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IDENTIFICATION OF THE MAIN ASPECTS OF INNOVATION MANAGEMENT AND THE PROBLEMS ARISING FROM THEIR MISUNDERSTANDING

Goal of the article is to identify main aspects of innovation management using detailed analysis of available scientific literature together with outcomes of performed empirical research. With the identified main aspects, we were able to identify problematic areas related to the use of innovation management and to propose a number of recommendations in order to correct these issues. The article thus brings to managers a handy tool in a form of a set of recommendations (instructions) that are meant to support problem-free use of innovation management within a company.

Keywords: Innovation management, project management, strategic management, change management, process management, management of human resources.

1. Introduction

The issue of innovation management is currently highly topical. Innovations are an important tool for increasing competitiveness of companies. Companies do not develop their innovation activities on the basis of “impressions” or “intuition”, but on the basis of knowledge obtained from the opinion survey of customers, employees and partners. They collect the necessary information and innovative ideas, reveal innovative opportunities and make decisions about the need to innovate. The aim of the companies is to realize their full potential for innovation. However, in order to be successful, it is necessary to effectively manage these activities and to be able to quickly and flexibly respond to developments in the market. Right there is a place for the identification of major problems and draft of appropriate recommendations to ensure the effective use of market opportunities through innovation.

2. Objective and methodology

The main goal of the article is to collect novel information and knowledge in the area of innovation management, specifically focusing on defining innovation management within the area of management, and to highlight managerial tools and techniques available for use in innovation management in a company.

Identification of the main aspects of innovation management could significantly help with the search for problematic areas related to innovation management. These areas require additional attention of the company and represent room for further development and improvement. Subsequent recommendations are meant as practical tools in a toolkit of company managers, ready to be used during implementation of innovation management of the company.

In order to address the points in question, as set by this article, it was necessary to use several methods, depending on and fitting to the character of the individual parts of the solution. In order to accumulate necessary data, we used the method of document analysis (for analysis of current as well as historical data about the topic), a questionnaire method and a method of semi-structured interview (gathering data in an empirical research) and a method of observation (used during visits of selected companies).

For processing the data, we mainly used a method of quantitative evaluation (statistical methods and tools were applied) and a method of comparison (for comparing data gathered by empirical research and data from the analysis of secondary information sources). The following methods were used for approaching and solving the research goals: induction, deduction, synthesis (identification of the main aspects of the innovation management, formulating recommendations for minimal chance of problems), abstraction and model building.

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3. The current state of dealing with the issue

Innovation management is a key activity of a company and the synergistic mechanism between technological and non-technological elements, including strategy and culture [1]. In the scientific literature is also a mention about the new paradigm called a total innovation management, which represents the management of the innovation value chain. The innovation value chain dynamically integrates the concept, strategy, technology, business process, culture, and people at all levels of the company. The aim of a total innovation management is to enhance the innovative ability of a company, create value for stakeholders and keep a competitive advantage in a company [2].

Definition of innovation management can be understood as a process of solving problems within the area of innovation in the company [3] or as all activities relating to the effective implementation of new ideas into effective solutions for the market or company [4]. Preble and Hoffman (2012) identified three basic organizational dimensions which affect innovation management: organizational structure, management systems, corporate values and culture [5]. Johannesen et al. (1999) claim that ideas and knowledge are needed to create new products, services and added value, while they emphasize the importance of knowledge and learning of employees [6]. Ortt and Duin (2008) perceive innovation management as an administration and organization of innovation processes [7]. Niosi (1999) pointed out the content development of definition of innovation management at the time [8]. It distinguishes four basic generations of innovation management. The first generation focused on corporate R & D department and management of research activities of the R & D department. The second generation adopts and applies methods and tools of project management. The third generation focuses on processes and strategic management in the form of internal cooperation between different departments of the company. The latest generation represents opening up of the company externally while it includes knowledge of users and competitors in the management of innovation processes.

Birkinshaw and Mol (2009) bring an interesting view of the innovation management. These authors claim that innovation management is the implementation of new business management practices to increase its performance [9]. A similar view is shared by several authors who emphasize the need for regular investing into innovative projects and implementing the necessary organizational changes [10, 11 and 12]. Buchanan and Badham (1999) highlight the specific role of the innovation management, which is the ability to perform rapid and radical changes in the behaviour of the company, if necessary (ensuring the availability of resources, changing work habits ...) [13].

Havlíček (2011) considers the system approach to implementation of the changes as the basis of innovation management [14]. Changes should aim to improve products, processes or position of the company. According to Trommsdorff

and Steinhoff (2009) innovation management means integration of functions and areas involved in the innovation process [15]. Turekova and Micieta (2010) perceive innovation management as a comprehensive tool for effective management of innovation processes in the company [16]. Skokan (2004) highlights the growing importance of regional innovation systems, which enable easier sharing of tacit knowledge and increase the capacity for localized learning [17]. Several authors perceived the innovation management as a process in which manager through scientific knowledge and especially practical recommendations, performs basic management activities while using available resources to identify and achieve innovation goals of the company. Innovation management creates a framework for the innovation processes management in order to improve company performance while effectively using innovation potential.

4. Situation in Slovak enterprises - results of the empirical research

Between October 2012 and January 2014 we conducted a research, whose primary goal was to gather and interpret information about the level of the use of innovation management in the environment of Slovak enterprises. In total, 321 managers of small, medium and large enterprises from companies active in the Slovak Republic took part in the research. The calculated recommended sample size was 384 respondents. The survey covered 321 respondents. After the re-analysis, the real sampling error was at the level of 5.46% [18].

In terms of Slovak companies, customers and their identified needs are the most frequently used source of innovative ideas (in 228 companies). The most frequently used sources of innovative ideas also include employees of the company (in 194 companies), analysis of competitive products and services (in 187 companies), the Internet (in 175 companies), exhibitions, conferences, trade shows (in 166 companies), journals and publications (in 159 companies). As a significant source of innovative ideas can also be considered own research activities (115 companies) and the research of the partners of the company (in 98 companies).

Managers of Slovak companies indicate customer needs analysis as a source of the most successful innovative ideas, or ideas with the greatest potential. Customer focus should also be implemented in the management of innovation processes. As resources for successful innovative ideas the respondents considered also their own research activities and their own employees. In this case it is necessary to finance and support their own research activities, create a favorable environment for their workforce and care for their educational development.

The importance of customers confirmed the fact that only 257 companies (80.06%) create innovative ideas based on the input from customers and their requirements. Another stimulus for generating innovative ideas is finding a specific problem (186

companies, 57.94%). This means that these companies prefer the opposite strategy, it means they do not apply a proactive approach, companies create ideas only when a problem arises. Other less used incentives include business needs (81 companies, 25.23%) and new technologies (72 companies, 22.43%). As a positive can be considered that only 9.03% of companies generate the innovative ideas at random and only 5.92% of Slovak companies do not generate them at all.

Companies in Slovakia do not use an information system to work with innovative ideas (recording, sorting, distribution...). This was confirmed by 61.28% of managers surveyed. Only 28.96% of respondents have their innovation process supported by IT solutions, while the most used information system is a system provided by the company Salesforce.com (16.72% companies). Other companies use their own IT solution. In the survey 9.76% of the respondents were not able to express their opinion about the use of the information system to work with innovative ideas.

As the main criteria for deciding on further elaboration of innovative ideas into innovative opportunities, the managers of Slovak companies identified the availability of funds (it influences up to 25.81% of decision-making process). Other important decision criteria are the reality of demand, technological options, available knowledge in the issue and the availability of human resources. In terms of priorities for decision-making time and the physical space in the development phase are less involved. The mostly used methods in the deployment phase of innovation are the techniques of development of the creativity (42.99%). The quite frequently used methods are conceptual methodological tools (24.61%), forecasting methods (19.63%) and pragmatic methodological tools (19.31%). Techniques of knowledge management (14.64%) and innovative graphs (7.79%) are used on a small scale as well.

As major problems hindering the effective innovation management by the managers are considered: the lack of the necessary financial resources to ensure the innovation process (210 companies), distrust of the company managers to the possible outcomes arising from a lack of innovation (187 companies) and missing information ensuring the innovation process (168 companies).

5. Identification of the main aspects of innovation management

Management represents the main element on the connecting line between a company and its customers. In order to work, management requires information from the IT system, mainly information accumulated by the departments involved in the innovation activities. A mutual connection exists between management and innovation management. Innovation management offers immediate overview of the overall development of the key areas of the business as well as a perspective on individual

innovation activities performed by employees. Management manifests itself in the innovation management mainly through the following elements (Fig. 1):

- strategic management,
- change management,
- project management,
- process management,
- management of human resources.

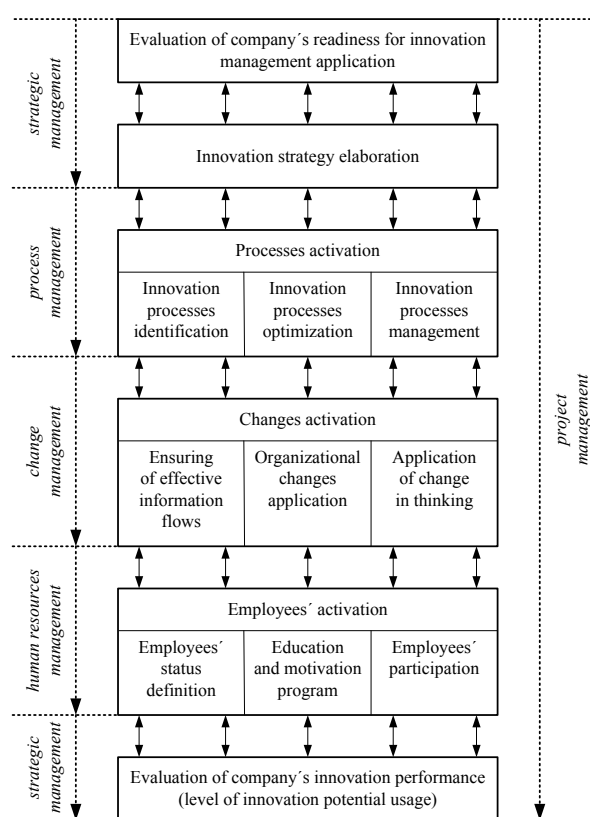


Fig. 1 Identification of the main aspects of innovation management [19]

Strategic management and innovation management

Strategic management is used in the area of innovation management mainly for formulating innovation strategy which is preceded by a detailed analysis of current situation within the company. Innovation strategy is innovative direction of business approach to the choice of objectives, methods and ways to fully utilize and develop the innovative potential of the business [20]. Kovac (2007) sees innovation strategy as determining long-term fundamental business goals and determines the activities and resources for achieving these goals [21]. Orientation of goals is focused on timely response to changes in signalling of need of innovations. According to Malek Alekakhlagh et al. (2013),

innovation strategy must be based on knowledge and facts, supplemented with learning and creativity to cope with the concepts of change and the ability to expand an institution's creative capacity [22]. Zgrzywa-Ziemak & Walecka-Jankowska (2013) show that the location of the innovation strategy in the corporate strategy initiates the innovation process from the determination and configuration of future product parameters based on the product and organizational environment analysis [23].

Change management and innovation management

During the application of innovation management in a company, the company strategy is revised and modified so that it reflects the plans of top management regarding management of innovation activities. However, such a change can end up influencing the roles of multiple employees. Depending on the character and number of realized innovation projects, it is necessary to revise the currently used company organizational structure and to adapt it to the current situation.

Given great variability of innovation projects, it is possible to use multiple types of organizational structures for their organization. The general rule is that the organizational structure adapts to the innovation project (content, complexity, extent, time needs) and not vice versa.

Organization remains of key importance in the process of managing innovation activities, especially in today's turbulent environment. Innovation management aims to ensure competitiveness of the company in such environment. However, for this to happen it is needed that the company is capable to dynamically react to the arising changes.

Here is room for using dynamic innovation organization structures that offer immediate reaction and consequent change in configuration of employees and processes, as necessary. Dynamic innovation organization structures (champions, purpose teams, project teams, project centers...) are characterized by the following properties:

- ability to rapidly react to changes,
- decentralized management,
- use of the creative approach,
- flexibility in content and activities of the groups and individuals,
- acceptance of higher degree of uncertainty and risk in management,
- direct evaluation and testing of new ideas,
- focus on results,
- adequate number of management levels,
- administratively undemanding methods of management,
- high added value,
- informal team work,
- lower number of organizational elements and connections,
- lower requirements on the management system.

Project management and innovation management

Planning in the innovation management represents a significant group of activities which are used to set innovation goals and by which resources and ways for achieving them are determined. Complexity and demanding character of this process increases with size of the company, with the increasing hierarchical level on which it is performed, with the length of the time horizon and the number of involved parties (partners). Planning of innovation activities in a company requires:

- to anticipate future development of external and internal environment and the changes that occur in them (development of customers, change in segments, new communication tools, development of customers' demands, development of factors that influence customers' purchasing decisions...),
- to take into consideration interests of the various involved parties who take part in the innovation processes (employees, top management, suppliers, banks, partners, surroundings); interests of individuals, groups and society,
- to consider economic as well as social conditions and their criteria,
- to arrange in hierarchy goals and tasks of innovation processes, which create conditions for internal harmony of relationships and processes and occurrence of synergistic effects; also to identify relationships and processes related to future innovation and to arrange them in hierarchy,
- to consider limitations of resources, their suitable allocation and efficient use for supporting innovation activities,
- to choose suitable methods and techniques that enable creation of innovation ideas and their evaluation and selection.

Process management and innovation management

Basis for functioning of any company are its processes. Process management is established on the principle of activity integration into comprehensive processes [24]. The process approach is based on the assumption that the causes of unacceptable economic results are poorly set innovation processes. For this reason it is necessary to make all innovation processes more efficient and to eliminate those that do not bring the desired outcomes.

The main goal of process management in relation to innovation management in a company is the effectiveness of innovation processes. Process management takes a comprehensive view of all company activities and integrates them into individual processes. Information exists and is available for each activity, e.g. who is realizing the activity, how is the realization going, in what way, what are the limitations for realization, what is the input for the activity, what are the outputs, relationship of the internal customers, spread of overhead costs to individual activities within the process. Every activity has a defined metric of performance. Another strong point for process management is implementation

of any changes resulting from realization of innovation initiatives in the process of managing a company.

Key requirement for successful use of innovation management in a company is thorough mapping of current company processes. Above all, the attention should be namely paid to innovation processes. It is necessary that they are identified and consequently optimized.

Management of human resources and innovation management

A key role in innovation management is definitely played by people, the employees of the company. The success of innovation initiatives will depend on their performance and attitude. People and their motivation, knowledge, skills, capabilities, creativity and flexibility become the most important strategic resource for successful realization of innovation activities in a company. Employees prepare an analysis of the situation, together with the management they set innovation goals, formulate innovation strategy, action plans as well as a system to control effectiveness and efficiency of innovation activities. Education and training representing an important part of the activities of personnel management of the company contribute to the development of the necessary competencies of company staff [25]. By using a suitable motivation program, ensuring possibility for further education and establishing suitable work environment the company can achieve smooth implementation and consequential usage of the innovation management and eventually successful realization of innovation activities.

6. Discussion

The use of innovation management in a company is a complex process that requires thorough understanding of the company environment. Causes of failure in this process can be multiple and may have a different character. For example, there may be a lack of innovation expertise, failure to secure information flow in the company, lack of education and motivation of employees and so on. Reasons of failure in the management of innovation activities are caused by several actors. Firstly, they are managers, in the case of lack of support to innovative activities in the company, employees of the company, in the case of passive participation in the innovation process and customers, in the case of their indifference towards receiving the value added. In the next part we identify possible risks together with recommendations that are meant to help to reduce these risks. A necessary requirement for successful functioning of innovation management in a company is also prevention.

As a problem in ensuring the information security in innovation processes arising in this field can be considered the inefficient information flows in the company. This is the reason of misunderstandings and employees cannot carry out their

innovative tasks entirely. It is recommended to the managers to ensure the efficient work with information related to innovation in the company. This means that it is necessary to ensure the access to information to all interested parts in the innovation process, and it is necessary to collect all valuable information in one database and apply the principles of effective work with information.

Another problem is the lack of information systems to work with innovative ideas, opportunities and innovations. In many cases there is no evidence of implemented innovations and innovative ideas generated in the company. This often means that the potential innovative opportunities are left unused. To solve this problem, managers should make a comprehensive record of innovative ideas and innovations in the company. Every innovative idea in the company has to be recorded and assessed. Of the same importance is the record of the currently unusable innovative ideas which have potential value for the future.

In the area of ensuring the innovation expertise an insufficient usage of creative thinking in the development of ideas to solve the problem can be seen. The result is a low number of ideas that do not allow to make a decision to resolve the problem. It can be recommended to the managers to develop human creative potential in the company. It is necessary to create conditions for application of creative thinking selecting appropriate exercises to develop creative skills and abilities of employees. It would also be appropriate to create innovative teams, including representatives of the young and old. Innovative teams should include representatives of several departments of the company (production, sales, logistics, trade, service).

Insufficient implementation of knowledge management belongs to the common problems in the field of innovation management. On the one hand it is reflected as a lack of knowledge of the employees, on the other hand, much of the knowledge created in the innovation process is forgotten or lost. The result is unnecessary, repeated creation of new knowledge which is already created in the innovation process. In the first case it can be recommended to the managers to ensure the management training courses designed to supplement the necessary knowledge to employees. In the latter case it is necessary to provide recording and archiving of acquired knowledge in the innovation process through the implementation of appropriate IT solutions.

Problem in the application of management elements in the innovation process is the lack of a coherent methodology for the management of innovation in the company. The managers can often exchange the innovation process by using a simple type of creative brainstorming techniques. In many cases, they are in time and work stress and they do not pay attention to the support of innovation and integrating innovations into long-term strategic plans of the company. The managers may be encouraged to pay more attention to innovative activities of the company, turn them into long-term business objectives and incorporate them into innovative business strategy.

Another problem is the lack of development of the innovation program. In many cases, managers do not have sufficient information about available resources and means when they plan innovative activities. The result is the increased probability of failure of implementation of the innovation project. It is recommended to overcome this probability, it is necessary to carry out a detailed analysis of the current state of innovation potential and the application of methods and techniques of project management.

Another problem is the absence of remuneration for innovative ideas and appropriate motivation program. The result is the passivity of employees who are not motivated to bring new innovative ideas and get involved in innovative task solutions beyond their tasks and responsibilities. As a solution, the managers should establish a fair system of remuneration for innovative ideas. It is necessary to develop appropriate motivation program, which involves employees in innovation activities of the company. Employees will be informed of the expected changes and motivation program will encourage open communication within the company. One of the most important factors of employees' motivation is to show an interest in them, employees need to feel valued and important for the company [26].

Failure of the management of innovation processes can be caused by unsuitable organizational structure, which does not allow open communication among the stakeholders and does not support new innovations. It is a role of the managers to rethink the current organizational structure, create and implement flexible organizational structure that will have the ability to respond to changes in business environment and allow fast exchange of information, organize meetings and activities of innovative teams.

A common problem in the measurement of innovation performance is non-evaluation of effects and benefits of implemented innovations. The result is that the company has no feedback on the adoption of innovations by the customers, cannot measure their performance and take measures leading to continuous improvement of the management of the innovation

process. We suggest that the managers should create an evaluation system focusing on the diagnosis of the results and contributions created and on the market launched new products. Based on the results it is also recommended to formulate measures to improve the management of the innovation process.

A common problem is that the first and the second phase of the innovation process are carried out insufficiently. In many cases it can be observed that the development of the first innovative idea pops up without detailed analysis. The results are the frequent changes and increased costs of implemented innovative projects. We propose that the managers should carry out a detailed analysis of all the innovative ideas and suggestions from internal and external environment. It is necessary to pay attention to the first two phases of the innovation process because they affect its success. Only the identification of valuable innovative ideas can bring successful innovation.

7. Conclusions

The management of innovation activities cannot be carried out only intuitively based on the development of the situation. Company managers should be aware that the implementation of innovation management also brings certain risks. Otherwise this initiative would be destined to fail. In order to succeed in this area, it is a key to identify risk areas early and to take corresponding measures in order to increase the probability of the success of implementing innovation management in a company.

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