islamic insurance in Kazakhstan.

Key words: Islamic economics, Islamic insurance, financial instruments of Islamic countries, sukuk, takaful, Sharia (Islamic law).

1. INTRODUCTION

Islamic economics or the Islamic economical model is a system of management, which is based on the rules and principles of Muslim law. However, in contrast to Islamic law, which governs relations among the predominantly Muslim, the Islamic economical model is addressed to all mankind, not only Muslims or people of other monotheistic religions - Judaism and Christianity, which is also known as Islam, is prohibited interest on loans. The main aim is to find alternative solutions to solve the problems of today, primarily - in the field of finance. At the same principles and ideas of Islamic economics not only became available to scientists and theorists, but also found application in practice.

The Islamic financial system - the most important part of Islamic economics. A significant number of studies on Islamic economics in the West and the East it is often only about finances. This is not surprising since it is in the financial sector are particularly the most way of the Islamic economical model, whose main aim was to find an alternative interest rate of financing. Islamic financial system can be described as a combination of methods and mechanisms that allow for economic activity without violating the basic principles embodied in Sharia (Islamic law).

Speaking of Islamic economics, it is important to understand that this is not about the formulation of any special laws of economic development, but only on alternative methods of farming, which are based on beliefs of scientists from the camp of the Muslim East. Islamic financial institutions are part of the modern world economy, and subject to the same economic laws as conventional (non-Islamic) financial market participants. However, under existing laws, both economic and proper legal Islamic financial institutions provide the opportunity for everyone to take advantage of financial products, to alternative laminable percentage basis.

Nowadays, there are more than 300 Islamic financial institutions in more than 50 countries. Their total assets exceed 750 billion dollars. In addition, the annual growth rate of 10-15%. According to
analytics, made before the global financial crisis, to 2015 Islamic financial institutions in the growth rate of 10-15% per year will have to concentrate in his capital in excess of $ 1 trillion dollars. It is assumed that the share of Islamic financial services in the financial market, Gulf Arab countries to reach by 2015. 50%. In South-East Asia in the same period, the current pace of grow this from 15 to 25%.

According to the Islamic Bank of Asia based in Singapore, assets of 500 largest Islamic banks in 2010 increased by more than $ 180 billion. In general, capital of these banks, however, will be less than one percent of all banking assets in the world. In 2009, the assets of Islamic banks amounted to 822 billion dollars in 2008 – 639 billion dollars.

The global world economic crisis has generated speculation financiers, increased in many countries, interest in Islamic financial institutions. This has been a number of reasons. First of all, the beginning of the crisis in several Western states was accompanied by a liquidity crisis, which has led some Western banks to seek financing in the Gulf. However, to get the necessary funds from local financial institutions, as a rule, it was possible only if the use of Islamic financial methods of financing. The fact that Islamic financial institutions have proven resilient to the global crisis because of Sharia such companies is forbidden to invest in some potentially dangerous assets, including risky mortgage, as well as classical derivative. This is where the western banks and other financial institutions suffered the greatest losses.

Islamic banks also invest in companies and firms whose activities are contrary to Islamic precepts. In particular, they do not invest in companies that are associated with the production and marketing of alcohol, pork or weapons. Another equally important reason was the availability of a wide range of individuals through the development of information technology information on the Islamic financial system, theoretically eliminating the use of speculative instruments and methods that led to the mortgage crisis in the U.S., and earlier - to the Asian financial crisis of 1997-98. And finally the last role was increased among the Muslims demand for Islamic financial products and services.

2. INTRODUCTION OF ISLAMIC INSURANCE IN KAZAKHSTAN

The Republic of Kazakhstan was the first in the CIS and Central Asia, has introduced a legislative framework for the development of the financial center of Almaty to become Islamic financial hub in the Central Asian region. Law of the Republic of Kazakhstan on the organization and activities of Islamic banks and Islamic financial organization of Islamic banks and Islamic investment funds and issuing Islamic securities. Thus, under the laws of Islamic banks will operate as independent commercial banks under a special license. Each time an Islamic bank will act on board the principles of Islamic finance, which determines compliance with the Islamic bank transactions to the principles of Islamic finance. Islamic banks will provide services trade finance (Murabaha), equity co-financing (Musharaka), rent (leasing, idzhara), fiduciary money (investment deposit, Mudaraba), agency services under the Islamic Banking Act (Huacala).

The difference of Islamic investment funds from the classic is that they will invest in equities and assets that are not contrary to the principles of Islamic finance. Investment Solutions Funds will also be approved by the Council for the Islamic financing principles.

The law provides for issuance of Islamic securities. World practice shows that resources in the Islamic equity market attracted mainly for the construction of infrastructure such as airports, factories, roads,
or to purchase assets, which requires attracting large sums of money (eg, aircraft, ground). At the same time investors receive income from the operation of these facilities.

At that moment there are more than 20 kinds of Islamic valuable papers. Kazakh legislation, the Islamic valuable papers are Islamic participation certifications (sukuk al-musharaka) and Islamic rending certifications (sukuk al- idzhara). They represent a certificate of participation in a specially created a trust, by means of which the asset acquired. Thus, the owner has a share of ownership in the asset. In the case of Islamic lease certificates when the asset is leased, the owner is entitled to a portion of lease payments. Islamic certificates of participation issued for the use of funds for the organization of a new or existing development of the investment project.

Thus, in Kazakhstan, a legislative basis for the development of Islamic financial institutions and the participation of Kazakh companies in the Islamic capital market is based. The creation in Kazakhstan of Islamic financial institutions and instruments has important long-term solution to the problem - the modernization of financial market and the decline in the share of so-called "Toxic" assets and speculative transactions. This will prevent situations like the one that led first to the mortgage crisis in USA and the financial system, and therefore the economy as a whole. It is obvious that the establishment of Islamic financial institutions will have the result only in the case of reforming the existing system of regulation of financial market participants.

The success in the development of Islamic financial institutions was contributed to the development of other market segments. The next institution undergone a transformation on the principles of Sharia, or become insurance (takaful), as "insurance in the form in which it existed, did not comply with Islam".

Many experts on Islamic insurance believe that the prototype of a modern institute of insurance may be called Diya Institute (literally "fee for blood") and conclude Institute (a tax benefit of needy members of the Muslim society). Since in Islamic law is not customary to divide the industry, this interpretation is quite reasonable. Term Takaful literally means "split or divided responsibility guarantee." In a practical sense, Takaful means mutual guarantee provided by a group of people united "against" a particular risk (the loss of life, property, or any form of valuables). The website of the Institute of Insurance Malaysia following definition this term: "Takaful - is" protective "plan based on the principles of Sharia, which essentially consists of the following: participant brings the total amount of takaful - a fund established by similar donations (tabarru), signed contract (aqad), agreeing thereby maintain notify the participant, who will need help ".

Takaful operators are actors (insurers) and participants (policyholders). Terms and Conditions, which shall be guided by the insurer to avoid the uncertainty, can be formulated as follows:

1) the contributions made by each party (the insured) is deposited into a special fund from which compensation takes place in the event of the loss. All contributions to the Takaful fund are treated as a gift or sacrifice. But there is another fund which receives contributions from the rest, and from which funds are invested in already profitable project (in any which does not contradict Shariah profitable business). From the fund participant receives the income, regardless of the insured event. The operator (insurer) and under the terms of the contract, knows his share of the profits stipulated in advance. The size of the revenue depends solely on the operations conducted by the company and not a fixed, independent of the actual percentage of the profits;

2) the contributions paid, or part thereof may be used only in operations that are not prohibited by the Shariah;
3) The main objective of Islamic insurance is to provide a guarantee of the participants. Islamic parties to a contract of insurance may act as the role of those warrants, as well as those who are guaranteed;

4) the exclusion of interest relationships that occur when commercial insurance;

5) as well as in banking for the business activities of insurance is designed to observe the Sharia Board, whose tasks include the evaluation of new products (services) companies, and conducted its operations in terms of their conformity to the norms and principles of Islamic law;

6) All parties to the contract of Islamic insurance shall act in accordance with the principle of the highest integrity (utmost good faith), common to all insurance operations of the world;

7) The insured shall have the right to nominate their representatives to the board of directors of takaful companies;

8) in Takaful in accordance with the Sharia, as opposed to commercial insurance, does not violate the conditions of inheritance.

However, to date, the traditional form of commercial insurance in the Republic of Kazakhstan adopted does not meet all the requirements and needs of the population. Since some elements of traditional insurance against the principles of Sharia, which makes it extremely difficult to spread and popularization of insurance among the Muslim population. Also, given that much of the population of Kazakhstan is traditionally Muslim it can be argued that Islamic insurance products will be in great demand by the Muslim population. It should be noted that Islamic insurance consumers are not only Muslims. The implementation of Islamic insurance based on the concept of reciprocity, the possibility of investment income could increase interest in this type of insurance among other parts of the population. In world practice, much of the Islamic insurance operator customers are not Muslims.

The world's first Islamic insurance company was established in Sudan in 1979. There are currently over 90 companies offering services, life insurance and general insurance services in accordance with Shariah. There is no established source of data for the segment of the Islamic Insurance - Takaful. The average growth rate in annual terms during 1995-2000 was 63%. Based on this statistical information, the amount of gross premium rates now could conceivably make a U.S. $ 5 billion, provided the amount of insurance coverage equal to the estimated total assets of U.S. $20 billion.

Profit organization formed by Islamic insurance based on the type of the model control the takaful fund. To date, the most popular models of Takaful system is a model agency – Wakala is in the Arab world, a model with a profit – Mudaraba is used in Malaysia (as well as modified versions of both models) and a combination of these two models – Wakala Mudaraba. Another, more specific model – Wakf is used in Pakistan. In the model of Mudaraba an Islamic insurance company acts as mudarib (trustee), and participants of the takaful fund as rabb-ul-mal (the principal). Mudaraba model implies that the takaful operator is engaged in investment management of assets of the insurance fund and underwriting. All investment income is divided between an Islamic insurance company and insured in accordance with a predetermined ratio. The insurance excess (the difference between premiums and paid insurance indemnity) remains in the takaful fund, that is owned by the participants.

In the modified model Mudaraba insurance surplus is distributed among the takaful fund and the takaful operator in a predetermined ratio. All operating costs in both models carries the takaful operator. The results is that the company’s share of investment profits is often higher than that of the fund. Among Muslim jurists there are different opinions as to whether the conduct of Islamic insurance in the framework of the Modified Mudaraba. Contentious issue in this case is the concept of
apportionment between the insurers and insurers with the surplus. Some experts believe that it contradicts the principles of Shariah and this surplus should and this surplus should be fully owned by policyholders. In the framework of Wakala insurance company acts as an agent (Vakil) for insurers. In this model, the takaful operator receives a fixed amount of remuneration – a predetermined share of contributions (donations) of the insured. In this case the takaful operator is not involved in insurance or investment profits. In the modified model Wakala, similar to the modified model Mudaraba, insurance surplus is distributed among the participants and the takaful operator in a predetermined ratio. At that, the distribution is also the subject for criticism and has not absolute legitimacy in the system of Islamic insurance. Cover operating expenses are paid at the expense of the operator as a reward in both versions of the model Wakala.

Currently, some regulators and international financial institutions recommended to use a hybrid model Wakala – Mudaraba. The hybrid model is a combination of models, Mudaraba and Wakala. Takaful operator receives a fixed share of contributions paid by policyholders plus the share of the profits derived from investment activities. Among takaful operators worldwide hybrid model Wakala – Mudaraba is gaining in popularity. In the framework of Wakf the takaful operator makes a down payment (Wakf) in wakf fund, whose assets are used solely for investment and not spent. Insurers shall contribute payment (Tabarru) in the wakf fund, which are used for the settlement of insurance claims. All profits from the investment management of wakf background is divided between the insurance company and policyholders in a pre-approved by the percentage ratio. In addition to the income of the Islamic insurance company has a set amount of agency fees. Wakf Fund surplus remains in the ownership of the fund. Feature of this model is the use of charitable mechanism – the Wakf. The shareholders of the operator make a down payment in the form of a special donation, with the loss of ownership of it. But this title is not transferred to the fund participants. According to Shariah exclusive property right in this case belongs to Allah. In this Wakf, means shareholders have the right to indicate various conditions of use and management of money funds entrusted as the Wakf.

The difference in these models lies in the ways to generate profit of takaful operator.

Takaful operator profits generated by:
1. Model “Mudaraba” – profit-sharing;
2. Model “The modified Mudaraba” – the participations in profits;
3. Model “Wakala” – agency fees;
4. Model “The modified Wakala” – agency fees and profit-sharing;
5. Hybrid model “Wakala-Mudaraba” – profit-sharing and agency fee;

In turn, participating in profits means:
1. Model “Mudaraba” – investment income;
2. Model “The modified Mudaraba” – the investment and underwriting profit;
3. Model “Wakal” – does not imply participation in the profits;
4. Model “The modified Wakala” – underwriting profit;
5. Hybrid model “Wakala-Mudaraba” – investment income;
6. Model “Wakf” – investment income (a substantial part of investment income generated by the takaful operator’s shareholders made money in the wakf fund)

The structure of Takaful – Wakala model from figure 1 presented below.

![Figure 1. The structure of Takaful – Wakala model](image)

It should be noted that the model Wakala is a lot like the existing model of mutual insurance in Kazakhstan. Hybrid model “Wakala-Mudaraba” is most similar to the model adopted in the traditional commercial insurance. Model “Wakf” in Pakistan has a unique feature of forming wakf fund, which could give a significant competitive advantage in attracting customers. “Modified Wakala” and “Modified Mudaraba” are the least attractive in terms of participant Takaful fund, because it implies the division of insurance residue, whose presence is difficult to attribute to the merits of the operator. The author recommends to introduce Islamic insurance in the territory of Kazakhstan in the framework of the “Wakala” for productive cooperatives (mutual insurance companies) and in the hybrid or the Wakf model for public companies. You might also consider the introduction of Islamic insurance in all of these models. Then the use of takaful operator in a particular model will be a competitive criterion.

3. PROSPECTS OF FUNCTIONING ISLAMIC INSURANCE IN KAZAKHSTAN

Let us try to analyze the prospects for the introduction and development of Islamic insurance (Takaful) in Kazakhstan. To do this, we resort to this instrument as a classic SWOT-analysis, which involves determining the strengths and weaknesses, potential external threats and opportunities. By the strengths of Islamic insurance in Kazakhstan are:

1. Takaful system as opposed to traditional insurance does not contradict the principles and rules of Shariah, which allows the Muslim population of the country's peaceful enjoyment of insurance services;
2. As practice shows, the Islamic insurance companies is inherent in a lower risk of defaulting companies, as takaful operator (insurer) has been operating as an agent of all the risks and to manage the fund are its members;

3. The main objective of takaful companies are not commercial, and social: social welfare and mutual aid;

4. The development of Islamic insurance in the world experience can afford to implement in Kazakhstan entirely new kinds of insurance products;

5. Unlike traditional insurance takaful system implies the existence of possible control actions on the part of management fund participants.

Weaknesses are specific and are determined only by the novelty of Islamic insurance in Kazakhstan, and therefore, over time, can be eliminated:

- No experience in the field of Islamic insurance;
- The problem of lack of specialists in the field of Islamic insurance must be addressed through education and training of relevant personnel;
- At the initial stage of the problem the lack of experts in Islamic law can be solved by attracting foreign specialists;
- The primary task of standing in the way of the introduction of Islamic insurance is the lack of legislation and regulations. The solution to this problem rests on the shoulders of the financial regulator;
- The problem of lack of knowledge of the principles of Islamic finance in the population can be solved by the regulator and the Islamic financial institutions by providing relevant information through the media;
- Lack of necessary investment instruments in the securities market, is perhaps one of the most difficult tasks.

Potential and prospects of development of Islamic insurance indicate a high degree of need for the introduction of the segment:

- Development of a complete system of Islamic finance in Kazakhstan and the positioning of the republic as a regional center for Islamic finance in the CIS and Central Asia is not possible without fully developed system of Islamic insurance;
- The appearance of the insurance market of new companies and products will lead to more competition and thereby make insurance more accessible to the public, and promotes the development of the insurance market as a whole;
- The development of Islamic insurance contributes to the development of Islamic finance in general, which in turn contributes to the development of real sector of economy of Kazakhstan, as the Islamic financial system in the first place is directed at financing the real sector;
- In the presence of Islamic insurance in the country to fully be able to operate the Islamic banking sector, which in turn helps to attract foreign capital into the economy of the state from the Middle East region;
Besides domestic insurers will be able to enter the markets of Islamic countries, where traditional insurance is banned or not popular among the population.

Table 1 - SWOT – analysis of Islamic insurance

<table>
<thead>
<tr>
<th>Strengths:</th>
<th>Weaknesses:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Enables the Muslims to use insurance services are not in consistent Shariah principles;</td>
<td>1. Lack of experience;</td>
</tr>
<tr>
<td>2. Low risk of default of the company;</td>
<td>2. Lack of specialists in the field of Islamic insurance;</td>
</tr>
<tr>
<td>3. The main goal—the public welfare;</td>
<td>3. The lack of experts on Islamic norms law;</td>
</tr>
<tr>
<td>4. New insurance products;</td>
<td>4. Lack of legislation and regulations regulation;</td>
</tr>
<tr>
<td>5. Participants have the opportunity to control the activities of management.</td>
<td>5. Lack of knowledge of the principles of Islamic funding of the population;</td>
</tr>
<tr>
<td></td>
<td>6. Lack of necessary investment instruments in the securities market.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Features:</th>
<th>Threats:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The development of a full-fledged Islamic financial system;</td>
<td>1. Weak development of the insurance market and low financial literacy;</td>
</tr>
<tr>
<td>2. Increased competition in the insurance market;</td>
<td>2. There is of fraud;</td>
</tr>
<tr>
<td>3. Contributes to the development of real sector the economy;</td>
<td>3. The threat of market penetration by foreign players.</td>
</tr>
<tr>
<td>4. Helping to attract foreign capital in the economy;</td>
<td></td>
</tr>
<tr>
<td>5. The chance of domestic insurance companies on the markets of Islamic countries.</td>
<td></td>
</tr>
</tbody>
</table>

4. CONCLUSION

In addition to establishing a number of threats that should be taken to a special account in the implementation of a system of Islamic insurance:

1. Weak development of the insurance market. Unfortunately, to date, insurance enjoys low popularity among the population (except for compulsory). Private citizens do not even see the point of insurance as a financial instrument. This can be explained by the low financial literacy of the population;
2. With the introduction of Islamic insurance is a risk of fraud in the form of low financial literacy in the general population and the lack of knowledge of the principles of Islamic finance in the population. Unfortunately, in Kazakhstan, has already been fixed the first precedent of fraud in the field of Islamic finance. According to the first Islamic financial services company in Kazakhstan JSC «FATTAH FINANCE» in the country on behalf of the company acted in a certain Islamic financing fund - Skywayfund engaged in activities to attract deposits from individuals and legal entities. The company JSC «FATTAH FINANCE» refutes the fact of participation in this activity;
3. In addition there is the threat of market penetration by foreign players. Since among the specialists of the insurance market of Kazakhstan there are no experts in Islamic finance, it is quite clear is that at the initial stage of development of Islamic insurance in the country can dominate experienced foreign companies. In conclusion, it should be noted that implementation of Islamic insurance in Kazakhstan will be quite difficult and time consuming. Islamic insurance is very different from the traditional, including the principles of investment guarantees and controls.

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MONITORING OF EFFECTIVENESS AND QUALITY OF EDUCATION AND FORECASTING THE ADJUSTMENT OF EDUCATION SYSTEM TO THE NEEDS OF LABOR MARKET

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Keywords: Technical competences, knowledge acceleration, innovativeness, EU funds.

1. INTRODUCTION
An issue presented in this article regarding monitoring of education effectiveness and forecasting adjustment of education system to labor market needs, particularly in regard to knowledge and technical competencies constitutes a part of a program called AWT® (Technical Knowledge Accelerator) (Szafrański, Grupka, Goliński, 2008, p.9). AWT® program includes acceleration of technical, mathematical and natural science knowledge in Poland and is a strategic, complex and innovative solution of Wielkopolskie voivodship. Actions planned within AWT® program significantly contribute to development of human capital by increasing the awareness of technology, mathematics and natural science, adjusting to the labor market needs, better adaptation to environmental changes and greater creativity in everyday and professional life. Actions planned for the projects are related to the Wielkopolska region, however their model characteristic allows to transfer all solutions to other regions in Poland. The program was prepared by the team of scientific workers of Poznań University of Technology with cooperation of the representatives of Education and Science Department of Marshal’s office of Wielkopolskie voivodship.

Approach: Activities regarding the monitoring of effectiveness and quality of education and forecasting the adjustment of education system to the needs of labor market includes several components related to each other.

In a planned system of monitoring and forecasting, education is seen as a continuous process. This process is being created in different phases of life.

12 Directions of economy innovativeness improvement for years 2007-2013, Ministry of Economy, Department of Economy Development, Warszawa April 27, 2006, p.6
Fig. 1. Chart of actions within component AWT-03 – system of monitoring of education effectiveness and forecasting the adjustment of education system to labor market needs in regard to knowledge and technical competencies

Findings: From the perspective of labor market needs, the knowledge and skills may be perceived as product. An opinion may be formulated that the earlier the activities regarding the quality of this product are undertaken the smaller the cost of achieving and guaranteeing this quality will be. The best is to correctly design the quality of education. Correct designing of education processes lowers their costs and their evaluation done by the interested parties is higher. An aspect of effectiveness in regard to ensuring optimal quality of education process should be seen in relation with the issue of efficiency, which means the accordance of results of activities with the goals. Shaping the education processes in order to fulfill the requirements in regard to those processes is particularly difficult as various interested parties expect different results. Accepting an opinion that by developing and improving the knowledge and technical skills we can fulfill the social need of increase of innovativeness and competitiveness of national economy, it becomes necessary to monitor the market and gather current information about needs which should be transformed into features of knowledge and technical skills, that is into their quality and before that into the quality of education systems within which the knowledge of certain quality is created. It is also essential to monitor the ways that information is used in the processes of adjusting the education systems in regard to knowledge and technical skills to the dynamically changing needs of labor market.

2. ACTIONS IN A SYSTEM OF MONITORING OF EDUCATION EFFECTIVENESS AND FORECASTING THE ADJUSTMENT OF EDUCATION SYSTEM TO LABOR MARKET NEEDS, PARTICULARLY IN REGARD TO KNOWLEDGE AND TECHNICAL COMPETENCIES

In a planned system of monitoring and forecasting the education is seen as a continuous process. This process is shaped in all stages of life and will include:

- Standard education system in kindergartens,
Standard education system in classes 0-6,
- Standard education system on junior high school level
- Standard education system on high school level
- Standard education system on university level

Next stages of education will be accompanied in parallel by three subsystems of the program of acceleration of technical, mathematical and natural science knowledge in Poland.

- Career counseling system,
- System of promotion of technical majors and lifelong learning,
- monitoring of education effectiveness and forecasting the adjustment of education system to labor market needs in regard to technical, mathematical, natural science knowledge and competencies

From the perspective of labor market needs, knowledge and skills may be perceived as product. If such analogy was to be used, we can formulate a thesis, that a cost of achieving the quality of this product is the smaller the faster the actions are undertaken to assure this quality. The best approach would be to properly design the quality of education. Proper designing of education processes lowers their costs and their assessment done by interested parties is higher. An aspect of effectiveness in regard to ensuring optimal quality of education process should be considered in relation with efficiency, that is concordance of action results with goals.

Shaping education processes in order to fulfill the expectations regarding those processes is particularly difficult as various interested parties expect different results.

If we were to accept a common opinion that by development and improvement of technical knowledge, skills and competencies a social need of increase of innovativeness and competitiveness of economy can be fulfilled, it becomes necessary to research the market and gather current information about needs which should be transformed into characteristics of technical knowledge, skills and competencies, that is into their quality, and before that into the quality of education systems which generate knowledge of certain quality (Szafrański, Bondarowska, Więcek-Janka, Goliński, 2008, s. 356).

It is also crucial to monitor the way that information is being used in process of adjusting education systems to dynamically changing needs of labor market in regard to technical knowledge and skills.

From the macroeconomic perspective it is also important to gather information, as a result of forecasting actions, how the data from labor market are being used in education systems to create knowledge and technical skills which will be useful in future.

Based on the above deduction we find connection and inseparability of the following actions listed in component AWT®-03:
- Labor market needs monitoring
- Education quality monitoring
- Measuring the effectiveness and efficiency of education,
- and creating an IT system supporting the component AWT®-03.

A natural subject of research within a pilot project Technical Knowledge Accelerator is technical knowledge, however creating a complex research system in order to explore such a narrow issue
would be ineffective. Additionally, a created IT system would most probably not meet with users' interest, as it would have limited capability of accessing sought information. Moreover, deliberating about the labor market requirements for technical knowledge, without knowing the context in which this requirement arises, would make conclusions about desired directions of education system improvement very poor.

All the above conditions cause that it is suggested to elaborate at once a system of monitoring and forecasting along with supporting IT system which will respond to broader social needs regarding the quality of education of all knowledge and skills and will result in meeting labor market requirements. This proposition appears purposeful, as increasing the scope of information in the system will not proportionally influence the costs of the system, because the construction of the IT system generates high fixed costs of the venture.

Creating a common research system in order to educate in all knowledge areas at high school, university, and lifelong learning level is justified by:
- Economical reasons,
- Effects of further stages of education resulting from actions taken in earlier stages,
- Necessity to gather complex data in research process.

The reasoning used in the project is presented on figure 2.

Because of specificity of the project and its goals, such system of monitoring and research should be provided that will allow to gather exhausting data and information about various aspects of technical education, including that on technical majors.

It should be once more underlined that the component AWT®-03 expresses a need of creating a durable, IT-supported modern solution, which will allow comprehensive monitoring and forecasting of labor market needs and effectiveness and efficiency of education in the context of fulfilling those needs.

3. METHODOLOGY OF MONITORING AND FORECASTING PROCESSES IN THE AWT®-03 COMPONENT

3.1. General system goals

1. Gathering information in order to adjust the education profile of high school and university graduates (particularly technical) to the labor market needs.
2. Gathering information that would help to improve the education process adjusted to labor market needs (particularly in regard to technical knowledge).
3. Creating a system, monitoring the demand for workers with defined competencies (technical in particular) and supply of competencies on labor market (technical in particular).

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13 A methodology concept was elaborated by a team of workers of division of marketing and economic engineering, division of managerial application and computing and division of production engineering of Poznań University of Technology, including Maciej Szafrański PhD, Ewa Więcek-Janka PhD, Karolina Bondarowska PhD, Marek Golitński PhD, Zbigniew Włodarczak PhD, Agnieszka Kujawińska PhD. This article contains a brief form of this concept.
5. Delivering information in order to improve the actions within AWT®-02 and AWT®-03 systems

One of areas of human activity is working on quality of life improvement
One of conditions of quality of life improvement is properly functioning economy
One of conditions of properly functioning economy is human capital adjusted to its needs
One of condition to adjust human capital to the needs of economy is properly functioning system of education throughout entire human lifecycle
The condition of properly functioning education system throughout entire human lifecycle is proper management of this system
As management is realized by fulfilling functions of planning, organizing, performing and control, adequate information is necessary in order to effectively manage the education system in regard to labor market needs fulfillment
It is necessary to elaborate and improve a system of monitoring and forecasting of labor market
The system of monitoring and forecasting of labor market should satisfy information needs in education management systems
The quality of education achieved as a result of decisions made based on information about labor market needs should be measured
Having data about labor market needs and the achieved quality of education it is possible to assess the effectiveness and efficiency of education
The efficiency of information systems may be increased by using IT systems

Fig. 2. Reasoning which led to distinguishing actions in component AWT®-03

3.1.1 Time
Monitoring and forecasting processes will be developed for 5 years. For the first year it is planned to design the monitoring and forecasting system, to test methods of monitoring and forecasting, to test IT system supporting the research processes and experiments and to launch initial research. The plan for the next four years is development of research system, including the implementation and improvement of an IT system.

3.1.2 Place
1. Junior high schools
2. High schools including technical profile high schools,
3. Technical universities and other universities and colleges offering technical majors,
4. Other subjects offering education services,
5. Labor market institutions
6. Education institutions
7. Enterprises: Large, medium, small, micro.
8. Businessmen organizations
9. Press and Internet

3.1.3. Respondents
1. Pupils
2. Teachers
3. Parents
4. Students
5. Junior high, high schools and university graduates
6. University workers
7. Employers
8. Workers of labor market and educational institutions
9. Workers of governmental and municipal units

3.1.4. Research methods
1. Secondary sources research
   - Education standards,
   - Organizational structures and organization management systems as elements connecting organizational culture with technology development (Wyrwicka, 2008, p. 690)
   - Data about infrastructure,
   - Results of other research,
   - Regulations,
   - Accreditation guidelines and results
   - Press and Internet job offers,
   - Data from IT system created within a different action,
   - other
2. Observation (monitoring) of changes in supply and demand for technical and other competencies on laborer, technical and engineering work positions (supported by IT system)
3. Observation (monitoring) of changes in an education process and using technical knowledge.
4. Experiments in form of pilot actions which results will be analyzed over a few years.
5. survey with representative, non-random selection (selection of typical units, according to the goal and subject of research, approximate sample size: 1500 units).
6. Questionnaires with representative, non-random selection (selection of typical units, according to the goal and subject of research, sample size adjusted to research)

7. Survey (CATI method) in enterprises using technical competencies (or expressing a need of using them), approximate sample size: 1100 units).


3.1.5. Precision

1. Descriptive survey:
   a) Systematizing notions and definitions: Knowledge, soft and hard knowledge, competencies, type of knowledge, demand for knowledge, human relations, technical knowledge etc.,
   b) Characterizing high schools and technical universities in regard to infrastructure of majors, specialties, size, standards of education, achievements in contests etc.
   c) Identifying traits of technical school graduate in current and perspective approach.

2. Qualitative research which allow to define attributes (competitive advantage) of particular schools, training units, graduates, pupils or students based on the level of detailed knowledge (mathematics, chemistry, physics, organization of production processes, machines’ construction, materials' endurance, metrology, participating in projects, competitions), graduates’ successes in professional life, technical organizations affiliation etc.

3. Quantitative research which allow to verify the hypothesis, for example:
   d) about necessity of investing into development of technical knowledge,
   e) about improvement of information flow between the business market and schools and universities.
   f) about the necessity of introducing lifelong learning offer for the graduates of high schools and technical majors of all or selected specialties.
   g) about the need for technical education adjusted to various age groups etc.

Recipients of action results in component AWT®-03

- Labor market institutions
- Junior high schools
- High schools
- Universities and colleges especially those with technical majors
- pupils
- Parents
- Students
- Local government units
- Enterprises
- Enterprises’ workers
Institutions offering training services
- Ministry of Science and Higher Education
- Ministry of National Education

3.2. Actions related to entire system goals
For the reasons mentioned above, in all goals which have actions assigned to them, an aspect of technical competencies should be particularly considered. An area of technical knowledge and competencies is a minimal scope which the processes of monitoring and forecasting should cover in component AWT®-03. (fig 3).

Fig. 3. Action 03.1 Monitoring and forecasting of labor market needs particularly in regard to technical knowledge and competencies Source: Personal elaboration based on (Szafrański, Grupka, Goliński, 2009, s. 161)

1. Assessment of requirements for workers with given competencies
2. Identifying demand for graduates of high schools and universities
3. An attempt to define trends and cycles characterizing the demand mentioned in points 1 and 2.
4. Monitoring of announcements in selected press titles in Poland and EU from the perspective of labor market requirements for workers with defined competencies.
5. An attempt to define a trend and cycle of changes in regard to the demand for competencies on EU labor market.
6. An attempt to find connections between the trend of changes in Poland and EU (defining relationship between the labor market behavior in EU and Poland in regard to requirements for particular competencies).

Figure 4 presents a proposed action chart to create a systematic solution for monitoring of labor market and forecasting its changes. Every stage should be concluded with assessment whether or not to modify the following stages Moreover it might occur that some stages may be carried out in parallel.
Fig. 4. An action chart to achieve comprehensive solutions in monitoring and forecasting labor market needs

1. Defining education quality in high schools, including those with technical profile, and in Universities, including technical majors (fig.5)
2. Finding relations and discrepancies between the quality of education in high schools and on technical majors in universities.

3. Recognition and analysis of functioning models of education quality in selected educational units in Europe.

4. Identification of expected and perceived quality of education of high school and university graduates by various interested parties: Employers, graduates, universities, parents, etc.

5. Analyzing discrepancies between expected and perceived quality of education.

6. Measuring deviation from equilibrium point between supply and demand for a given type of knowledge and analyzing the reasons of those deviations in case of their occurrence.

7. Analysis of validity of introducing changes in education process at high school and university level.

8. Assessment of changes’ dynamics in education quality.

9. Assessment of technical knowledge acquirement (level of command of methods, means and forms of technical knowledge)

10. Feeding the IT system with current information (action 03.4) facilitating the adjustment of lifelong learning system to current needs of labor market, as a result of elaborating facultative education programs, courses and trainings for the graduates of high schools and universities with technical majors (fig.7)

Fig. 5. Action 03.2 Education quality monitoring, particularly in regard to technical knowledge and competencies. Source: Personal elaboration based on (Szafrański, Grupka, Goliński, 2009, s. 163)

Fig. 6. Action 03.3 Measuring the effectiveness and efficiency of education, particularly in regard to technical knowledge and competencies. Source: Personal elaboration based on (Szafrański, Grupka, Goliński, 2009, s. 164)
Within action 03.3 (fig. 6) the following subactions are planned:

1. Measuring the influence of teaching methods (including innovative\textsuperscript{14}) of mathematics, natural science and technology on the choice of technical and natural science majors by high school graduates.

2. Measuring the level of preparation to study on technical majors of high school graduates, including those involved in innovative teaching methods of mathematics, natural science and technology and preparation of technical major graduates for professional work.

![Diagram of AWT-03](image)

**Fig. 7. Action 03.4 Creating IT system supporting monitoring and forecasting in Technical Knowledge Accelerator**

Source: Personal elaboration based on (Szafrański, Grupka, Goliński, 2009, s. 164)

Based on lasting almost a year social consultations between partners willing to participate in AWT\textsuperscript{®} program, non-standardized deepened interviews and analysis of some completed research on the needs of labor market and on the education quality, we state that used methodology of research on the labor market needs and education systems functioning does not fully enable its monitoring or changes forecasting. Most often these are small, partial researches.

In most common type of research using questionnaires or mail or auditorial surveys, the cycle of such research lasts from 9 month to 1,5 year with budgets from 300 thousands to 1 million zł. Dynamic migration movements occurring in last few years resulting from global crisis, which have significant influence on polish labor market, support that observation.

Part of the research mentioned above does not have any continuation – they are rather incidental. Their periodical repeatability depends on gathering funds, lately often EU funds. When the resources have run dry the research is not continued and after several years, sometimes just several month, from their finish their results become out of date. Knowledge about labor market and education effectiveness in order to adjust competencies to labor market vanishes. Decision makers return to a starting point. A gap in knowledge about the demand for knowledge on labor market maintains or periodically renews.

It is necessary to create an **IT system** which will be used to support the research and gathering research results. Such solution will allow to:

- Shorten the research cycle,

- Broaden the scope of gathered data,
- Enlarge possible analysis,
- Ensure repeatability of research,
- Significantly deepen the research and detail their results,
- Use historic data in forecasting process (forecasting based on historic data has its limitations, thus it will be supplemented with other research methods which will together constitute the entire forecasting methodology),

and after the pilot period is over also to:
- Maintain the scope of research,
- include in the research system the entire polish labor and education market (for some parts of the research it is possible to be done even in pilot stage),
- Use all possible scales and scopes of analysis based on gathered data,
- Decrease the fixed costs of system maintenance, because the greatest costs of designing, creating, testing and modification of IT system will have already been paid, and further costs of the system will boil down mainly to its maintenance and modernization.
- Decrease of data archiving cost per unit because of the constant increase of data and slower pace of increase of system functioning cost,
- Decrease of system implementation costs in other regions because of effect of scale (increase of organizational efficiency, implementation know-how, no implementation anxiety, lower promotion expenses, decreasing prices of IT services and equipment).

A place of IT system in monitoring and forecasting process is shown on figure 8.

Fig. 8. A place of IT system in process of monitoring of education effectiveness and forecasting the adjustment of education system to labor market needs, particularly in regard to knowledge and technical competencies.
From the perspective of subjects inputting data to the system (enterprises, training companies, educational units, workers, students, graduates and other) the results of research are not as important as benefits coming from using the system. Considering the needs of users inputting data to the system, IT system apart from being treated as a research tool it will also be seen as a product fulfilling users requirements (fig. 4).

From the perspective of utility, two major functions will be assigned to IT system:

- **Internal** – research tools (major target groups: Ministries, local government units, labor market institutions, universities, schools, educational units, municipalities) - crucial for research,
- **External** – tools for information exchange and associations between labor and education market (major target groups: Entrepreneurs, employees, institutions and companies offering education services, schools, universities) – less important for research but required in monitoring and forecasting process.

As shown on figure 8, IT system will be a basic tool used in monitoring process and supporting tool in forecasting process.

### 4. CONNECTION BETWEEN IT SYSTEM AND PROMOTION ACTIVITIES.

It is planned in a pilot project of Technical Knowledge Accelerator to create a system of promotion and improvement of the quality of lifelong learning addressed at students of last years of technical majors, graduates of those and other majors, who desire to gain technical competencies required on labor market. Designed and implemented system will be good to implement in other areas of knowledge and skills.

Figure 9 presents the scope of promotion and lifelong education quality improvement, defined by identified processes. The figure presents connections between these processes in the system. The border of designed system is represented by a bold line. It also shows the connection with other components of AWT\(^\circledast\). AWT\(^\circledast\)-03 component will include popularization of IT system created within this component.

Data and information from the system of promotion and lifelong learning quality improvement will be used in two other systems:

- Recruitment system involving recruitment processes on labor market and other related to them – this system is not a part of AWT\(^\circledast\),
- System created within component AWT\(^\circledast\)-03.

In the first stage of system functioning no promotion actions, such as free postgraduate studies, are planned. However it will be possible to promote offers of postgraduate studies of all universities which will pass such information. In turn, resulting from the research done within component AWT\(^\circledast\)-03 the information will be passed to universities, what knowledge should be passed in various forms of education, both elementary (studies of first and second degree) and others (for example postgraduate studies).
Fig. 9. Map of major processes in a system of promotion and lifelong learning quality improvement

Partners for this action are, among others: Agricultural university in Poznań, Faculty of Commodity Science of Poznań Economic University, State Higher Vocational School in Gniezno, Konin, Kalisz, Leszno, Piła, REFA Wielkopolska Federation for work organization, operational organization and enterprise development registered association, the Vocational Education Centre in Poznań, Poznań Centre of Lifelong and Practical Learning and other institutions and societies.

5. SUMMARY

Quality of life of citizens of every country, including Poland, is strictly connected with economic development. One of the factors defining economy level is rate of implementation and development of innovativeness in production and services. A corner stone of stable and dynamic development of innovativeness is development of intellectual capital in which a very important factor is human
capital\textsuperscript{15} and technical knowledge in particular. For it to be possible it is necessary to awake in the society the need of increasing their technical knowledge, because this need is not common enough nowadays. In order to know how to awake and maintain such need it is necessary to do adequate research. The research should include the issue of education effectiveness, so that the results can be used in the process of improvement of education quality in regard to technical skills and knowledge and adjustment of created technical knowledge to the dynamically changing needs of labor market.

If Poland is to be innovative and competitive in a few years’ time it is necessary today to do organic work, work at the basis, which will result in systematic solution regarding discussed in this article monitoring of education effectiveness and forecasting the adjustment of education system to labor market needs, particularly in regard to technical knowledge and skills.

REFERENCE


METHODOLOGY OF IMPROVEMENT AND ACCELERATION OF KNOWLEDGE AND TECHNICAL SKILLS DEVELOPMENT IN WIELKOPOLSKA REGION

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Key words: Technical competences, knowledge acceleration, innovativeness, EU funds.

1. INTRODUCTION

Europe strives to be a modern, competitive community. This competition should not be achieved in order to lead an economic battle but to maintain economic balance in the world, balanced development and to increase effectively the quality of life of all people.

Economy competitiveness is influenced by many factor. One of them, perceived as a key factor, is innovativeness, being a subject of intense discussion in recent years. Although increasing the level of innovativeness should be a goal of all EU countries, many of them, particularly new members, must do their best to keep pace in this concern with the most developed countries in Europe. Poland is one of those countries.

Innovative economy may develop in the societies characterized by high level of human capital. Improvement of human capital positively influences the increase of economies' competitiveness (fig 1).

Fig. 1. Technical competencies – one of key factors of increase of innovativeness and competitiveness of economy. Personal elaboration based on: (Szafrański, Grupka, Goliński, 2008, p. 8)
Innovative economy development is based mainly on technical competencies. Their acquiring and using allows to create material goods, facilitates the society functioning and creates condition for its survival and improvement. A progress in development of technical competencies and their use for constant improvement of quality of life is possible thanks to development of mathematics, statistics and natural science.

If Poland is to improve the level of indicators defining the innovativeness of the country, it should first take care of human capital development and technical competencies in particular as they are its major component. For it to be possible it is necessary to awake in the society the need of increasing their technical knowledge, because this need is not common enough nowadays. In order to know how to awake and maintain such need it is necessary to do adequate research. The research should include the issue of education effectiveness, so that the results can be used in the process of improvement of education quality in regard to technical skills and knowledge and adjustment of created technical knowledge to the dynamically changing needs of labor market.

The article presents the solution designed for Wielkopolska voivodship concerning the acceleration of development of technical knowledge, existing under the name of Program of acceleration of knowledge of technology, mathematics and natural science in Poland (Szafrański, Grupka, Goliński, 2008, p.8)

When the program was first designed a word “knowledge” was used. The authors of the article, although having realized that the notion of "competencies" would have been more adequate, decided to keep the original notion, considering the fact, that the name of the program is already widespread, at least among the interested parties, and the change would only obstruct the communication process.

The program was prepared by the team of scientific workers of Poznań University of Technology with cooperation of the representatives of Education and Science Department of Marshal’s office of Wielkopolskie voivodship. Program was prepared in such manner that it is possible to transfer the solutions to other regions in Poland and Europe, that is why in the projects that are to support the program's realization, an interregional and international cooperation was planned. This cooperation is to serve the purpose of transferring good practices between regions (constant improvement of the program, transferring verified solutions to other regions). The fulfillment of program’s goals will be done through the actions in the group of projects under the name of Akcelerator Wiedzy Technicznej® (Technical Knowledge Accelerator). This group of projects was also accepted by the municipality of Wielkopolskie Voivodship as one of key solutions to fulfill the organizational concept of qualified staff education and recurrent education in Wielkopolska (Grupka, Szfrański, Goliński, 2008)

2. OVERRIDING GOAL – ACCELERATION OF INNOVATIVENESS DEVELOPMENT

2.1 Innovativeness in European Union and in Poland

In market economy innovation became a major factor of gaining competitive advantage and therefore stimulating economic development. The notion of innovation was introduced in economy by Joseph Schumpeter, pointing at five cases of innovation's using:

- Introducing new product or new type of products,
- Introducing new production method,
- Opening new market,
Gaining new source of resources,
Implementing new organization of some industry (Janasz, Kozioł, 2007, p. 12).

Peter Drucker defines innovation as a special tool for entrepreneurs which allows them to undertake new business ventures (Drucker, 1992, p. 29). Among the causes of innovative activities Drucker lists seven most important:

- Unexpected success, failure or external event,
- Discrepancy between what is and what should be,
- A need of process requiring change,
- Constancy of structure of industry and market,
- Changes in demography (number, structure, employment, education),
- Changes in perception (values, social mood)
- New knowledge (Drucker, 1992, p.142).

Because of its importance for economical growth, the issue of innovation is a subject of international research. The research and elaborations done by Organization of Economic Cooperation and Development (OECD) can serve as an example. The results of this research is an elaboration of Oslo handbook including the rules of gathering and interpretation of data related to innovativeness (Oslo handbook, 2008).

Regardless to the scope of innovation activities the areas which are most commonly associated with innovation are highlighted:

- Introducing new products,
- Introducing new production methods,
- Opening new markets
- Gaining new sources of resources
- Using new organization techniques (Brzeziński, 2001).

Variety of criteria to divide innovations are defined. They are connected with the areas of changes connected with innovation, the area of influence, the goals the innovation helps to reach or results it causes. Presented below is a list of most frequently seen in literature types of innovation:

- Innovations within the process, product, organization and marketing (Oslo handbook, 2008, p.49),
- Innovations related to enterprise, national or international economy (Janasz, Kozioł, 2007, p.20),

In all the above mentioned areas, a development of innovations requires strong support from research and development activity. The most benefits however come from implementing innovations in the high tech area, including aerial business, computers and office equipment production, pharmaceutical and electronic industry (directions of economy innovativeness increase for years 2007 -2013, p.6)
High tech industry along with development of education, science, R&D activities, business services and IT society branch services are the core of knowledge based economy. Using both innovation and knowledge creates not only an opportunity for development of particular subjects but also supports technical advancement (Pacholski, 2006) and as a result it influences a development of national economy (Ratajczak, 1980, p.25)

Innovativeness is considered to be a necessary condition for dynamic growth of EU economy. At the beginning of a year 200 a goal was set according to which European Union was to transfer into the most competitive and dynamic knowledge based economy (Wyrwicka, 2008), capable of constant development with higher number of better work places and social integrity (Poland and Lisbon strategy. White Book 2003, 2003, p.7) A corner stone of the competitive economy should be innovation and the development of education and research that generate the growth of economy and employment.

2.2 Needs in regard to education on technical, mathematical and natural science major.

An important factor taken into consideration when defining the level of innovativeness is an indicator presenting the investments into R&D as a percentage of GDP. Table 1 presents how this indicator changed in years 2002-2006 in Poland.

Table I. Relation between investments in R&D and GDP [in %]

<table>
<thead>
<tr>
<th>Years</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poland</td>
<td>0.58</td>
<td>0.56</td>
<td>0.56</td>
<td>0.57</td>
<td>0.56</td>
<td>No data</td>
<td>No data</td>
</tr>
</tbody>
</table>


One of key strategic documents, taken into account in Poland when defining the direction of economic development is National Development Strategy 2007-2015. One of the goals set in this document is to achieve the level of total R&D expenditures of 1,5% of GDP before 2010 and 2,0% before 2015. It is a very ambitious goal.

To make the R&D area grow and develop it is necessary to ensure financial resources and people who would effectively and efficiently work in this area.

A natural source of such people are the universities with technical, mathematical and natural science majors. Those universities face a problem of decreasing interest of young people. There is less and less of them with an increasing demand for the graduates of those majors.

According to the data from Polish Ministry of Science and Higher Education, provided that Poland will quickly overcome the current economic growth stagnation and go back on the fast growth track, until 2013 polish market will be 70 000 engineers short (over 46 000 in industry and 23 000 in services)\(^{16}\). It will be followed by lack of technicians and vocational schools graduates.

\(^{16}\) Ex-ante evaluation research in regard to the requirements for graduates of technical, mathematical and natural science majors. Ministry of Higher Education,
Comparing the data from Central Statistical Office of Poland for years 2007 and 2004 you will notice that the number of technical universities graduates in Poland has decreased by 9% and the graduates of higher agricultural universities by 13%. At the same time the overall number of students in Poland have increased by 1%.

A decreasing number of students and graduates of technical, mathematical and natural science majors is one of the problems. Another is a quality of education, perceived differently in view of regulations, differently by employers, by teachers and by students themselves. From the perspective of economy development the quality of education is reflected in the quality of human capital of graduates and this can be measured by the following characteristics: Time of searching for a job in somebody's profession from the graduation day, ability to run own business, ability to create innovative solutions, number of patents a year, workers productivity and number of others that can be considered in prakseological approach, including economic.

The quality of human capital, used in this article according to the definition from ISO 9000.2005 norm as a "extent to which a set of inherent qualities fulfills requirements" (EN ISO 9000.2005), may change in time even if the same states of characteristics of human capital are constantly provided. The expectations from human capital change which results from the change of needs related to human capital. Current needs change very dynamically, therefore it is necessary to build elastic systems of human capital creation for individuals, company workers, members of societies and communities. Such systems should at least support standard forms of education which are stable by their nature but also resistant to changes. The need of elastic approach is particularly visible in education of professions which use the achievements of technical, mathematical and natural sciences because the development of those sciences is unusually fast and therefore all competencies quickly become out of date.

Current civilization needs not only prompt to maintain the pace of development of technical, mathematical and natural sciences but in fact to seek methods of their acceleration and growth. This growth should lead to improvement of human life quality with consideration of rules of balanced development. An attempt to answer a question how to dynamize the development of technical, mathematical and natural science competencies was included in the Program of acceleration of technical, mathematical and natural science knowledge in Poland.

3. PROGRAM OF ACCELERATION OF TECHNICAL, MATHEMATICAL AND NATURAL SCIENCE KNOWLEDGE IN POLAND.

Every complex activity requires organization and accepting ways to achieve goals. That is how the preparations were done for the program of acceleration of technical, mathematical and natural sciences knowledge in Poland. Numerous connected methods used in preparation of the program constitute the methodology of used procedures. Figure 2 presents the elements constituting this methodology.


17 A notion „feature” is of ten replaced with „characteristic” and the latter will be used further in the article.

18 Methodology is perceived as „methodologically correct set of directives, indicating the ways of activities, methods leading toward a given objective” (Pszczolowski, 1978, s. 119).
Using the presented methodology, a procedure was accepted, characterized by the order of activities leading toward program elaboration. It should be mentioned that in a course of project work the accepted procedure was modified several times. The changes were the result of the following:

- Information about changes of procedures of financing the projects in Operational Program Human Capital (program financed from the EU and public funds)
- Information about new documents relating to human or intellectual capital, which presented new directions of their development,
- Results of discussions and analyses,
- Changes in partners' declarations in regard to the extent of their engagement in the project.
- Changes in the team preparing the project.

Acceleration of technical knowledge is a continuous process of deepening, improvement and acceleration of development of knowledge and technical skills of a society in order to achieve a faster development of economy in favor of improvement of citizens quality of life.

While discussing the program of acceleration of technical and scientific knowledge in Poland, it should be regarded in the categories presented on Figure 3.

The program must have its starting point. It is suggested that such starting point was a pilot group of projects under the name of Technical Knowledge Accelerator®

The effect of such pilot projects would be results which will be used in the following projects being a continuation of a pilot group.

![Categories of description of the program of acceleration of technical knowledge in Poland](image)

**Fig. 3.** Categories of description of the program of acceleration of technical knowledge in Poland. (Szafrański, Grupka, Goliński, 2009, p. 50)

The place of a program in education process is presented on figure 4.
Fig. 4. Scope of a program of acceleration of technical, mathematical and natural sciences knowledge and its place against standard education systems. Source: Personal elaboration based on (Szafrański, Grupka, Goliński, 2009, s. 52)

A chart of actions development is presented on figure 5. As the figure presents, the development of acceleration predicted in the program may be related to activities focused:

- On technical, mathematical and natural sciences knowledge in the geographic area covered by the pilot project group (AWT®),
- On technical, mathematical and natural sciences knowledge in the geographic area wider than covered by the pilot project group (AWT®),
- On knowledge other than technical, mathematical and natural sciences covered by pilot solution, in geographical area covered by pilot project (AW?-y, AW?-z),
- On knowledge other than technical, mathematical and natural sciences covered by pilot solution, in geographical area not covered by pilot project (AW?-α-y, AW?-α-z, AW?-β-y, AW?-β-z),
Fig. 5. General concept of acceleration of technical, mathematical and natural sciences knowledge according to the project Technical Knowledge Accelerator® Source: (Szafrański, Grupka, Goliński, 2009, p. 55)

Action as a purposeful and intentional behavior of an action subject (Szafrański, 2006, p.11) has to be connected with at least one objective. A chart of connections between actions and objectives in the program of acceleration of technical, mathematical and natural sciences knowledge in Poland is presented on figure 6.

It is beneficial to cumulate objectives and actions in a program.

Cumulating objectives consists of intentional achievement of several objectives within one action (Pszczołowski, 1978). It leads to increase of effectiveness of actions in the program.

Cumulating actions means intentional and planned achievement of one goal with a use of at least two intentionally selected actions. It leads to increase of actions efficiency as a result of synergy effect. Maximizing actions efficiency may lead to necessary increase of program's costs, especially that the efficiency increase will often be followed by increase of scale of activities.

In the program, ostensible actions should be avoided, that is such which are not connected with any particular goal.

Within the program there are two major types of actions:

- First type of actions: Leading toward elaboration of a strategy, methods, tools, relations, processes, solutions,
- Second type of actions: Implementation and popularizing of solutions worked out in the first type of actions.

Actions which proved themselves worthy will be maintained, modified and improved. They should be continued. Because they are repeatable, durable, formal and have other specific characteristics they appear as functions19.

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19 Function is an action that is repeatable, typical, considerably constant, formalized, educed based on its content and defined result of this action (Hamrol, Mantura, 1998, s. 69).
4. TECHNICAL KNOWLEDGE ACCELERATOR – A ROAD TO PROGRAM IMPLEMENTATION.

Within a group of projects Technical Knowledge Accelerator there are 5 action components which development will continue after their financing period. The components of actions within Technical Knowledge Accelerator are presented on figure 6.

Fig. 6. Action components within Technical Knowledge Accelerator.
Personal elaboration

A synthetic characteristic of particular action components are presented below.

**AWT®-01: Model of monitoring and forecasting system of vocational education in Wielkopolskie voivodship.**

In a planned system of monitoring and forecasting the education is seen as a continuous process. This process is shaped in all stages of life. From the perspective of labor market requirements, knowledge, skills and competencies may be perceived as product. If such analogy was to be used, we can formulate a thesis, that a cost of achieving the quality of this product is the smaller the faster the actions are undertaken to assure this quality. The best approach would be to properly design the quality of education. Proper designing of education processes lowers their costs and their assessment done by interested parties is higher. An aspect of effectiveness in regard to ensuring optimal quality of education process should be considered in relation with efficiency, that is concordance of action results with goals.
If we were to accept a common opinion that by development and improvement of technical knowledge, skills and competencies a social need of increase of innovativeness and competitiveness of economy can be fulfilled, it becomes necessary to research the market and gather current information about needs which should be transformed into characteristics of technical knowledge, skills and competencies, that is into their quality, and before that into the quality of education systems which generate knowledge of certain quality. It is also crucial to monitor the way that information is being used in process of adjusting education systems to dynamically changing needs of labor market in regard to technical knowledge and skills.

From the macroeconomic perspective it is also important to gather information, as a result of forecasting actions, how the data from labor market are being used in education systems to create knowledge and technical skills which will be useful in future.

**AWT®-02: Elaboration and pilot implementation of flexible model of lifelong learning for continuous improvement of human capital responding to labor market needs.**

This component includes action aiming at encouraging students and graduates to supplement their technical competencies by means of courses, post graduates studies, special trainings. A base for planning tasks in this component would be the results of monitoring and forecasting done within component AWT®-01.

Beside actions in favor of filling up the gaps in technical knowledge and competencies, models of technical education will be prepared and verified which will be used to increase the attractiveness of this education and to facilitate the acquisition of technical knowledge by improving the quality of knowledge transfer.

This component aims at speeding up the process of gaining and using technical knowledge that is useful on labor market on the one side and creating the possibility to increase the number of innovative solutions in national economy on the other.

It also aims at elaboration of a model which will make standard higher technical education more flexible by filling in the gap which those systems, even modified within systematic and competitive projects cannot fill in themselves. It also serves a purpose of popularizing supplementing technical knowledge throughout entire life, both specialist by engineers and technicians and common, which facilitates everyday functioning on labor market, also for the graduates of other majors, including humanities.

All actions will be supported with IT system which will aid in proper direction of those actions.

**AWT®-03: Popularizing achievements in the area of technical, mathematical and natural sciences in the education process at university level.**

An overall objective is to develop a culture of innovations among students by popularizing the achievements of polish and world science in the process of education at university level.

This objective will be fulfilled by fulfilling particular objectives, including:

- Creating for the students better conditions (climate) for contacts and discussions with representatives of innovative enterprise during fair events.
– Increasing the number of students who deepen their technical, mathematical and natural sciences knowledge outside the standard education system, which will be done by means of TV and radio programs and a specialist magazine.

– Granting students with constant and common access to multimedia materials created within the project, including: TV programs, radio auditions, electronic magazines.

Additionally the project will allow to:

– Increase the effectiveness and efficiency of actions done in other components of AWT® by achieving synergy effect,

– Support the actions in favor of innovativeness development which are financed from regional component Operation Program Human Capital,

– Achieve the over-regional aspect of action results which will be possible thanks to used techniques of goals achievement.

AWT®-04: Mobile Laboratory of Technical, Mathematical and Natural Sciences Knowledge

The scope of planned activities within this component addressed at students of junior high and high schools are presented on fig. 7.

AWT®-05: Participation in elaboration of a education-professional model and Internet education-professional information system

The scope of actions in component AWT®-05 results among others from preliminary research done by Department of Education and Science of Wielkopolskie Voivodship Marshal Office between may and October 2008. The research had a form of non-standardized deepened interviews, discussion panels with a use of secondary sources. Protocols and notes from all meetings are in Department's archives. Interviews and discussions were done with participation of:

– Starosts and deputy starosts

– Workers of Voivodship Labor Office in Poznań

– Representatives of county labor offices,

– Representatives of education departments of city offices,

– Representatives of career counseling units

– Representatives of psychological centers,

– School principals,

– Workers of Teachers’ Improvement Center in Poznań

– Workers of Poznań University of Technology,

– Representatives of other institutions functioning on labor and education market.
Simultaneously the Department of Education and Science discussed the matters with partner institutions in numerous European regions.

Major actions planned in this components are:
- Elaboration of a career counseling model and its development,
- Creating the pilot network of career counseling units in Wielkopolska,
- Creating the information system, supporting the network of career counseling units,
- Elaboration of promotion process of career counseling in the society and its usage in pilot implementation of a career counseling model.

5. SUMMARY

All actions planned within Technical Knowledge Accelerator are pilot actions, and the intent of their authors was to shape them in such way that they could develop also after the EU financing period is
over, also in other regions. All these actions favor creating partner relations and development of interregional and international cooperation.

An advantage of this concept is its module construction, where every component of the entire program may be financed from a different source. Since the most probable is financing from the EU sources, a high level of bureaucracy in accounting and management of the projects must be considered which to certain extent will surely obstruct actions aiming at innovative solutions, which by nature do not comply with inflexible program frames in which the responsibility for solving complex problems is artificially divided between Intermediate Institutions with limited authorities.

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CORPORATE IDENTITY IMPLEMENTATION IN BUSINESS ENTITIES IN SLOVAKIA

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Abstract

The present treatise was compiled within project VEGA. The project aimed to explore the necessity of changes in marketing strategies of businesses in the Slovak Republic, which were created as a result of Slovakia's accession to the EU, where increasingly stronger competition leads firms to seek ways to promote their successful operation in a given market and to obtain positive feedback from the public. An integral part of the research is to identify the specific aspects of marketing strategies implemented by business entities in developed market economies with a view to their possible implementation by business entities in Slovakia. A key factor in this respect is to profile of their own Corporate Identity as a vehicle of specific corporate values and principles, which govern the firm in terms of the transformation of the traditional value system of society.

Key words: Corporate Identity, marketing, international marketing strategy, competitiveness, communication, culture

1 INTRODUCTION

The current hectic yet in many areas paradoxical development of society, whose inseparable part is the sphere of business operation, raises many unanswered questions. A key issue for them is to confront the rapid trend of market globalization, growing competition and increasingly demanding customers.

The gradual alignment of technology development, know-how ... causes that products of individual firms in the same sectors are comparable, or possibly very similar, and thus it is becoming increasingly difficult to distinguish their original producers. High levels of knowledge, experience and skills of motivated people, encouraging their creativity, original thinking and judgment have become a primary tool of increasing business competitiveness.

The last years of the 20\(^{th}\) century were characterized among others by revolutionary changes in corporate management. Postulates practiced for decades were gradually losing their validity, rigid
Hierarchies were falling down and mankind and its abilities were coming forth. After the fourth industrial revolution, the communication and informatization revolution, the fifth revolution, the revolution of biotechnology took place in a quick succession. The features of this development foreshadow also changes in Corporate Culture, position of employees and firms as well as gradual changes of the traditional value system, accepting accountability for one's actions and for the further development of the environment.

Intellectual capacities of people take on a greater significance and are considered as “rare and precious economic resources”. In successful companies, people play a key role and their way to success starts with team collaboration, where energy and power are not used for internal fighting, but for facing competition from rivals. The solution how to set off on the path to business success is to profile one’s own Corporate Identity (CI).

The objective of this treatise ensues from partial goals set for project VEGA solutions, i.e. to identify levels of implementation of specific marketing strategies aspects implemented by businesses on developed international markets in comparison with businesses operating in the Slovak market, with a focus on the issues related to the need to build their own Corporate Identity.

2. MATERIAL AND METHODS

In the framework of the VEGA solution, the project team focused on researching partial problems of the issue in question, which included e.g.:

- profiling of the particular Corporate Identity of firms operating in the Slovak market;
- application of the latest trends in the development of marketing strategies (event marketing, sustainable development marketing, genome marketing);
- adherence to ethical principles in doing business, or corporate social responsibility;
- impact of cross-cultural differences on international marketing strategies of firms, etc.

In this material, we present our research results in the first of the above areas – profiling of the particular Corporate Identity of firms operating in the Slovak market. Our assumption is based on very rapid changes in the fundamental characteristics of social development, including the economic environment. Continuous changes in framework conditions of doing business affect among others firms’ business and marketing strategies, which are thus often inefficient and fail to deliver required benefits. New and more dynamic ways of doing business are emerging, companies are forced to fight for their market positions also in the spheres they have not needed to worry about until recently, and at the same time the pressure to acquire more is increasing. Customers increasingly appeal for the high “reliability” of companies and their products. The number one priority is to win the trust of partners. That can be obtained only thanks to “perfect” communication, comprising both external and internal corporate communication. Communication takes on a new dimension when different cultures meet. Building an international marketing strategy on this basis must be seen as an inseparable part of building Corporate Identity – purposefully created strategic concept of internal structure and functioning, as well as firm’s external presentation in market environment, which is used to present its specificity, originality and uniqueness. Human capital is the company’s most precious asset. Theories on “one-man factories” lost their validity long time ago, human/employee capacities in connection with the creation of optimum conditions for their creativity are a unique corporate asset.
The end of the 20th century, and even more the beginning of the 21st century, a period of biotechnology development, a period of continuous convergence and overlapping of the social and natural sciences, a period of efforts for a renaissance of fundamental human values and accepting responsibility for sustainable development, brings about a new dimension of the development of theory and practice in Corporate Identity towards a parallel between human individuality and man-made entities, integral parts of which are their creators. Scientific literature refers to this as “Corporate Personality”. (processed by Zorkóciová, O. et al, 2007).

Based on the above analogy and understanding of company as a kind of living organism, it can be concluded that poor economic performance of firms will not appear first in the accounting books, but much earlier in company’s inner and outer atmosphere. In everyday workload, these facts are frequently underestimated, not taken seriously, they are marginalized as irrelevant. However, besides the material level, every company works at the level of so-called corporate energy or the corporate spiritual level. At the corporate energy level, there are actions determining internal as well as external relations of company. This includes all of its interdependencies and obligations, but also, for example, loss of autonomy, power of example, stimuli for others, general usefulness... On the corporate spiritual level, it is a manifestation of corporate body in terms of imagination, creativity, intuition, inspirational stimuli, sudden inspirations and sensitive perception of corporate needs by its employees. (Zorkóciová, O., 2001)

It is true that Corporate Identity, as it eventually results from the nature of the word “identity”, cannot be bought or otherwise obtained; one can only try to influence it, because it has always been the environment, which determines and evaluates it. It is so that the desire of every business entity is to create its ideal image, a personification of where it is headed, but only a reflection by the environment confirms up to what degree it manages to succeed. For these reasons, every business entity, every company should pay adequate attention to developing their Corporate Identity concepts and implementation thereof. The final identity is a product of a long-term process, but at the same time it is also subject to constant changes in the environment, which it affects.

1.1 Implementation of CI in the conditions of the Slovak business environment since 1989*

In the absence of a free competition environment until 1989, businesses in Slovakia did not feel the necessity to build their own CI, to be visible, to stand out and distinguish themselves and be better than other players in the market. Partial experience in this area has been reported only in those Slovak firms which penetrated international markets of developed economies. After the fall of the Iron Curtain, the situation began to change dramatically. The fall of the previous regime, implementation of the transformation process, gradual opening of the Slovak market and the subsequent market entry by many successful international companies caused that even in Slovakia competition assumed realistic dimensions. In addition, the re-orientation of foreign trade policy especially on developed European markets offered Slovak firms an opportunity to penetrate these territories.

The initial situation was far from optimum. The market positions of Slovak companies were increasingly threatened and many of them fought for their own survival. There was a lack of professional education, time and funds for building sophisticated CI projects. Their building was characterized by spontaneity and inconsistent approaches, which reduced the desired impact.

*(Zorkóciová, O. 2001)
However, the intensifying competition caused an increasing necessity to differentiate themselves in the market, either through a product or their own identities. In addition, the Slovak market was flooded with many foreign products from reputable companies with long-standing CI building projects. They benefited from the advantages of the unsaturated domestic market and from a particular “hunger” of the public with sufficient purchase power for foreign products, which contributed to the fact that a positive image for their producers was much easier and faster to attain.

However, the situation has gradually changed. Many especially large Slovak firms, started to realize the importance of building their own CI projects in terms of obtaining a positive feedback from the public and market visibility. Such an approach is almost a necessity in order to maintain their domestic market, penetrate foreign territories or start various forms of international cooperation. It was the international cooperation along with the emergence of various forms of corporate partnerships, also due to the intensification of foreign investment inflow into the country, which contributed to a greater transposition of CI building know-how directly from a strategic foreign partner.

The results of evaluation of CI building in firms operating in Slovakia to date highlighted different approaches among foreign firms or corporate partnerships between a foreign business entity and a Slovak business entity and domestic firms (Jaško, 2001):

- **Foreign companies** have brought their generally applicable CI manuals. These are usually based on long-standing CI building projects, whose parts in particular Corporate Culture and Corporate Communication is tailored to local interests. The solvency of these companies enables them to have an analysis of the specifics of the market in question (in this case Slovak market) elaborated by one of prestigious consultative and advisory agencies. As mentioned earlier, they are still benefiting from the ongoing advantages as to the preferences for foreign products in our market.

  It is interesting to note some of negatives in the Corporate Culture area in Slovakia: lack of initiative, risk aversion, protectionism (It does not matter what you can do, but rather who you know.), work only as a means of satisfying fundamental living needs, excessive passivity and reluctance to assume responsibility. These characteristics are most likely attributed to the consequences of the former political development.

- **In the case of domestic companies**, the situation in CI building is different. Although it is not a rule, generally successful large firms or medium-sized businesses are more aware of the need to build their own CI. Even there one can find a manifestation of certain deficiencies in CI building, which we can generalize as follows:

  - CI is often not viewed as a long-term process. In many cases, because usually only one of its elements – that is Corporate Design, by means of which a company can quickly presented itself to the public and is thus distinguished from competition – is emphasized and highlighted. However, in the absence of fundamental corporate vision, company philosophy, definitions of fundamental values, it is only a short-term tool for success.

  - In our conditions, the centralized management model still prevails, which reflects the most frequent reasons for CI project failure. These are: management inconsistency, weak managerial support, lack of management capacity to promote a CI project within a company, wrong choice of managers responsible for intercompany positions and their lack of professionalism, vaguely defined competencies...

  - The stated reasons lead also to a lower level of employee identification with a CI project.
The discrepancies occur even when CI conditions are not in accord with a specific situation.

In addition to all these conclusions, we may note the fact that many Slovak companies have been operating in the market for much shorter periods than their partners from developed market economies; or they fundamentally changed their identity after 1989, which is one of essential factors of their “handicap” in comparison with their foreign partners.

1.2 Analysis of CI implementation in the conditions of the Slovak business environment – research results

Following the above conclusions, the team of the Department of International Trade decided to apply for a scientific project VEGA, part of which would also be an examination of up to what degree the situation of business entities in Slovakia has changed in this respect, if at all; up to what degree building of Corporate Identity has become an integral part of their corporate marketing strategies – comprehensively or partly in terms of certain sub-elements. What businesses (in terms of size, but also in terms of their scope of business) implement this strategy and so on. Members of the scientific team, who deal with this topic, drew up in the period a questionnaire to determine relevant facts.

First, it should be noted that we opted for the simplest questionnaire form, in terms of its length and wording of questions, with a view to approach a diverse range of businesses, because during personal consultations with staff from practice we found out that many of them did not even come across concepts such as Corporate Identity or Corporate Personality. (All the following figures as well as graphical and tabular representations thereof were processed on the basis of the evaluation of the research results.)

The research involved 176 business entities. Their basic characteristics are set out in the Annex hereto.

2. RESULTS AND DISCUSSION

Based on processing the results of respondent firms, we drew the following conclusions:

1/ Purposeful planned building of corporate self-awareness – Corporate Identity

As many as 156 out of 176 companies responded to this question positively, which represents 88.1% of positive responses. From the above it follows that compared to the previous period, the situation has changed in favor of the gradual awareness of the importance of building their own corporate identities and improving their business image in the eyes of society. However, it is still true that this question is more general and does not predicate more particular information about the complexity of companies' approach to this issue.

1) Is the awareness of your company built systematically and purposefully?

<table>
<thead>
<tr>
<th>Table no. 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Yes</strong></td>
</tr>
<tr>
<td><strong>No</strong></td>
</tr>
</tbody>
</table>

Source: own research
2/ Staffing and organization of purposeful building of positive corporate awareness – Corporate Identity

In as many as 97 cases, the firms who build positive self-awareness systematically and purposefully created in their organizational structures separate departments for managing these processes or these responsibilities are taken over directly by their managements. Only in one of the respondent companies, who responded positively regarding building their own identity, we noted the statement that nobody in the company is in charge of this. We assess this outcome as positive, as the process of building a positive corporate image is a long-term process, for which quality personnel and erudite staff are essential.

2) If so, which department or employee is responsible for building awareness of your company?

Graph no. 1

3/ Building of planned awareness of the company as an integral part of its business goals – vision and its reflection in official corporate documents

74.5% of the respondent companies have incorporated the procedures of building positive self-awareness in the fundamental goals or company vision; while in 32.7% of them they are an integral part of one of their official documents, e.g. code of ethics, CI manual, marketing concept, etc. (Graph no. 2)

3) Is building your corporate awareness an integral part of your business goals (vision)?

Table no 2

<table>
<thead>
<tr>
<th>Yes</th>
<th>132</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>42</td>
</tr>
</tbody>
</table>

Source: own research
Graph no. 2

Incorporating awareness of the company according to the type of document

<table>
<thead>
<tr>
<th>Document Type</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code of Ethics</td>
<td>6</td>
</tr>
<tr>
<td>Work Contract</td>
<td>1</td>
</tr>
<tr>
<td>Business philosophy</td>
<td>2</td>
</tr>
<tr>
<td>CI manual</td>
<td>1</td>
</tr>
<tr>
<td>Corporate Strategy</td>
<td>1</td>
</tr>
<tr>
<td>Corporate Design</td>
<td>20</td>
</tr>
<tr>
<td>Internal directives</td>
<td>6</td>
</tr>
<tr>
<td>Vision</td>
<td>6</td>
</tr>
<tr>
<td>Code of Business Conduct</td>
<td>1</td>
</tr>
<tr>
<td>Marketing concept</td>
<td>2</td>
</tr>
<tr>
<td>Internal company policy</td>
<td>1</td>
</tr>
</tbody>
</table>

Source: own research

4/ Visual presentation of the company – Corporate Design

As Corporate Design is the first and nowadays the most used element of Corporate Identity in companies, because of its direct and rapid effect on an approached community, we wondered, how the companies use this element of visibility and which of its tools they prefer. More than 100 companies use several tools of the visual presentation simultaneously. The most frequent are: logo, brand name, uniform rules regarding written documents, business cards and letterhead paper. Overall, all companies use this element of Corporate Identity to achieve their visibility very intensely.

4) In relation to the visual form, in which your company presents itself towards its internal and external environments, your company uses its own:

Graph no. 3

Visual presentation

<table>
<thead>
<tr>
<th>Element</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logo</td>
<td>157, 14%</td>
</tr>
<tr>
<td>Brand name</td>
<td>106, 9%</td>
</tr>
<tr>
<td>Brand</td>
<td>139, 12%</td>
</tr>
<tr>
<td>Corporate’s Colors</td>
<td>163, 14%</td>
</tr>
<tr>
<td>Business Cards</td>
<td>126, 11%</td>
</tr>
<tr>
<td>Letterhead paper</td>
<td>56, 5%</td>
</tr>
<tr>
<td>Notepads, Leaflets</td>
<td>197, 18%</td>
</tr>
<tr>
<td>Uniform Rules</td>
<td>166, 16%</td>
</tr>
<tr>
<td>Code of Ethics</td>
<td>163, 14%</td>
</tr>
<tr>
<td>Code of Business Conduct</td>
<td>157, 14%</td>
</tr>
<tr>
<td>Vision</td>
<td>94, 8%</td>
</tr>
<tr>
<td>Marketing concept</td>
<td>107, 9%</td>
</tr>
<tr>
<td>Internal company policy</td>
<td>112, 10%</td>
</tr>
<tr>
<td>Marketing concept</td>
<td>107, 9%</td>
</tr>
<tr>
<td>Corporate Design</td>
<td>126, 11%</td>
</tr>
<tr>
<td>Internal company policy</td>
<td>112, 10%</td>
</tr>
<tr>
<td>Visual presentation</td>
<td>157, 14%</td>
</tr>
<tr>
<td>Other</td>
<td>112, 10%</td>
</tr>
</tbody>
</table>

Source: own research
5/ Level of control of the company’s external communication with its environment – Corporate Communication, delegation of responsibilities in this process, the most frequently used elements of communication mix for its implementation

As many as 66%, which is more than a half of the respondent companies, purposefully manages their communication activities with its environment. That percentage is not negligible, although in our opinion, the purposeful management of communication with the outside community requires a direct regulation by internal business units, and therefore the above percentage seems to us inadequate. The competence and responsibility for managing the external communication process, where it is managed, are fragmented among a wide range of internal units, which does not appear to us as the best solution (see Graph no.4). The situation in the use of various elements of marketing communication mix is completely different. While advertising is the most important element, approximately the same positions were achieved by the following external communication elements: sales support, public relations as well as exhibitions and fairs, and sponsorship (see Graph no.5).

5) Is your company communication with its environment managed?

<table>
<thead>
<tr>
<th>Table no 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>66%</td>
</tr>
<tr>
<td>No</td>
<td>33%</td>
</tr>
<tr>
<td>Other</td>
<td>1%</td>
</tr>
</tbody>
</table>

Source: own research

Graph no. 4

Responsibility for communication management

Source: own research
6) Which marketing tools does your company use when communicating with its customers and environment?

Graph no. 5

The use of Marketing Tools in Communication

Source: own research

6/ Intra-company atmosphere – interpersonal relationships between employees, their regulation, delegation of powers and responsibilities in the company – Corporate Culture

The intra-company atmosphere, relationships between employees, their identification with corporate goals, visions and values, hierarchy of power, written and unwritten rules of employee behavior inside and outside the company; these are just sub-components of one of essential and often even today underestimated elements of Corporate Identity – Corporate Culture.

The positive intra-company atmosphere significantly stimulates the company’s internal and external positions; therefore it presents a crucial factor of Corporate Culture. It includes many elements and characteristics, and its negative aspect can often lead to the bust of company. Therefore questions related to this area could not be omitted from our questionnaire. Approximately 50% of the respondents referred to the intra-company atmosphere as friendly and positive. A similar percentage, however, characterized it as neutral and tense, which cannot be considered as a positive result. Surprisingly, only 43% of the respondents answered positively the question regarding the existence of the detailed rules of employee behavior towards the environment. Although we consider the percentage to be low, we believe that for a more qualified evaluation, a deeper analysis of the existence of intra-company regulation in all areas would be necessary.

At present, as the ISO Code of Ethics was adopted and is being gradually introduced in the EU, we wondered, to up to what extent the respondent companies have implemented their own corporate codes of ethics. 39% of the respondent companies answered the question regarding the existence of this code of ethics in their company positively; although, the percentage may seem low, at the same time 46% of the firms confirmed that although they do not have codes of ethics, their interpersonal
relationships are subject to unwritten rules, which are followed by all employees. Thus only 16% of the firms confirmed not having codes of ethics.

The organization of intra-company relations – hierarchy of power or delegation of power to lower managements or employees is also an important integral part of Corporate Culture. Employee satisfaction in the company – general company atmosphere is often determined by these factors, and consequently also the successful operation of companies in the market, but possibly also their possible bust. How the research in this aspect of Corporate Culture ended up is set out in the Graph no. 7.

7) How would you describe the company atmosphere in your company?

Graph no. 6

![Corporate Climate Evaluation Graph](image)

Source: own research

8) In what way is regulated the behavior of your company and its employees towards the company's environment?

Table no 4: Existence of rules

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>77</td>
</tr>
<tr>
<td>No</td>
<td>98</td>
</tr>
</tbody>
</table>

Source: own research

9) Does your company have a code regulating interpersonal relationships between employees?

Table no 5

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>39%</td>
</tr>
<tr>
<td>No</td>
<td>16%</td>
</tr>
<tr>
<td>No, but</td>
<td>45%</td>
</tr>
</tbody>
</table>

Source: own research
10) Which of the following options describes the situation in your company best?

Graph no. 7

Source: own research

7/ The use of electronic media or computer technology for external and internal communications

At present, taking into account forms and tools of computer technology, which are being continuously developed and enhanced, and electronic media, a separate element - Corporate Network in relation to Corporate Identity emerged. It characterizes the company's position regarding the use of the forms of the above external communication, i.e. the Internet, as well as internal communication, i.e. the Intranet, or in the international business environment, i.e. the Extranet. Whether the respondent firms use these tools of communication, or which of their forms they use, we disclosed by means of further questions in our questionnaire. A majority of respondent companies use the electronic media for their communication, particularly in respect of external communication – the Internet. Finding out that it is not only the use of the Internet by e-mail, but as many as 38% of the firms established their own web sites and 19% use the Internet for advertising and 9% for online sale, is positive. The Intranet or Extranet are used effectively in the internal corporate communication, especially in large firms or internationally operating companies, which was also confirmed by the results of our research.

8/ The most important tools used by companies to create their positive image in their environments – Corporate Image.

The choice of tools used by companies to build positive awareness among its external and internal publics shows the level of sophistication, complexity and the success of the implementation of Corporate Identity concept. We have already mentioned that there are several levels of the CI implementation – from the most common CI element Corporate Design or Corporate Communication – especially towards the external environment, to the less visible but equally important element Corporate Culture. Countless factors, which companies can or cannot influence, affect their positive or negative image, created about companies by their internal and external environments. The ambition of each of companies is to build the positive image in their environments, but it is only the reaction of the environment which gives the answer up to what degree they succeeded. Building and achieving a
positive corporate image is a long-standing issue, evaluations by companies also often state that it is difficult to create a positive image, but even harder to maintain it, while its loss can be compared to negative advertising, which spreads 10 times faster than positive and to regain public trust is thus much more difficult. (freely paraphrased text by Baláž, P. et al., 2005)

11) Does your company present itself through information technologies and electronic media?

Graph no. 8

Source: own research

Graph no. 9

Source: own research

One of the last questions of the questionnaire was therefore focused on the types of tools that the companies use most frequently for building a positive image. The Corporate Design tools clearly dominated the responses, which is positive, second comes purposeful influencing of public opinion
about the companies, closely followed by influencing opinions and attitudes of employees in their own companies.

12) What tools does your firm use to create a positive image of itself in relation to its environment?

Graph no. 10

Source: own research

9/ Corporate partnerships between Slovak and foreign firms, their impact on marketing activities of companies operating in Slovakia

Under the influence of integration and globalization trends, as well as Slovakia's accession to the EU and the increasingly fierce competition for market positions, also in the Slovak market occurred a boom of various forms of corporate partnerships, mostly with their parent headquarters located abroad, but also in Slovakia. The last questions were therefore oriented on those firms. The reason was plain, the majority of foreign partners in emerging business communities operating in the Slovak market has brought along their CI building know-how, often in the form of precise and sophisticated manuals, but not only this. Especially those companies who have obtained a positive image by means of long-term CI building in the foreign market brought to their Slovak partners significant benefits following from this position. The research results are documented by the following tables:

13) Marketing activities of your branch offices outside the Slovak Republic

Table no 5

| They are determined by the headquarters in Slovakia | 4 |
| They are left to own discretion | 4 |
| Other | 2 |

Source: own research
14) Marketing activities of your company are determined in particular by:

Table no 6

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother</td>
<td>58%</td>
</tr>
<tr>
<td>Daughter</td>
<td>29%</td>
</tr>
<tr>
<td>Other</td>
<td>13%</td>
</tr>
</tbody>
</table>

Source: own research

3. CONCLUSION

The presented results of research in the implementation of Corporate Identity elements on the selected sample of firms operating in the Slovak market should contribute to better knowledge about up to what extent this phenomenon of corporate strategy has naturalized even under the conditions, which were until recently completely different for companies in this environment. Despite the improvements in comparison with the previous period, it must be stated that in the field of CI building, Slovak companies are still in a difficult position. That is determined by the historical development characterized by the absence of sufficient knowledge and experience in this field. In many companies, the real problem lies in defining orientations, their own visions and determining fundamental development objectives (primary and partial) the companies want to achieve. The idea that the quality of an enterprise as a whole is determined not only by the quality of products, but mainly by the whole complex of activities and phenomena presenting the enterprise as a “group personality” is still underestimated. Many times there is not enough time to build CI and also a lack of funds. Even in Slovakia, there are many prestigious advisory and consulting firms focused on the development of complex CI projects. One of the conditions to use their services, beside the awareness of the need to develop such a project for the successful operation of companies in the market, is also client's solvency; the financial and economic crisis has affected also this area.

Despite the declared progress in corporate thinking in Slovakia and the fact that even some smaller companies already use the services of agencies specialized in CI project development, in our opinion; in a large part of the Slovak corporate public the need to build this phenomenon is still not sufficiently estimated. This is due to underestimating the importance of the above mentioned CI building projects, with the absence of professional education to date, or the lack of interest in it, and last but not least, because of the already mentioned lack of time (sort of impatience to be successful – “highly profitable” on the market very quickly) or the lack of funds (financial insolvency of many firms). That is why the companies try to focus on the fastest methods of the presentation through Corporate Design and the external forms of Corporate Communication. However, the field of Corporate Culture as well as the area of internal corporate communication remain most underestimated and still have to bear the historical burden (protectionism, cronyism, poor interpersonal relationships, and human resources mismanagement...). The ability to succeed in increasingly fierce competitive conditions means to have an effective generally applicable CI project (with a possibility of adopting it to specific conditions of a certain market) acting as a standardized company presentation towards individual components of the macro- and microenvironments, based on the detailed knowledge of internal development opportunities and expanding room determined by competition on domestic and foreign markets.
Annex
Basic characteristics of the respondent companies involved in the research of Corporate Identity:

Graph no. 11

Source: own research

Table no 7: Size of the company

<table>
<thead>
<tr>
<th>Size of the company</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Micro enterprise</td>
<td>47</td>
</tr>
<tr>
<td>Small enterprise</td>
<td>43</td>
</tr>
<tr>
<td>Medium-sized enterprise</td>
<td>30</td>
</tr>
<tr>
<td>Large enterprise</td>
<td>57</td>
</tr>
</tbody>
</table>

Source: own research

Table no 8: Activity of the company

<table>
<thead>
<tr>
<th>Activity of the company</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production</td>
<td>16</td>
</tr>
<tr>
<td>Sales</td>
<td>79</td>
</tr>
<tr>
<td>Production and Sales</td>
<td>39</td>
</tr>
<tr>
<td>Other</td>
<td>47</td>
</tr>
</tbody>
</table>

Source: own research
### Table no 9: Industries in which the companies operate:

<table>
<thead>
<tr>
<th>Industry</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>2</td>
</tr>
<tr>
<td>Agriculture</td>
<td>1</td>
</tr>
<tr>
<td>Forestry</td>
<td>1</td>
</tr>
<tr>
<td>Water management</td>
<td>0</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>2</td>
</tr>
<tr>
<td>Engineering</td>
<td>15</td>
</tr>
<tr>
<td>Automotive</td>
<td>23</td>
</tr>
<tr>
<td>Mining and metallurgical</td>
<td>1</td>
</tr>
<tr>
<td>Fuel and energy</td>
<td>5</td>
</tr>
<tr>
<td>Chemical and rubber</td>
<td>6</td>
</tr>
<tr>
<td>Food</td>
<td>16</td>
</tr>
<tr>
<td>Textiles and clothing</td>
<td>2</td>
</tr>
<tr>
<td>Leather and Shoes</td>
<td>0</td>
</tr>
<tr>
<td>Glass</td>
<td>1</td>
</tr>
<tr>
<td>Wood and cellulose-paper</td>
<td>5</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
</tr>
<tr>
<td>Building</td>
<td>17</td>
</tr>
<tr>
<td>Services</td>
<td>100</td>
</tr>
<tr>
<td>Wholesale, retail</td>
<td>24</td>
</tr>
<tr>
<td>Hotels and restaurants</td>
<td>9</td>
</tr>
<tr>
<td>Finance and insurance</td>
<td>13</td>
</tr>
<tr>
<td>Real estate</td>
<td>9</td>
</tr>
<tr>
<td>Public administration</td>
<td>0</td>
</tr>
<tr>
<td>Education</td>
<td>0</td>
</tr>
<tr>
<td>Health</td>
<td>2</td>
</tr>
<tr>
<td>Other public services</td>
<td>3</td>
</tr>
<tr>
<td>Other</td>
<td>40</td>
</tr>
</tbody>
</table>

Source: own research
Graph no. 12

Ownership of companies

<table>
<thead>
<tr>
<th>Ownership of companies</th>
<th>Slovakia</th>
<th>Branch of an international company in Slovakia</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slovak company</td>
<td>68</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slovak company with branches</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Branch of an international company in Slovakia</td>
<td>91</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>12</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: own research

Table no 10: Activities in international markets

<table>
<thead>
<tr>
<th>Activities in international markets</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Only in the Slovak market</td>
<td>70</td>
</tr>
<tr>
<td>Slovak and one foreign market</td>
<td>14</td>
</tr>
<tr>
<td>Slovak and 2 to 5 foreign markets</td>
<td>26</td>
</tr>
</tbody>
</table>

In more than 5 foreign markets including:

- Central and Eastern Europe (CEE) 64
- Western Europe (WE) 59
- Northern Europe (NE) 36
- Southern Europe and Balkan (SE&B) 47
- North America (NA) 37
- Latin America (LA) 29
- Asia 30
- Australia 21
- Africa 25

Source: own research
Graph no. 13

Source: own research

Graph no. 14

Source: own research

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FACTORS CONTRIBUTING TO THE DEVELOPMENT OF THE TOURISM FUNCTION IN PODKARPACKIE PROVINCE—A REGRESSION TREE MODEL

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Abstract

The aim of this paper is to present a model including crucial factors influencing the development of the tourism function. The model is a result of regression tree analysis—a statistical method which led to the division of the 143 rural communes of Podkarpackie province into 5 groups defined by statistical factors. Based on this division, the authors present the state of tourism development in each group as well as their future opportunities.

Statistical data for Podkarpackie province was collected from the Central Statistical Office in Poland and obtained using a questionnaire in all communes included in the study. The presented analysis consists of three steps: area selection, area division and description of the clusters selected; also opportunities for creating a tourism strategy are discussed on the basis of the research results. The body of research material is preceded by a brief methodological part and a description of the area.

Key words: multifunctional development, tourism function, regression tree

1. INTRODUCTION

The function of an area (province) can be generally defined as the importance and contribution of each element of a system to its adaptation to the changing environment. From an economic point of view, a function describes the profile of a region based on the most common activities with similar features (technical, social, economic), and it is possible to distinguish, for example, the industrial function, commercial function, agricultural function, etc.

With reference to rural areas, the agricultural function is still viewed as the most important one; nevertheless, much attention is paid to diversification, which means the incorporation of the service sector and industries in the form of small and medium enterprises into rural space (Kłodziński 2010). One of the elements of multifunctional rural development is tourism with its economic dimension. In many rural regions, tourism is accepted as a natural part of the socio-economic fabric juxtaposed with agriculture (Fleischer & Tchetchik 2005, p. 493). It is also widely known that areas with tourism amenities and good infrastructure have substantial opportunities for the development of the tourism function. As rural areas are endowed with numerous historic, natural and social qualities it is common that tourism spreads in conjunction and combined with farming activities (Yang, Cai & Sluuzas 2010, p. 375).

The tourism function can be defined as a set of economic activities, organizations and institutions influencing the formation of tourist goods and services which are created in order to satisfy both tourists and inhabitants of the area (Fischbach 1989). In the field of tourism, these activities can be conducted by:
- companies which derive profits from tourism (e.g., tour operators, travel agencies, hotels, restaurants),
- non-profit associations (e.g. PTTK, PTSM),
- local authorities.

These groups of entities adopt the local environment to the needs of tourist movement, making it an economic category. Nevertheless, the tourism function never exists alone as the only one function of a region. With reference to other functions, it can be perceived as predominant, equivalent, or supplementary. The regions where this function predominates over other economic activities are called tourism regions.

The article presents the scale of the tourism function and the possibilities of its development in Podkarpackie province, Poland.

2. PROFILE OF PODKARPACKIE PROVINCE

Podkarpackie province is one of the sixteen provinces (voivodships) of Poland. It is situated in the south-eastern part of the country and borders with Slovakia in the south and Ukraine in the east. After Poland’s accession to the European Union, the eastern border of this region became the longest section of the EU’s external land border.

![Figure 1. Administrative division of Podkarpackie province](image-url)
Podkarpackie province consists of 4 city counties and 21 land counties (collectively known as powiats), which are further subdivided into 159 communes (gminas): 16 municipal, 29 municipal–rural and 114 rural ones.

3. MULTIFUNCTIONAL RURAL DEVELOPMENT IN POLAND

By the end of the 1980s, all rural areas in Poland had been perceived and used exclusively as areas of food production, which was then the only function of these regions.

After the political transformation of 1989, all state-owned farms were dissolved and unemployment became a great problem there. The inhabitants who had been involved in agricultural production often were not able to cope with the new reality. Furthermore, by the late 1980s all non-agricultural production and services were located in big cities which made the situation even more difficult for the residents of rural areas. The process of rural depopulation began, as people started migrating form the countryside to cities. On the other hand, in the cities possibilities for infrastructure and housing development were scarce. The above-mentioned critical circumstances made it necessary to seek new ways of managing rural areas.

Multifunctional development is an idea introduced to economically revive rural areas by developing non-agricultural functions (Jongeneel, Polman & Slangen 2008, Stobbelaar et al. 2008). It leads to stronger social activity by decreasing unemployment, particularly for those who are willing to quit rural production but remain in the countryside (Czudec 2009, Wilson 2008, Adamowicz 2004). At the same time, multifunctionality essentially focuses on using all the potential and strengths of the areas to satisfy the needs of the inhabitants, which is compatible with the strategy of sustainable development (Kłodziński 1996).

The function of an area consists of the complex ways in which its inhabitants take advantage of it by undertaking economic and social activities. Three main functions may be discerned: agricultural, industrial and service. Each of these could be divided into elements directly connected with the economic sectors. The easiest way to calculate and identify which function is developed in a given area is to compute the employment index in each sector (the ratio of workers in a sector to all workers in the region). However, if more in-depth analysis of the phenomenon is needed, or if particular functions of an area are to be compared across many regions, the above index is not sufficient.

The tourism function is an index which describes the importance of tourism development to a region’s economy (Powęska 2005). Apart from the employment index, it also takes into account the number of vacancies. In this paper, the tourism function is defined as an index given by R. Baretje and P. Dekert (Lijewski et al. 2002) with the following formula:

$$y = \frac{100V}{L_0 + kV}$$

where: $V$ – number of vacancies

---

23 A municipal–rural commune is centred around a small town.
4. TOURISM FUNCTION IN THE RURAL AREAS OF PODKARPACKIE PROVINCE

In the first step, rural and municipal–rural communes with a significant tourism function were selected. All of them clearly focused in their local strategies on tourism, which was perceived as an important element of local development, and thus tourism function indexes were computed for all of them.

The results showed that among the studied 143 communes, the tourism function existed in reality in 116, where \( y > 0 \) (Fig. 2). Only those communes were taken into consideration in further analysis. The strongest tourism function was found in the south-western commune of Krempna (\( y = 8.17 \)). Apart from this, the tourism function also exists in three parts of Podkarpackie province: in its southern and central parts.

\[ L_0 \text{ – number of inhabitants not connected with tourism services} \]
\[ kV \text{ – index of inhabitants employed in tourism services dependent on the number of vacancies.} \]
5. CONDITIONS CONTRIBUTING TO THE DEVELOPMENT OF THE TOURISM FUNCTION

In the second step, different groups of factors determining the existence of the tourism function were identified for each of the 116 communes selected in the previous step.

There are several indexes which could possibly characterize the development of the tourism function. The author decided to use synthetic indexes \( z_i \) which are weight averages of other variables \( x_i \), and which also describe the tourism attractiveness-investment index. The 7 synthetic indexes are given in Table 1.

Table 1. Factors defining tourism potential

<table>
<thead>
<tr>
<th>Section I. Tourism amenities</th>
<th>Natural amenities ( (z_1) )</th>
<th>Transport availability ( (z_3) )</th>
</tr>
</thead>
<tbody>
<tr>
<td>x1</td>
<td>Forest cover indicator</td>
<td>x11</td>
</tr>
<tr>
<td>x2</td>
<td>Meadow and pasture indicator</td>
<td>x12</td>
</tr>
<tr>
<td>x3</td>
<td>Protected landscape area indicator</td>
<td>Number of trains stopping per year</td>
</tr>
<tr>
<td>x4</td>
<td>Bodies of waters suitable for water sports</td>
<td>Number of passenger transport companies per 1000 inhabitants</td>
</tr>
<tr>
<td>x5</td>
<td>Landscapes suitable for cross-country skiing</td>
<td>x13 Number of passenger transport companies per 1000 inhabitants</td>
</tr>
<tr>
<td>x6</td>
<td>Landscapes suitable for downhill skiing</td>
<td>x14 Number of car parks per 1 km²</td>
</tr>
<tr>
<td>x7</td>
<td>Occurrence of spa waters</td>
<td>x15 Average travel time from the capital of the province to the commune</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Man-made amenities ( (z_2) )</th>
<th>Section II. Socio-economics factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>x8</td>
<td>Service infrastructure ( (z_4) )</td>
</tr>
<tr>
<td>x9</td>
<td>Technical infrastructure ( (z_5) )</td>
</tr>
<tr>
<td>x10</td>
<td>Number of landline telephones per 1000 inhabitants</td>
</tr>
<tr>
<td>x16</td>
<td>Number of landline telephones per 1000 inhabitants</td>
</tr>
<tr>
<td>x17</td>
<td>Number of grocories per 1000 inhabitants</td>
</tr>
<tr>
<td>x18</td>
<td>Number of petrol stations and car repair shops per 1 km²</td>
</tr>
<tr>
<td>x19</td>
<td>Number of banks per 1000 inhabitants</td>
</tr>
<tr>
<td>x20</td>
<td>Number of post offices per 1000 inhabitants</td>
</tr>
<tr>
<td>x21</td>
<td>Number of landline telephones per 1000 inhabitants</td>
</tr>
<tr>
<td>x22</td>
<td>Length of water mains in km per 1000 inhabitants</td>
</tr>
<tr>
<td>x23</td>
<td>Length of water mains in km per 1 km²</td>
</tr>
<tr>
<td>x24</td>
<td>Length of sewer pipelines in km per 1000 inhabitants</td>
</tr>
<tr>
<td>x25</td>
<td>Length of sewer pipelines in km per 1 km²</td>
</tr>
<tr>
<td>x26</td>
<td>Length of natural gas pipelines in km per 1 km²</td>
</tr>
<tr>
<td>x21</td>
<td>Number of pharmacies per 1000 inhabitants</td>
</tr>
<tr>
<td>------</td>
<td>-------------------------------------------</td>
</tr>
<tr>
<td>x22</td>
<td>Number of clinics and hospitals per 1 km²</td>
</tr>
<tr>
<td>x23</td>
<td>Distance from commune to main city in the county</td>
</tr>
</tbody>
</table>

| x29  | Amount of untreated waste water (dm³ per 1 km²) |                  |
| x30  | Amount of accumulated waste (tons per 1 km²) |                  |
| x31  | Percentage of population using the sewage treatment plant |                  |
| x32  | Percentage of managed waste |                  |

<table>
<thead>
<tr>
<th>Demographic structure (zₖ)</th>
<th>Finances of communes (z₇)</th>
</tr>
</thead>
<tbody>
<tr>
<td>x33</td>
<td>Population age profile</td>
</tr>
<tr>
<td>x34</td>
<td>Percentage of population working in agriculture</td>
</tr>
<tr>
<td>x35</td>
<td>Percentage of population working in services</td>
</tr>
<tr>
<td>x36</td>
<td>Unemployment indicator</td>
</tr>
<tr>
<td>x37</td>
<td>Population density factor</td>
</tr>
</tbody>
</table>

Figure 3. Regression tree model for tourism function index (y) in Podkarpackie region

ID – node number; N – number of communes in each node; Av – tourism function index average for the node; Var – variance of tourism function index in the node.
After computing the synthetic indexes, a data mining method was applied. Regression tree analysis is a prediction method used when variables have features which interact in complicated, non-linear ways. The method uses a tree diagram which represents the recursive partition of the cases. The leaves represent the final cells (C) of the partition (Breiman et al. 1984). Regression tree analysis leads to the identification of communes (n) with similar correlations in the set of 116 communes. Five groups (C) (Fig. 3) with the following correlations have been found:

\[
n \in (ID = 4) \iff z_i \leq 0.411968 \land z_6 \leq 0.471134
\]

\[
n \in (ID = 5) \iff z_i \leq 0.411968 \land z_6 > 0.471134
\]

\[
n \in (ID = 32) \iff z_1 > 0.411968 \land z_2 \leq 0.319821
\]

\[
n \in (ID = 34) \iff z_1 > 0.411968 \land z_5 > 0.319821 \land z_2 \leq 0.202594
\]

\[
n \in (ID = 35) \iff z_1 > 0.411968 \land z_5 > 0.319821 \land z_2 \geq 0.202594
\]

The third step in the paper is to present the most characteristic groups of communes.

### Table 2. Division of communes in each nodes

<table>
<thead>
<tr>
<th>Nodes no.</th>
<th>Group name</th>
<th>Communes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID = 5</td>
<td>‘Group with high human potential’</td>
<td>Oleszycy, Harasiuki, Ostrów, Krzywcza, Nozdrzec, Wielkie Oczy, Jeżowe, Wiśniowa, Medyka, Laszki</td>
</tr>
<tr>
<td>ID = 32</td>
<td>‘Risky success group’</td>
<td>Krempna, Kuryłówka, Fredropol, Bukowsko, Czarna bieszczadzka, Olszanica, Tyrawa Wołoska, Bircza, Dynów</td>
</tr>
<tr>
<td>ID = 34</td>
<td>‘Problematic group’</td>
<td>Zagórz, Krasiczn, Cisna, Iwonicz-Zdrój, Sanok, Zaklików, Adamówka, Solina</td>
</tr>
<tr>
<td>ID = 35</td>
<td>‘Stable success group’</td>
<td>Horyniec, Komańcza, Baligród, Lutowiska, Narol, Dukla, Lesko, Rymanów, Ustrzyki Dolne</td>
</tr>
</tbody>
</table>
**The group with extensive opportunities**

In order to increase the tourism function in these communes, local governments should focus on systematically increasing the indicator of demographic structure. Nevertheless, this alone will not suffice to achieve full success. There should be substantial and strong promotion of tourism as an attractive form of activation of the unemployed, as a possibility for obtaining additional sources of income for farmers, or as a way of running a business in this industry.

**The group with high human potential**

Communes assigned to this group have natural amenities of low value, but a strong demographic potential. Residents reveal quite good “tourist awareness,” which is helpful in deciding to be employed in the tourism sector.

Three communes in this group stand out: Medyka, Wielkie Oczy and Laszki. These are border communes where tourism development is based on transit—the available resources are thus intended mainly for overnight visitors (in the case of accommodation) or for catering services.

**The risky success group**

All communes in this group have a tourism function index higher than the average for the province as a whole, but their technical infrastructure is relatively poorly developed. It can be concluded that this is virgin territory from the environmental point of view, and this might be the main reason for attracting tourists. Nevertheless, it is worth considering whether a strategy ignoring elementary infrastructure can last for a long time, especially in the 21st century. If the local authorities do not improve this element, tourism is not going to develop in the future, but is likely to stagnate and eventually disappear from these areas. On the other hand, the improvement of technical infrastructure alone is not the only critical determinant, which is proven by the next group.

**The problematic group**

The main problem with this group is the fact that despite a relatively high rate of natural amenities, the tourism index is quite low in these communes. On the other hand, they have very well developed infrastructure. These communes can be considered semi-urban rural areas, which have created many opportunities for residents in non-agricultural activities, but the development of the tourism function has been replaced by other sectors. Here, it is very important to create new man-made tourism amenities to offer unique tourism products.

**The stable success group**

Communes in this group can be considered areas of sustainable development of tourism, which consists of elements such as environmental preservation and protection of monuments of the highest value but expansion is necessary for the development of infrastructure and the creation of complementary attractions for tourists (while creating some new jobs) in the form of museums, regional chambers, exhibitions, managed hiking trails, etc. The presented strategy for developing the tourism function requires the formulation of a long-term policy in this regard.

Figure 4 presents the spatial distribution of communes in individual end-nodes. Communities belonging to the risky success group, with the highest average value of the function (ID = 32), as well as to the problematic group (ID = 34) and the stable success group (ID = 35) are very scattered. Most of the communes from the other groups are concentrated in the southern part of the province, with the exception of individual communes located in the northern part. The group with high human potential is highly scattered, although it consists of few elements (ID = 5), but even here there is a cluster of
three communes in the north-east: Wielkie Oczy, Oleszyce and Laszki. An overwhelming number of communes belonging to the group with extensive opportunities occupies central and western areas of Podkarpackie province. Many of these neighbour with other communes with a more developed tourist function. If desirable cooperation for the development of tourism is undertaken by the stable success communes and the extensive opportunities communes and if the residents and local businessmen become involved in the process, then the tourist function is likely to grow over time.

Figure 4. Location of communes belonging to particular groups

6. SUMMARY

All local authorities leaders in the rural areas of Podkarpackie province claim that tourism development can help to economically and socially revive the communes and change their function. Nevertheless, the tourism function depends on many factors determining its level. Three groups of communes out of 7 have been found to have high average levels of the tourism function. In order to assess the possibility of the development of the tourism function the leaders of the communes should focus on the development of each synthetic index. If this should appear impossible (due to high costs, social opposition, etc.), the multifunctional development of these areas should aim at an activity other than tourism.
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Contents

LIBERALIZATION OF THE ELECTRICITY SECTOR OF THE REPUBLIC OF CROATIA: COULD MISTAKES IN THE REFORM OF ELECTRICITY SECTOR OF GERMANY BE AVOIDED IN CROATIA?
Ljerka Cerovic1, Mateja Lakavski2, Dario Maradin1
1University of Rijeka, Faculty of Economics Rijeka, 51000 Rijeka, Croatia
4
EXTERNAL DEBT MANAGEMENT: AN IMPORTANT LESSON OF THE ECONOMIC CRISIS
Nicu Marcu1, Mirela Cristea1, Madalina Meghisan1,
1University of Craiova, Faculty of Economics and Business Administration,
A. I. Cuza Street, No. 13, Craiova, Romania
21
HOW FAR SOME INFLUENCE FACTORS MAY AFFECT NET ASSET VALUE OF COMPULSORY PRIVATE PENSION FUNDS? STATISTICAL ANALYSIS FOR ROMANIA
Mirela Cristea1, Marian Siminica1, Nicu Marcu1,
1University of Craiova, Faculty of Economics and Business Administration,
A. I. Cuza Street, No. 13, Craiova, Romania
25
DEVELOPMENT OF OUTBOUND TOURISM IN THE CZECH REPUBLIC MODELLING FOR THE BALKAN REGION
Ladislav Mura1
1Dubnica Institute of Technology, Sládkovičova 533/20, 018 41 Dubnica nad Váhom, Slovakia
43
NON-MATERIAL METHODS OF MOTIVATION AS A TOOL OF ENTERPRISE MANAGEMENT
Nataliya V. Ketko
Volgograd state technical university, 400131, Lenin Avenue, 28, Volgograd, Russia
50
PERFORMANCE OF MANAGEMENT FUNCTIONS IN NGOs
Nicoleta I. Ciucescu
“Vasile Alecsandri” University of Bacau, 8 Spiru Haret, Romania
59
UTILISING PORTFOLIO METHODS IN THE STRATEGIC PLANNING OF PRODUCT QUALITY
Renáta Nováková
1
1University of Ss. Cyril and Method in Trnava, Faculty of Mass-medial Communication,
Nám. J. Herdu 2, 917 00 Trnava

73

PROCESS ORIENTATION IN MARKETING
Renáta Nováková
1
1University of Ss. Cyril and Method in Trnava, Faculty of Mass-medial Communication,
Nám. J. Herdu 2, 917 00 Trnava

81

THE ASPECTS OF INNOVATIVE-MARKETING MOBILITY OF UNIVERSITY
Olga V. Konina
Volgograd state technical university, 400131, Lenin Avenue, 28, Volgograd, Russia

88

THE EFFICIENCY FUNCTIONING OF HOUSING AND COMMUNAL COMPLEX:
THE "COMPROMISE" APPROACH TO ESTIMATION AND MODELING
Olga A. Krakashova
South-Russia state technical university (Novocherkassk polytechnic institute),
Prosvescheniya Street 59, Novocherkassk 346428, Rostov Region, Russia

95

THE ANALYSIS OF ISSUES IN USING DISTANCE LEARNING IN MANAGEMENT OF HUMAN CAPITAL IN RUSSIA
Olga S. Nadezhina
Department of Economics and Finance, Service Institute (Moscow) (branch) of
the Federal State Institution of Higher Professional Education
“Russian State University for Tourism and Service ”, 1-Veshnyakovskiy Passage, 1, p.7, Moscow

104

CARBON FINANCE THROUGH CARBON MARKETS AND EVIDENCE FROM TURKEY
Ozlem I. Koc 1, Can Koc 2, Cem Koc 2
1 School of Banking and Insurance, Marmara University, Istanbul, Turkey,
2 Terakki Science High School, Istanbul, Turkey

109

RATIO CLASSIFICATIONS FOR FINANCIAL STATEMENT ANALYSIS – HISTORICAL OVERVIEW
Paavo Súmann
Tallinn School of Economics and Business Administration, Tallinn University of Technology, Tallinn, Estonia

127
APPRENTICESHIP, TOOL OF TACIT KNOWLEDGE SHARING
Ludmila Mládková
1
1University of Economics Prague, W. Churchilla 4, Prague 3, Czech Republic
141

TOTAL EDUCATION
Paul Marinescu1, Sorin G. Toma1
1Faculty of Business and Administration, University of Bucharest
4-12 Queen Elisabeth Blvd., Bucharest 030018, Romania
148

SYSTEM OF THE STATE PURCHASES
AS THE TOOL INNOVATIVE AND STATE SOCIAL POLICY
Olga Pekova
Ministry of Education of the Russian Federation
Volgograd State Technical University, Lenin's prospectus 28, city of Volgograd, 400138
162

THE AUDITORS’ ROLE IN “WINDOW DRESSING ACCOUNTING” OR THE IMPACT OF “CREATIVE ACCOUNTING” ON THE ACCOUNTING INTERNATIONAL STANDARDS
Veronica Adriana Popescu1, Cristina Raluca Popescu2 and Gheorghe N. Popescu3
1 Academy of Economic Studies, Romania, Piața Romana nr. 6, sector 1, Bucharest, Romania
2 University of Bucharest, Mihail Kogalniceanu, nr. 36 - 46, Sector 5, Bucharest, Romania
3 Academy of Economic Studies, Bucharest, Romania, Piața Romana 1-6, Bucharest, Romania
168

PRINCIPLES AND MODEL OF LEAN MANUFACTURING
Radim Dolák, Petr Wolf
Silesian University in Opava, School of Business Administration in Karviná, Univerzitní náměstí 1934/3, Karviná, 73340, Czech Republic
181

THE INFLUENCE OF ECONOMIC CRISIS ON WELFARE IN THE BALTIC STATES
Raissa Kokkota
Tallinn University of Technology
Tallinn School of Economics and Business Administration, Akadeemia tee 3, 12618 Tallinn, Estonia
190

MONITORING OF THE PRIMARY HEALTH CARE ACTIVITIES
Ralica Zl. Zlatanova-Velikova
Medical University – Sofia, Faculty of Public Health, Department of Health Policy and Management, 1527 Sofia, Bulgaria
202
ABOUT THE POTENTIAL OF RURAL AREAS IN THE STRUGGLE REDUCE URBAN-RURAL GAP
Raluca I. Zorzoliu
Spiru Haret University, Faculty of Marketing and International Economic Affairs, Bucharest, Romania, Romanian Academy post-doctoral student, fax: 031.402.92.84

BUSINESS INTELLIGENCE ARCHITECTURE BASED ON MULTI-AGENT APPROACH
Roman Šperka
Silesian University in Opava, School of Business Administration in Karvina, Department of Informatics, Univerzitní nám. 1934/3, Karviná, 733 40, Czech Republic

E-COMMERCE SYSTEMS AND MULTI-AGENT TECHNOLOGY
Roman Šperka
Silesian University in Opava, School of Business Administration in Karvina, Department of Informatics, Univerzitní nám. 1934/3, Karviná, 733 40, Czech Republic

MANAGEMENT. CAREER IN THE PUBLIC FIELD- STRATEGY NEEDED FOR DEVELOPMENT AND QUALITY
Roxana Al. Mironescu
“Vasile Alecsandri” University of Bacau, 600114, Romania,

APPLICATION OF THE METHOD OF BREAK-EVEN POINT FOR OPTIMIZING THE FINANCIAL CONDITION OF HOSPITAL DEPARTMENTS
Rumyana T. Yaneva¹, Vasko M. Katzarov²
¹ Medical University – Sofia, Faculty of Public Health, Department of Health Economics, 1527 Sofia, Bulgaria
² V-th Multiprofile Hospital for Active Treatment – Sofia AD, 1233 Sofia; Bulgaria

THE ECONOMIC ANALYSIS “COST-EFFECTIVENESS” AND ITS ROLE IN THE EFFECTIVE ASSESSMENT OF THE HEALTH MANAGEMENT
Stefan N. Gladilov
Medical University – Sofia, Faculty of Public Health, Department of Health Economics, 1527 Sofia, Bulgaria

VIRTUAL LEARNING ENVIRONMENT IN MEDICAL COLLEGE - SOFIA
Stefan K. Velikov
Medical University – Sofia, Medical College - Sofia, Sofia, Bulgaria. Yordanka Filaretova str No 3
THE OPPORTUNITIES OF IMPLEMENTING THE ACTIVITY-BASED BUDGETING PRINCIPLES IN LATVIAN POST’S BUDGETING SYSTEM
Svetlana Savina
Riga International School of Economics and Business Administration (RISEBA), Meza Str. 3, Riga, LV-1048, Latvia

FRONTIER REGIONS OF ASIAN PART OF RUSSIA: GENERAL AND SPECIAL FEATURES FOR PROGRAMS OF ECONOMIC DEVELOPMENT
Tatiana I. Zhadanova
Institute of economics and industrial engineering of Siberian Branch RAS,
Novosibirsk, Russian Federation

FORECASTING EURO AREA ECONOMIC GROWTH BY COMBINING ECONOMETRIC MODELS
Tiberiu Stoica, Alexandru Leonte
The Bucharest Academy of Economic Studies, 6 Romana Square, District 1, Bucharest

THE ROLE OF THE “COST – EFFECTIVENESS” ANALYSIS IN THE MANAGEMENT OF PRIMARY HEALTH CARE IN THE REPUBLIC OF BULGARIA
Tihomira Zl. Zlatanova
Medical University – Sofia, Faculty of Public Health, Department of Health Economics, 1527 Sofia, Bulgaria

THE FORM OF PUBLIC-PRIVATE PARTNERSHIP "EQUITY PARTICIPATION" AS THE DEVELOPMENT LINE OF THE SOCIAL INVESTMENT
Department of economics and finance companies
Mahonina Uliyana S.
Volgograd State Technical University, Lenin Avenue 28, Volgograd, 400131, Russia

EFFICIENT HOSPITAL MANAGEMENT DURING FINANCIAL AND ECONOMIC CRISIS
Vasko M. Katzarov, Hristina A. Ilieva
Fifth MHAT Sofia EAD, 1233 Sofia, Bulgaria

NATIONAL SPECIFICOS OF COMPETITIVE BENCHMARKING INTEGRATION ON RUSSIAN ENTERPRISES
Viktoria N. Ostrovskaya¹, Elena G. Popkova²
¹Stavropol State University, Pushkin st., 1A, Stavropol, 355009, Russia
²Volgograd State Technical University, Lenin Avenue, 28, Volgograd, 400131, Russia
GOAL PROGRAMMING IN ECONOMICS
Velizar T. Pavlov

ASSIGNMENT PROBLEM IN ECONOMICS
Velizar T. Pavlov

THE MANAGEMENT OF THE SOCIAL POTENTIAL OF REGIONAL ECONOMY
Olga V. Zaborovskaya, Irina V. Baranova

MARKET REACTIONS TO ENVIRONMENTAL INFORMATION IN THE FOOD PRODUCTION INDUSTRY
Zsuzsanna Deák

SOME PROBLEMS OF ADVERTISING IN GEORGIA
Maia Seturi

KNOWLEDGE CAPITALISM AND THE GLOBAL CRISIS
Aleksandar Kešeljević

DEVELOPMENT PERSPECTIVES OF COMPANY STRUCTURES
Татьяна Иванова Юрьевна and Snežana Živković

THE IMPACT OF GLOBAL FINANCIAL CRISIS IN THE ACTIVITY OF CREDIT IN ALBANIA BANKING SYSTEM
Anila Mančka
Faculty of Economy, University “Fan S. Noli” Korçë, Albania.

IMPROVING THE ATTRACTION OF EUROPEAN UNION FUNDS IN THE REGIONS OF LATVIA
Liga Jankova,
Faculty of Economics, Latvia University of Agriculture, Svētes Str. 18, Jelgava, LV 3001, Latvia

SUSTAINABLE DEVELOPMENT AND SOCIAL RESPONSIBILITY
Sorin-George Toma¹, Paul Marinescu¹
¹Faculty of Administration and Business, University of Bucharest,
4-12 Regina Elisabeta, Bucharest, Romania

STATE INTERVENTIONS IN THE ECONOMY BASED ON FISCAL POLICY INSTRUMENTS – EMPIRICAL EVIDENCE FOR CENTRAL AND EASTERN EUROPEAN COUNTRIES
Emilia M. Câmpeanu
Bucharest Academy of Economic Studies, Piaţa Romană Street, No. 6,
Room 1104, District 1, Bucharest 010374, Romania

IDENTIFYING THE SHOCK EXPOSURE BASED ON FISCAL POLICY WITHIN EUROPEAN UNION MEMBER STATES
Emilia M. Câmpeanu ¹, and Elena Pădurean²
¹ Bucharest Academy of Economic Studies, Piaţa Romană Street, No. 6, Room 1104, District 1,
Bucharest 010374, Romania
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District 5, Bucharest 050711, Romania

FLAT RATE TAX IN HUNGARY
Ilona Cserhati¹, Takacs Tibor²
¹,² Unit for Macroeconomic and Fiscal Analysis, ECOSTAT Government Centre for Impact Assessment,
Budapest, Hungary
METHODS OF ESTABLISHING THE EARNINGS
Silvana Koleva
Faculty of Economics, Ss Cyril and Methodius University, Skopje, Macedonia
498

AN INSOLVENCY PETITION IN THE PERSONAL BANKRUPTCY PROCEDURE IN LATVIA
Renata Konopecka
Baltic International Academy, 4 Lomonosova street, Riga, Latvia, LV-1003
506

ISLAMIC FINANCIAL INSTITUTIONS AND THE POSSIBILITIES OF THEIR FUNCTIONING IN KAZAKHSTAN
Abdimomynova A.SH., Kyzylorda State University, Kazakhstan
514

MONITORING OF EFFECTIVENESS AND QUALITY OF EDUCATION AND FORECASTING THE ADJUSTMENT OF EDUCATION SYSTEM TO THE NEEDS OF LABOR MARKET
Maciej Szafraniski, Marek Golinski, Ewa Wiecek-Janka,
Poznan University of Technology, Institute of Management Engineering
Strzelecka 11, 60-965, Poland
523

METHODOLOGY OF IMPROVEMENT AND ACCELERATION OF KNOWLEDGE AND TECHNICAL SKILLS DEVELOPMENT IN WIELKOPOLSKA REGION
Maciej Szafraniski, Marek Golinski, Ewa Wiecek-Janka,
Poznan University of Technology, Institute of Management Engineering,
Strzelecka 11, 60-965, Poland
538

CORPORATE IDENTITY IMPLEMENTATION IN BUSINESS ENTITIES IN SLOVAKIA
Otilia Zorkociova, Barbora Brynkusova
University of Economics in Bratislava, Faculty of Commerce, Department of International Trade,
Dolnozemská cesta 1, 852 35 Bratislava
552

FACTORS CONTRIBUTING TO THE DEVELOPMENT OF THE TOURISM FUNCTION IN PODKARPACKIE PROVINCE—A REGRESSION TREE MODEL
Aleksandra K. Górecka
Warsaw University of Life Sciences – SGGW
571