UNDERSTANDING THE INNOVATION MANAGEMENT SYSTEM: THE CEN/TS TECHNICAL SPECIFICATION FOR A BETTER INNOVATION PERFORMANCE

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Abstract

It is hardly necessary to draw attention to the importance of innovation. Today it is obvious to everyone that staying in the competition without innovations and continuous developments is impossible. It is not always the most radical solutions that can lead to success, since often the smaller, step-by-step, time-consuming innovations can also provide a competitive edge to the enterprises. Peter Drucker, the father of modern management, emphasized it too that these days nobody needs to be convinced about the significance of innovation, but the big question is how to innovate. It is a lot harder to answer this question, because there is no consensus with regard to the definition, content or methods of innovation. Whether to carry out innovations or not is indeed not the point anymore for the economic operators in the 21st century. The questions of how to manage innovation processes more successfully and being able to find a standardization system that could turn the innovation processes of the enterprises to be even more effective are much more relevant. The answer arrived a few years ago in the form of the CEN/TS innovation management standard, which is still unknown to most of the Hungarian enterprises. The new standardization system tries to provide framework methods to the economic operators in seven chapters about how to make the management of the innovation processes more efficient. Similarly to the ISO standardization system, CEN/TS endeavours to create more uniform interpretative and methodological frameworks in order to make the definition, management and measurement of innovation easier for everybody. This study wishes to briefly introduce the importance of innovation management in the enterprises and the contents of the chapters of the CEN/TS innovation management system.

Keywords: *innovation, innovation management, leading innovation*

1. INTRODUCTION

The 21st century constantly presents new challenges not only to business enterprises but to national economies too. While previously the competition was mainly considered to be a struggle between companies, it has now become clear that the countries and what's more, even the geographic regions or integrations are also in competition with each other. In this competitive situation it is not some marginal issue to determine what factors could help the strengthening of competitiveness.

Several global changes that occurred in the past decade have drawn the attention to the enhanced competition. In 1957 the Treaty of Rome created the European Economic Community (EEC), with the open goal of meeting competition from such world economic powerhouses like the United States of America or Japan in the field of innovation. In this spirit, the economic policy needs to prioritize fields like innovation or education, and strongly support the research and development (R+D) activities of the economic operators. Even during these years it was evident that innovation and R+D will be one of the most defining pillars of national (and corporate) competitiveness.

In the course of the subsequent 50 years the EU cannot be deemed unambiguously successful with regard to this objective. The following graph demonstrates that although we are competing in the field of R+D with countries like Japan, USA, China or South Korea, but in this competition we are falling more and more behind, since while the other countries have managed to increase the investments to a greater or lesser degree, in the case of the EU we can only talk about maintaining the previous level.

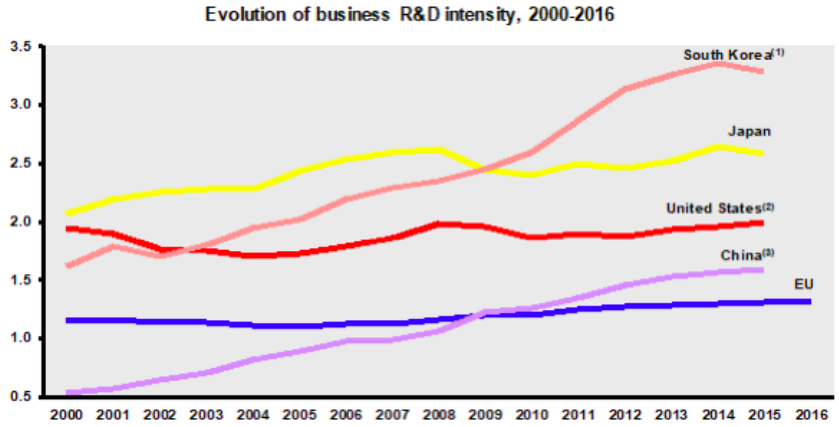


Fig. 1. Changes in the R+D intensity of business enterprises between 2000 and 2016

Source: EuroStat/OECD

Obviously it needs to be emphasized that not just the business sector can contribute to R+D, as the above graph shows, but the general government sector and the higher education sector as well, yet if we examine the structure of a country's R+D investments then we will find that the vast majority is constituted by such expenditures of the enterprises (KSH, 2016). For instance this is confirmed by the R+D structure of Hungary too.

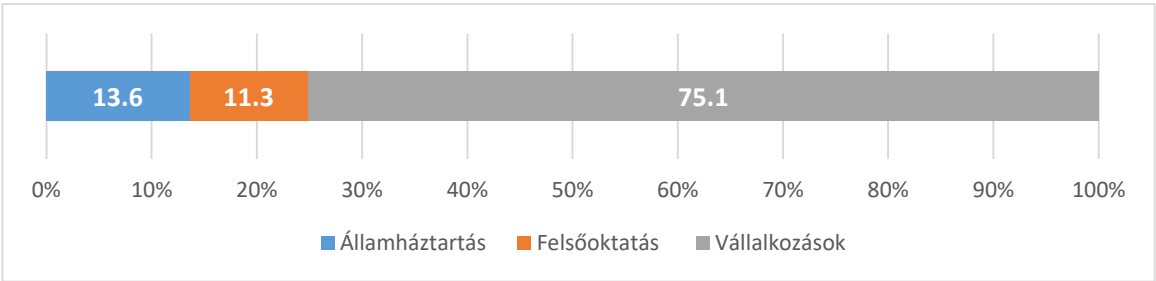


Fig. 2. R+D structure of Hungary

Source: KSH 2016

It needs to be added that as a member state of the EU, Hungary's R+D expenditures as a share of GDP are exactly on the level of the EU average, which was 1.22% in 2016. From the 2010 level of 1.15% it was successfully lifted to 1.39% by 2013, but by 2016 there was a plummet again.

However, the problem rests not only in the low level of R+D expenditures. The EU consists of 28 member states, and Hungary is only one of them. Herein lies one of the main reasons of the EU lagging behind.

According to such experts as Manuel Castells or organizations like the World Economic Forum, one of the biggest problems is that the member states of the EU are on very different levels of innovation and R+D accomplishments (weforum.org). They highlight that the EU still have not been able to evolve into such a knowledge-based economy that could effectively compete with for example the USA or Japan. The attention was drawn to this fact by the 2003 Sapir Report as well, which underlined the role of innovation and knowledge in growth, and asserted that there has to be progress in these fields in order for the EU to become a sufficiently competitive integration (Sapir Report, 2004). For this purpose the innovation and R+D performance of the member states have to be improved at a national level too. The latter was affirmed the EU report on the innovation performance of the member states, which is summed

up by the European Innovation Scoreboard. The report presents that there are indeed stark differences between the member states, and as long as it is not mitigated, the EU will hardly be able to outpace for instance the United States of America or South Korea in this competition.

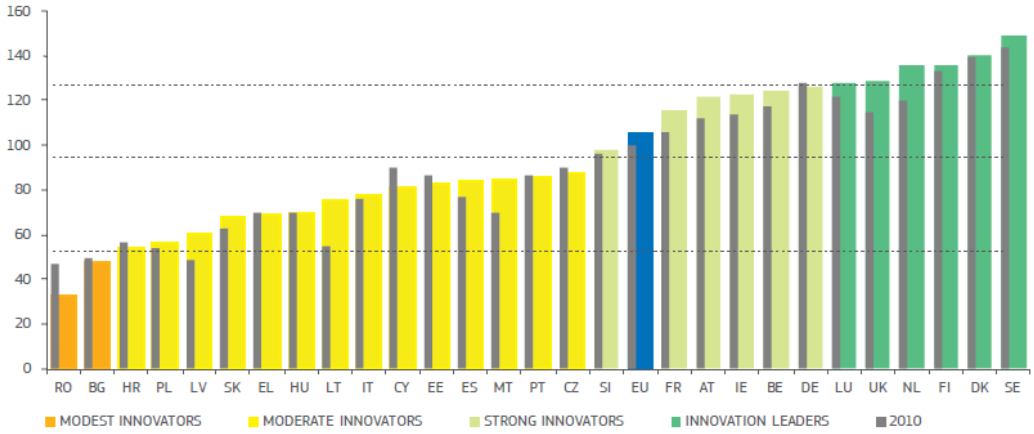


Fig. 3. Comparison of the innovation and R+D activities of the European Union countries

Source: IUS 2018

On the other hand, the shortfall of the EU is not made up solely of the different innovation performance of the member states. Although compared to 2004 the R+D expenditures as a percentage of GDP increased in almost all the member states by 2014, except France, Sweden, Luxemburg and Croatia, the increase of such investments in the EU was nonetheless behind the growth level that for example South Korea was able to produce in the same time frame (EuroStat, 2017). The CEN/TC Quality Management Standard highlights the tendency unfavourable to the EU, according to which until 2050 the EU's share of the global market in exports will continuously decline, and it is caused by the fairly serious catching-up of even China, India and Brazil during the past five years (CEN/TC, 389).

Therefore the European Union must adopt thorough and well developed structural reform policy proposals in order to reduce the gap between the member states, to enhance the R+D expenditures as a share of GDP at the EU level, and to create such a business environment for the enterprises in which they can further strengthen their innovation and R+D efforts and intensify their investments and expenses of that kind. These are inevitable for the EU to be capable of overtaking countries that can currently show up better performances in respect of innovation and R+D.

2. THE NECESSITY OF COMMON REGULATION

In innovation and research development one of the most significant improvements would be harmonization. Albeit we are supporting the innovation and R+D efforts of the companies and establishing an entrepreneur-friendly business environment, the European Committee for Standardization (CEN) pointed up a few basic issues that could undermine the reliability of the assessment of the EU Innovation System, and which are advisable to think over before we start building a new innovation and knowledge-based integration.

Based on the CEN's statement the difference lies not just in the diverse innovation performance of the countries, but a common perspective is worth considering also in terms of the following factors:

1. Innovation has hundreds of known definitions. It is unclear what we mean by innovation, thus it would be important to clarify the essence of innovation as a process. The interpretation of the definition is rendered to be more difficult by the diversity of the types of innovation, so simplification is needed from this context too. A common system of concepts and typology has to be created.
2. Innovation, invention and R+D often get mixed in everyday language. These definitions shall be clearly distinguished, and their measurement shall not be done cumulatively either. We must separate innovation and R+D.
3. Since innovation has numerous definitions and types, the economic operators perceive in different ways what innovation truly is. We are prone to think that an idea can be innovation, or that a new thing can automatically be considered as an innovation. Innovation is what the market detects that way, hence it should be assessed more thoroughly whether we really have innovative ideas or not. There is no well-developed or standardized method for that either.
4. The measurement of the innovation performance at the companies is not universal. Many companies do not even do it properly, or their evaluation system in that regard is scarce. If the interpretation of innovation or when innovation is truly created could be standardized, it could provide help for the foundation of a methodology as well. If the definitions are not unified, if it's not unified what can be considered an innovation, and even how we measure innovation is not universal, then it is incredibly difficult to infer the system-level performance.
5. It has to be determined what enterprises can be deemed truly innovative. Although there are attempts for this too, for instance a company is innovative if it establishes an innovation within the relevant period of time, but this definition is not accurate enough either, because it also needs to be taken into consideration how big the enterprise is or how much profit it makes. In the case of larger companies more innovation is expected, therefore a small and large enterprise cannot be compared from this perspective.
6. There is no clear definition for what we call innovation management and what its concrete task is. Several interpretations evolved, in which there are many overlaps but there are dissimilarities too.
7. It is not certain how to manage innovations efficiently. A framework needs to be set up that will help all the enterprises to standardize the above points and determine those general requirements with which innovation can be managed better. Establishing a common framework enables us to compare the companies better in terms of innovation, and it generates a better basis for a system-level evaluation.

3. MEASURING INNOVATION THROUGH A SHEET OF PAPER METHOD

For the sake of a better assessment first it should be unambiguously defined what we measure. An interesting experiment illustrates how non-uniform the interpretation and measurement of innovation is.

10 corporate executives were asked to write on a piece of paper what innovation meant based on their understanding, then to write on the back of the page how it was measured by their enterprise. As a result we received different definitions, which revealed that innovation has various interpretations. If the companies were asked to do the same in a major international survey, this problem would obviously occur again, so the results would not reflect the true innovation performance.

To some people buying a new product is already innovation. To others innovation means incorporating the most modern state-of-the-art device into production. To some taking over an idea is innovation, while to others it is subject to a product. There is an even greater divergence with regard to the measurement of innovation. If the piece of paper had a third page, the heads of the companies should write down how they manage innovation. Presumably the opinions would not be the same there either.

4. BIRTH OF THE CEN/TS STANDARD

On the basis of the above points and the results of the experiment, the initiative is appreciable that the European Committee for Standardization launched for the sake of standardizing the innovation management systems. Although on the grounds of the decade long development the innovation theories and practices show several common features, they also have serious dissimilarities as well. One common characteristic is that effective innovation activities can only be carried out through the application of a well-founded and efficient innovation management system, and the large number of cooperation in the economy makes it necessary for these innovation management systems to be harmonized with each other.

The first stage of standardization was IMP3rove, which refers to an international innovation management assessment, evaluation and training system. It was developed by A.T. Kearney and the Fraunhofer Institute in 2007. The goal was to measure the growth potential of the European SMEs and to be able to compare their industry positions with similar profile companies from other EU member states. This approach explained that it is not enough to get an answer solely to which company is more innovative, i.e. which company established more innovation over a given period. The following questions pointed up the problem:

- There is a small enterprise whose business result in the given year is 20,000 euros, and a large corporation with a business result of 160,000 euros. During that one year the small company implemented 30 innovations, while the large company carried out only two. Which one can be deemed more innovative?
- There is a small company that has a turnover of 20,000 euros, while a large company can show up 160,000 euros turnover. The small company spends 15% of its turnover on innovation, whereas the large company spends only 8%. In the former case it meant 3,000 euros, and in the latter case it was 12,800 euros. Which company is more innovative?
- There is a company, and according to its report it implemented 6 innovations, all six of them being product innovation. The other company had 2 innovations, one of which being product innovation, while the second was the implementation of a brand new business model that had not been found on the market before. Which company is more innovative?

The above three questions are just some of those that make measurement and interpretation harder, therefore standardization could definitely be welcomed as a simplification. IMP3rove and the subsequent CEN/TS Innovation Management Standard try just that. The CEN/TS Standard is a European standard that consists of 7 parts:



Fig. 4. 7 parts of the CEN/TS standard

Source: InnoMe, 2017

The study did not set itself the objective of introducing the certain points of the standard in detail, since its text and content is also available on the below website.

The implementation of the Standard has several benefits, which can manifest in the following fields:

1. it boosts growth deriving from innovation, increases income and profit
2. it brings fresh thinking and new values to the organization
3. it creates values indirectly through the better understanding of expected market needs and opportunities
4. it helps with the identification and handling of risks
5. it helps with the utilization of the organization's collective creativity and knowledge
6. it encourages the employees' involvement in the activities of the organization, strengthens team work and cooperation (Innome, 2017).

On top of achieving the above results, the CEN/TS Innovation Management Standard provides guidance so that the organization could understand its environment better, offers advice for strengthening leadership commitment, assists to planning innovation, and helps companies realize which factors favour or hinder innovation. The Standard provides general guidance to the companies to establish the development of their own innovation management processes, the assessment of their performance and the improvement of its method.

The Standard endeavours not least to overcome the issues that cause difficulties to the measurement of innovation performance and to innovation management. First it draws attention to the clarification of the conceptual frameworks and unifies the definitions. **It emphasizes that innovation is not the end result, but rather the process itself,** thus with this bridging it tries to close the gaps between the different interpretations.

The Standard wishes to draw a sharp line around such definitions as innovation or R+D, but even within these it expounds the definitions of technical innovation, research and experimental development separately.

According to the OECD's definition, **an enterprise is innovative if** it implemented an innovation within a specified period, regardless of the innovation being successful, still in progress or suspended (OECD, 2005). This point of view is also rather connected to the concept that innovations shall not be looked at from the end result's perspective, but instead it **focuses on a process-oriented approach**.

Additionally, the Standard gives recommendations that improve collaboration, cooperation and the exploitation of ideas for the benefit of innovation. It specifically mentions the factors that the **companies need to take into consideration and evaluate in order to understand their environment** (market aspects, technical aspects, political aspects, economic aspects, social aspects). It explains how the comprehension of the stakeholders' needs and expectations should be better supported. It highlights that the management has a prominent role in the success of innovation, and therefore leadership commitment needs to be enhanced in this direction by all means. **The Standard states that the innovation strategy has to form an integral part of the corporate strategy, and it also brings up the points that should appear in the innovation strategy**. If this was unified as well at the companies, it would already help a lot in the comparison of innovation performances, since one could also measure how successfully the companies fulfilled the certain strategic points.

The Standard pays special attention to the establishment of a culture supporting innovation, and it defines general fields here as well that should be developed by all the companies:

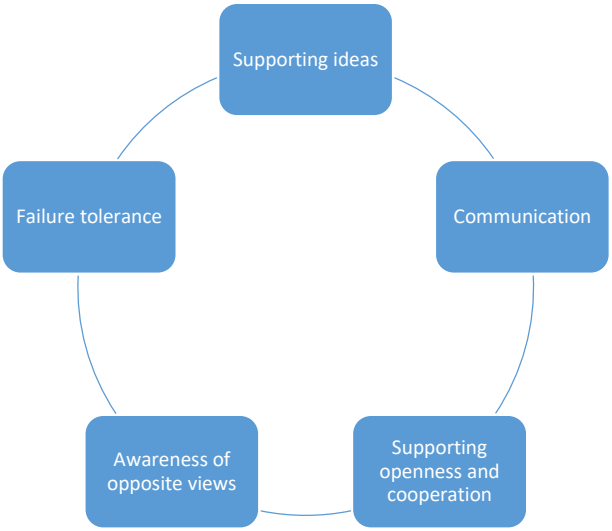


Fig. 5. Main points of the culture supporting innovation

Source: Innome, 2017

The Standard also deals in a broader way with how to plan the innovation processes. It emphasizes the increasing evaluation and management of risks and opportunities, considers operation planning, and outlines proposals for their improvements. The Standard wishes to constitute a framework also for deciding which factors to analyse when **factors helping or hindering innovation** need to be identified. In its opinion the roles, responsibilities, sources, consciousness, competence, communication, documented information, strategic human resources, intellectual property and knowledge management are the fields that could advance or set back the efficiency of innovation, and that should be addressed in a framework so that the companies could be compared in this respect as well. With this it would become measurable **how much the innovation potential of the companies has improved, and how much their innovation efforts or willingness have strengthened**.

The Standard draws the attention to the fact that innovation can only be interpreted as a process, which has consecutive but closely related steps. Innovation management has to follow the whole innovation process through. The effective configuration of this process will bring the end result that the market will detect as a novelty, hence a lot more priority needs to be on being able to carry out the process itself more efficiently. The Standard also mentions that the organizations shall define criteria and tracking indexes, which might be necessary for the assessment. This must definitely involve the below three areas, and the companies need to be coherent about this:

1. Innovation strategy
2. Instruments helping or hindering innovation
3. Innovation process and its results.

Moreover, the Standard provides the continuous development of the process and the innovation management system, and defines certain techniques, among which it names strategic information gathering and its possible methods, enhancement of innovative thinking, management of intellectual property, oversight of cooperation and creativity, and tasks regarding knowledge management. It believes that if the companies applying the CEN/TS Standard dealt with the above fields consistently, it could assist to the efficiency of innovation, and to the convergence becoming very high among the companies, so they could be better compared and their innovation performance would develop more increasingly.

5. SUMMARY, CONCLUSIONS

This study did not aim to try to sum up the contents of the CEN/TS innovation management standard. First, it would not be feasible for reasons of space, given that the 7 chapters of the Standard could hardly be summarized in such a short study, and on the other hand the text of the Standard is available online on several platforms, therefore if one would like to acquire more information on its content, it would be better to look on those sites. It was much rather written for the purposes of welcoming the implementation of the Standard and noting that there is a huge need for the clarification of certain frameworks and definitions for the future. The European Union did set up such goals for itself like becoming a true knowledge-based economy in the future and competing more efficiently with countries like the USA, Japan, China, India or South Korea. After the 1950s the USA and Japan were ahead in terms of innovation and R+D, and today in this intense competition the EU is still not in the first position. The problems of the EU are complex, since one of the basic issues is the member states having different development levels, yet they show a diverse picture not just from a developmental perspective, but with respect to innovation and R+D too. While the Scandinavian countries have 3-4% R+D expenditures as a share of GDP, such a country like Hungary cannot even reach the level of 1.5%. As long as there are such differences between the member states, there will not be a lot of chance to pass the USA or Japan on the R+D lists.

It needs to be underlined that the enterprises have a big responsibility concerning the R+D investments or innovation as well, because primarily these operators could do the most for the sake of moving forward. However, they need a business environment in which they can be further developed for innovation purposes, so in this the economic policy also has a responsibility. In many cases the problem is caused by the definitions not being absolute, not knowing what exactly to measure and how, or we are not even measuring at all. The well-known saying might apply here too: **an activity is properly done only if it's measured**. Nevertheless, it also needs to be clear that there is no consensus in certain points that would theoretically help improving the comparisons and assessments, and there is no general recommendation either that would have promoted the effectiveness and management of innovation. The first step in that direction had been the IMP3rove, and then later came the CEN/TS.

The application of standards in these fields might be justified for the above reasons. At this moment it is used in a small number of countries, it has been translated to a small number of languages, and its concrete effects cannot be undoubtedly recognised yet. It is however a fact that a framework with common definitions and common examination aspects and methods would make it possible to enhance

the comparison and measurement effectiveness and it could provide assistance for the real improvement of innovation performance at the companies too. **The endeavour is to be welcomed that focuses on the strengthening of innovation and R+D, and assesses innovation as a process**. Peter Drucker, the father of modern management, emphasized that it is now not the importance of innovation that the attention must be paid to. How to innovate is a lot bigger issue. The CEN/TS Standard tries to answer this question as well. Moreover, the study also has the objective of expressing our intention to introduce the Standard more widely and to initiate such a research program that wishes to carry out the application of the Standard, its expected results, usefulness and justification. Our study also highlights that the implementation of a general framework could be necessary in other fields too that represent a problem to certain companies and in which they would like to achieve higher efficiency.

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