

THE DEVELOPMENT OF SUSTAINABLE INNOVATIONS THROUGH COOPERATION WITH STAKEHOLDERS

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Abstract

The paper examines the development of sustainable innovations through cooperation with stakeholders. With reference to the scientific literature the concept of sustainable innovations and the role of the sustainable development are analysed. The need for organizations harmonious interaction with participants of the environment as well as the usefulness of the search and incorporation of stakeholders into the common activity are reasoned. Cooperation of organizations with stakeholders and their involvement in joint activities allow to optimize the activities of organizations and to adapt to business environment changes more purposefully. When searching for an appropriate solution in the development of sustainable innovations, the incorporation of stakeholders into the process becomes relevant.

Key words: Sustainable innovations, cooperation, stakeholders

INTRODUCTION

The researchers of the sustainable development raise the question of how sustainability can be achieved, having in mind that sustainability itself is a concept. Most common definitions of the sustainable development encompass three key factors that have the same importance for any kind of activity: economic, social and environmental. However, there are other approaches to this phenomenon. Larson (2002) defines sustainability in a slightly different way; He states that it is an innovative and transforming activity of the organization, which creates new products or processes that modify existing practices. Market dynamics and global issues have encouraged organizations to change their practices based on the latest knowledge and innovations as well as to do that sustainably and in coordination with other market participants taking into account concerns and interests of stakeholders. Such operation of organizations has resulted in the development of innovative processes considering the external environment patterns. Sustainable innovations are the basis for the sustainable development and they allow businesses to increase the level of productivity, improve quality of life for society (Vasilenko, Arbačiauskas & Staniškis 2011; Čiegis & Pečkaitienė 2013). The sustainable development in general is impossible if innovations are not introduced (Ayuso, Angel & Enric 2006). In the scientific literature innovations are often described as a tool of progress. Boons and Ludek-Freund (2013) state that sustainable innovations can be understood as the basis for the sustainable development. Sustainable innovations are the means of solving problems of the sustainable development in the market (Hansen, Grosse-Dunker & Reichwald 2009).

It is appropriate that a sustainable innovation would bring long-term benefits allowing to reduce operating costs in the future. According to Bagdonienė, Galbuogienė and Paulavičienė (2009), long-term success of organizations depends on how sustainably they are able to integrate into the environment. Sustainability can be seen as a concept of a responsible business creating a long-term benefit to the organization through its interaction with participants of the environment. Coherent and purposeful cooperation with external environmental participants will determine the future success of innovations (Westerlund & Rajala 2010). The cooperation with other organizations is one of the ways to develop sustainable innovations. The development of sustainable innovations allows to reach new customer segments and change the activity processes of the organization as well as habits of market consuming. Sustainable interaction of organizations with the environment participants leads to more operative management of information and creates closer relationships with consumers (Pogosian & Dzemyda 2012), therefore, this strengthens competitive advantage of organizations and increases attractiveness for stakeholders to be involved in the cooperation.

While analysing the development of sustainable innovations the emphasis of usefulness of sustainable innovations in the scientific literature has been noticed, however, less attention is paid to proceeding aspects of the development of sustainable innovations, for example, how sustainable innovations are developed with stakeholders.

The relevance of the development of sustainable innovations with stakeholders is reasoned by the fact that the best solutions are offered by those who are directly involved with the problem. The cooperation of interested organizations is one of the ways to find the most appropriate solution for the development of sustainable innovations.

The problem: how sustainable innovations are developed with stakeholders as an instrument for the sustainable development.

The object: the development of sustainable innovations.

The purpose: to prepare a theoretical model of the development of sustainable innovations through collaboration with stakeholders.

Objectives:

- To reveal the relevance of the development of sustainable innovations in the context of the sustainable development;
- To identify the factors that determine the development of sustainable innovations through the cooperation with stakeholders;
- To indicate process aspects of the development of sustainable innovations with stakeholders.

Research methods: analysis of the scientific literature, synthesis and theoretical modelling.

1. SUSTAINABLE INNOVATIONS IN THE CONTEXT OF THE SUSTAINABLE DEVELOPMENT

Classic understanding of innovations by Schumpeter states that innovations are the result of new combinations created by businessmen (Hellström 2007). The definition of innovations highlights the same aspects that were determined by Schumpeter, however, now they are being comprehended more broadly.

The problem of the sustainable development has introduced new aspects into the analysis of innovations. It might be stated that when defining sustainable innovations we encounter the same problem of definition on the sustainable development. Horbach (2005) confirms the opinion that the scientific literature lacks conceptual agreement on sustainable innovations. Eco-innovations are analysed more widely than sustainable innovations in the scientific literature as measures to achieve sustainability.

The concept of sustainable innovations in the scientific literature may comprise different aspects. Boons and Ludeke-Freund (2013) claim that sustainable innovations include technical aspects such as eco-innovations and clean production. Hellström (2007) uses both sustainable innovations and eco-innovations terms defining them in the same way – it is the process of creating new ideas, behaviour, products and processes that reduces the impact on the environment.

Nevertheless, the term of eco-innovations is used more frequently than the one of sustainable innovations. Having reviewed literature the question raises if eco-innovations fully correspond to the conception of sustainability and can only eco-innovations be identified as sustainable innovations?

One of the main results of eco-innovations is the environmental benefit. Ekins (2010) defines eco-innovations as technological transition that also *reduces environmental impact and usage of natural recourses*. More widely eco-innovations are perceived as production, application and usage of goods, services, production processes, organizational structures and management methods that are new to the organization and determine *the reduction of environmental risks and pollution during the life-cycle*, comparing to other possible alternatives (Kemp & Pearson 2007). Wider perception of eco-

innovations covers environmentally motivated (specially implemented) innovations and unforeseen environmental innovations (Machiba, 2010). This perception declares that an eco-innovation is an activity or product, which provides environmental impact either on purpose or not. The direct feature of eco-innovations is practically undoubted. It matches the concept and environmental effect of sustainability, though this only feature does not allow to define eco-innovations as sustainable.

Another important feature of eco-innovations is their economic aspect. Economic result may be as one of the main criteria to decide whether an innovation can be called an eco-innovation after all. It is important to emphasize that when evaluating economic result, both internal (private or enterprise benefit measured by economic indicators) and external (benefit of third-party (stakeholders')) benefits should be evaluated. This is highlighted by Schaltegger and Wagner (2011) who affirm that a sustainable innovation is also estimated by internal and external benefits. However, the aspect of external benefit may be defined very hard because of the lack of well-operating methods of monetary evaluation in the environmental economics. Some scientists describe eco-innovations using their economic aspect. According to Huppel et al. (2008) an eco-innovation is a subclass of innovations that embraces economic and environmental innovations or eco-innovations are the change in economic activity, which improves economic activity and environment for the society. So, the improved economic and environmental indicators define an innovation as environmental. Ekins (2010) provides the scheme of evaluation of eco-innovations. An innovation is defined as eco-innovation according to its economic results: (1) an immediate positive economic result shows eco-innovations; (2) a later economic result shows a potential eco-innovation; (3) lack of economic result shows none eco-innovations. Blättel-Mink (1998) presents even more simplified attitude towards eco-innovations describing them as inclusion of environmental aspects into economic strategies. The economic motive in eco-innovations becomes dominant here from the prospective view of the company. While implementing innovations mainly an economic benefit is measured. However, when evaluating eco-innovations according to economic motives, the environmental aspect is also taken into account. The environmental benefit might be as a secondary benefit of other goals (reduction of costs or waste management). In the context of sustainability eco-innovations involve both environmental and economic motives.

According to Bartkutė (2014), economic and ecologic aspects of sustainability are not only widely studied, but also have a more firm scientific background than social aspects of sustainability. The research of eco-innovations in the scientific literature shows the same tendency, nevertheless, we cannot state that less popular social aspects are not relevant while seeking for sustainability. Hellström (2007) proposes that eco-innovations become successful when introduced along with social dimension, i.e., when innovations affect practices of the organization and activities of stakeholders. Machiba (2010) also states that eco-innovations should include innovations in social and institutional structures. Hence the social aspect is also noticeable as important among dominant environment and economic motives while introducing eco-innovations for the implementation of sustainability. So, in general eco-innovations comprise all components of sustainability, though some aspects are expressed more and some – less. Yet Hellström (2007) claims that minor eco-innovations cannot help in achieving goals of the sustainable development, so they need to include maximum all possible aspects of sustainability.

Social aspect is analysed broadly when having in mind social innovations. Mulgan et al. (2007) analyse social innovations and isolate them from innovations with main economic impact defining them as new activity or services that are created and spread in order to satisfy social needs of society by organisations that specialize in the satisfaction of social needs. Lubelcova (2012) studies social innovations by describing their main features: orientation to social needs or human problems; innovative (new) approach creating positive results and production of social additional value. According to Nill and Kemp (2009) as well as Schot and Geels (2008) sustainable innovations or, to be more exact, their social aspects can help reducing market failures. The main areas of society life that require social innovations are extension of lifetime, expansion of cities, problem of happiness (as a difference between growing GDP and non-improving welfare) and other aspects. However, this perception of social innovations is more applicable on the commonwealth or macro levels. Iizuka (2013) highlights one more aspect – innovations can be introduced in public and social sectors as a

possible alternative for reducing costs in the public sector. This feature can be assigned to social innovations. In this case researchers of social innovations separate them from other innovations because usually social innovations are not meant for profit, though they might also have a positive economic impact. Social innovations may also have an environmental motive when solving social problems. Such social innovation can be a system of city bicycles, which is meant to solve the problem of citizens' mobility as well as to reduce car pollution.

Both eco-innovations and social innovations can be used to achieve goals of the sustainable development. The main types of sustainable innovations are the following:

- Eco-innovations providing a positive internal economic result (e.g., a product that reduces the impact on the environment);
- Eco-innovation providing positive internal and external economic results and a social aspect (environmental standards, solar collectors solving electricity supply issues in the regions without access to electricity);
- Social innovations providing an internal economic result with a probable environmental result (companies employing the disabled, micro-credits for eco-businesses, etc.);
- Social innovations providing positive internal and external economic results with a probable environmental result (bicycles rent systems in cities, programmes for reducing criminality, new ways for youth employment).

Any activity that can achieve an economic benefit and a positive effect in the environment and/or society is considered as a sustainable innovation. Usually organizations seeking for economic goals may achieve environmental and social benefits as well. This means that a sustainable innovation shouldn't always start with environmental or social motives. Hence, a sustainable innovation comprises not only activity of the organization but also other stakeholders: a society, other businesses, public institutions and non-governmental organizations.

2. FACTORS DETERMINING THE DEVELOPMENT OF SUSTAINABLE INNOVATIONS WITH STAKEHOLDERS

The development and implementation of sustainable innovations are not widely studied in the scientific literature. The concept of sustainable innovations itself refers to the fact that its impact is felt not only in the organization introducing this type of innovations, but also to other stakeholders. The development process of sustainable innovations is based on the environmental problems and the development process, which involves stakeholders (Bouglet, Joffre & Simon 2012). The environmental change impacts models of organization's activities that are more and more focused on the sustainability (Jonker & Eskildsen 2009). The implementation of sustainable activity along with the environment and the solutions of its problems allow to gain a stable competitive advantage and it is implemented through the organization's targeted response to changes in the market employing the latest news (Sousa, 2006; Atkočiūnienė, 2013) as well as targeted cooperation with stakeholders (Ayuso, Angel, & Enric 2006; Jonker, Pijkeren & Eskildsen 2009; Atkočiūnienė 2013).

The analysis of the development of sustainable innovations showed that there is a connection between the implementation of innovations and cooperation of organizations with other organizations (Pogosian & Dzemyda 2012). In the theory of the sustainable development the activity with stakeholders is described as a constant process of coordination and integration of complex relationships and goals (Juščius 2008). The development of sustainable innovations through cooperation with organizations identifies the following steps:

- Autonomy, which is understood as the stability of the organization to operate independently;
- Cooperation, which is understood as search and integration of stakeholders into a joint activity;
- Research, foresight of cooperation terms and distribution of capacities;
- Formation of joint activities;

- Preparation of organizational structure;
- Planning;
- Common innovation implemented altogether;
- Cessation of common activity (Bossink 2008).

The main function of innovations is to create value for the organization and stakeholders (Gupta & Govindaraj 2003). However, there is a need for stakeholders' analysis, which helps to identify what stakeholders are able to assist best in creating the most sustainable innovations. The analysis process of stakeholders' involvement (1) identifies stakeholders of the organization; (2) gives priorities to stakeholders; (3) identifies stakeholders' interests and needs; and (4) integrates the needs of stakeholders into the organization's plans (Susnienė & Vanagas 2007).

Atkočiūnienė (2013) notes that organizations seeking for sustainability should promote mutual benefits in good practice of cooperation, develop clear communication, follow good practices and support creativity and innovations. Therefore, one of the conditions for sustainable innovations becomes a combination of different fields of knowledge, which is best implemented through cooperation with stakeholders.

The development of sustainable innovations through cooperation with stakeholders is implemented while sharing the knowledge. Better results are achieved when stakeholders are involved in the overall development process and are determined to meet the obligations (Sousa, 2006). The development of innovations, which is based on an open development approach, leads to higher performance (Yarahmadi & Higgins 2012). The development of sustainable innovations is based on cooperation and flexible labour of the organization creating environmental benefits. The cooperation of organizations is determined by the following factors: mutual confidence, learning, control and operational security (Bertoncelj & Kavčič 2011). The coordination of the latter factors allows organizations to concentrate on their activities, share information, learn new business methods, increase value of the organization and reduce non-profitable activities. Its effectiveness is determined by a common vision, common goals, mutual needs and opportunities for creating benefits, the strategic relevance, risk-sharing, compliance of values, mutual confidence, commitment, learning, teamwork and equivalent control (Išoraitė 2009). The cooperation of organizations also depends on the coordination and objectives of organizations involved the process (Schaeffer & Loveridge 2002).

While developing innovations it is appropriate not only to build structures of inter-organizational cooperation, but also to form innovative organizational behaviour, create new business models within organizations and promote outside entrepreneurship using newly acquired knowledge and experience. Long-term success of the organization depends on its ability to integrate sustainably into the environment and to assess the social attitudes of stakeholders (Bagdonienė & Paulavičienė 2010). Organisations need to take into account not only environmental changes in the usage of natural resources, but also in optimization of production processes and restructuration of organizational activities. This requires application of innovative processes that would benefit not only the organization but also would affect other stakeholders. The ability to find an innovative process-based solution enables organizations to gain a stable and long-term competitive advantage (Ren, Xie & Krabbendam 2010).

The development of sustainable innovations through stakeholders includes the development of general idea participating in creation of co-innovation. Co-creation is characterized by the convergence of ideas (idea mapping), agreement (or consent) for cooperation and experience-sharing with stakeholders about co-development (Lee, Olson & Trimi 2012). The development of joint activities with stakeholders, which is characterized by outstanding innovation and environmental sustainability, affects business reliability and attracts more stakeholders into the joint activity. Collective brainstorming generates a larger amount of purposeful information (Trim & Lee 2008). Since sustainable innovations are formed involving a range of interest groups, it is appropriate to analyse their development from a perspective of systems defining different areas of knowledge or methods of activity used in the development of sustainable innovations. Business organizations need to re-think

conditions of their competition and cooperation and to foresee opportunities for developing innovations systematically (Boons & Ludek-Freund 2013). Systematic approach allows to determine the usefulness of the system as well as a created benefit of separate parts of the system: (1) the key element in the system of innovations is the organization, which becomes the driving force; (2) the system of innovations must have a system among the stakeholders for implementing and spreading the knowledge; (3) the system of innovations must define the policy of intervention encouraging changes in the behaviour; (4) the system emphasizes the roles of participants (Iizuka 2013).

Boons and Lüdeke-Freund (2013) distinguish three aspects of the development of sustainable innovations: (1) technologies that are understood as means to achieve organizational profitability; (2) the organization, which is understood as assurance of efficiency of technological usage; (3) the strategy, which shows the orientation and direction of the organization. The complementarity of organizations' activities is an obligatory provision for organizations to combine their ideas, knowledge and capacities into systematic and purposeful usage - a sustainable innovation (Cooke et al. 2007).

It is important to match *internal environmental values* of the organization with *external environmental values* in the development of sustainable innovations (Lee, Olson & Trimi 2012). Matching of values, compliance of business principles, unified vision of the future prospects are the basis for the formation of cooperation structures. Sustainable innovations that create value for the environment and other market participants increase the interest of stakeholders to engage in a joint activity or to support it. Sustainable innovations help finding an optimal solution for organizations in their activities (Hansen, Grosse-Dunker & Reichwald 2009). Key terms of sustainable innovations are knowledge of stakeholders, innovative processes and matching values.

3. THEORETICAL MODEL OF THE DEVELOPMENT OF SUSTAINABLE INNOVATIONS WITH STAKEHOLDERS

The analysis of the determinant factors and process aspects of the development of sustainable innovations with stakeholders allowed to present a theoretical model for the development of sustainable innovations through stakeholders (Figure 1).

Most authors state that the approach of the formulation of business strategies must be changed by reshaping the priorities and methods. It is emphasized that the implementation of organizational strategies that contribute to the sustainable development increases the value of the organization and strengthens competitive advantage. The concept of sustainable innovations requires engagement of stakeholders that help achieving outer benefits. Thus, the cooperation of organizations with stakeholders is driven by the possibilities to focus on their business activities as well as risk-sharing and social credibility in the development of sustainable innovations. The more stakeholders are involved in joint activities, the more operational reliability of a result is achieved, i.e., the need for sustainable innovations in the market is foreseen. While creating innovations most authors emphasize the cooperation as the key element in order to benefit from the development of the innovation. Sustainable innovation has to be useful at least for one stakeholder involved in the cooperation process.

Lee, Olson & Trimi (2012) believe that the activity of organizations, which creates benefits through innovations, has five phases:

- Presentation of the innovation, which is a perspective foresight of collaborative case-based innovation performance;
- Structuring of the development process of the innovations;
- Realization of customer benefit, which is evaluated as consumers shift to new consuming habits;
- Development of consumer segment;
- Development of new business models.

As pointed by Wustenhagen et al. (2008), this constant activity development would lead organizations to proactive activities and more and more innovative ideas.

The cooperation between business and stakeholders is a continuous process that includes the alignment of stakeholders' values, goals, and resources in order to face-up emerging issues together. The overall problem-solving perspective facilitates a common vision of the development process of sustainable innovations and allows to create higher values. It is essential that a created sustainable innovation would become useful for all stakeholders when involving other stakeholders in the activities, so this requires an innovative cooperation process to be established. Other involved stakeholders allow organizations to optimize resources framing the basis for a process innovation. The process innovation provides a completely new value and it might be distinguished from the ordinary activities of the organizational changes (Pogosian & Dzemyda 2012). The size of the benefits established by innovations affects the addition of operating effectiveness of organizations and stakeholders, so it is appropriate to set the conditions for developing new values during the implementation of sustainable innovations as well as to ensure that all stakeholders in the development process would comply with ethical standards.

Having set the cooperation conditions, present needs and areas of effectiveness, the next step is to form an action plan as well as to define who will affect the development of the sustainable innovation and what knowledge and resources are needed to create it. Once responsibilities and spheres of influence are determined, the organizational structure of joint activity should be presented, which is based on the legal obligations of contracts in practice. In order to reduce the level of bureaucracy the confidence of stakeholders and the targeted knowledge for the development of the innovation become really relevant. The strategic direction of the business and the implementation of commitments increase the involvement of organizations and stakeholders into the cooperation process and encourage not only to prepare the common business organizational structure, but also to form long-term partnership strategies. The common involvement in the activities, trust and mutual effectiveness allow to allocate resources and to optimize the use of knowledge. On this basis the best option for sustainable innovation is formed.

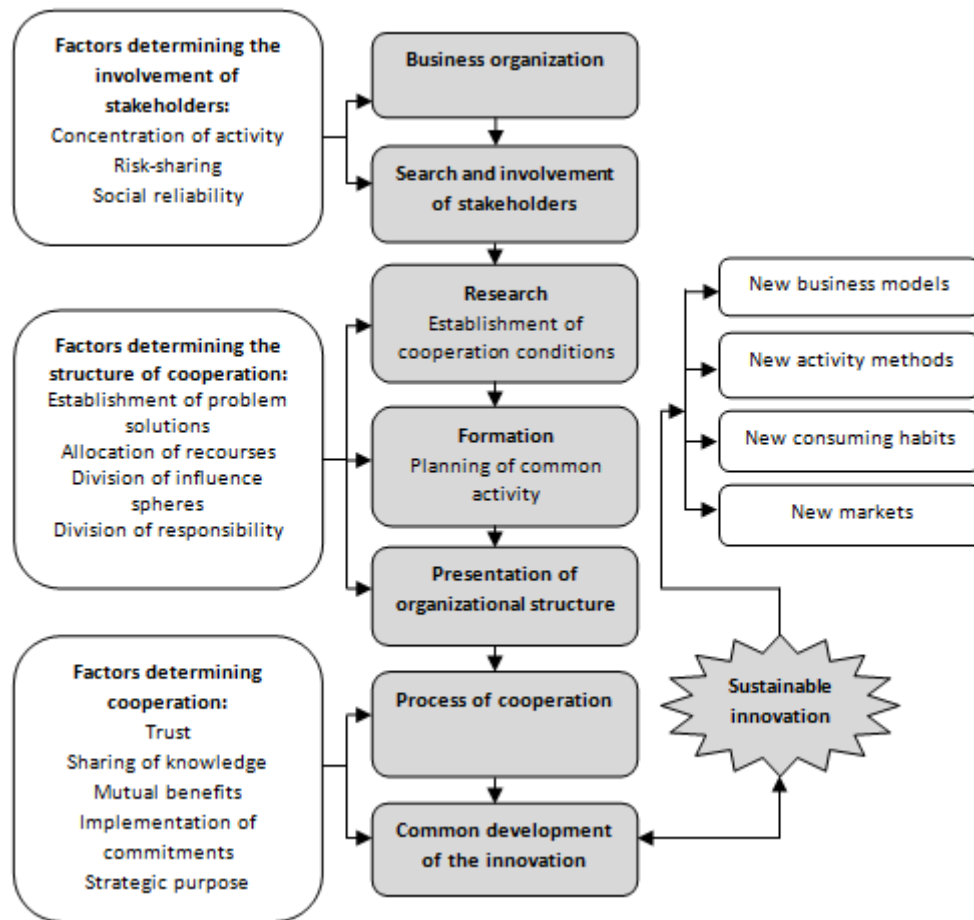


Figure 1. Theoretical model of the development of sustainable innovations through cooperation with stakeholders

Sustainable innovations not only support and implement the context of the sustainable development, but also form new business models and new ways of activities, which influence new consumption habits and allow to access new markets. New business models or methods of activities and cooperation can occur during and after the development of the sustainable innovation as new opportunities to other stakeholders.

The analysis of the development of sustainable innovations with stakeholders in the context of the sustainable development shows that the development process affects not only the developers of the sustainable innovation, but also the environment where they are developed. Sustainable innovations build benefits for the society and change methods of activities for organizations. Therefore, further researches should analyse how sustainable innovations affect new business models, organizational behaviour as well as what is the role of the state in promoting social aspects of innovations in sustainable innovations.

CONCLUSIONS

In this paper the multidimensional concept of the sustainable innovation is described paying attention to its narrow approach in the scientific literature. The sustainable innovation is usually synonymous with the environmental innovation rarely emphasizing that the sustainable innovation together with the environmental aspect must also include the social dimension. Having highlighted the types of the sustainable innovation, the concept of the sustainable innovation has been expanded with the emphasis

on three essential elements of sustainability, but not necessarily all of them including, because each of them implement an important aspect of consistency to some stakeholders' group.

Strategic compatibility of organizations, matching values and organizational behaviour, appropriate knowledge to solve the existing problems, the overall involvement in the activities of joint development and versatile advantage of the developed value affect the development of sustainable innovations through the cooperation with stakeholders. When developing sustainable innovations the openness of organizations to new ideas is required as well as opportunities for other market players need to be foreseen and organizational flexibility should be adapted to match the changes developed. The development of sustainable innovations is impossible if there is not any common involvement of stakeholders into the process of solving relevant development problems.

The development process of sustainable innovations with stakeholders contribute to the sustainable development not only practically but also by forming new attitudes, which would have effect in the future as well. They provide possibilities to develop new businesses and change their organization as well as influence the change of consuming culture towards sustainability.

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