Evaluation of the potential of innovative enterprises in the region of Malopolska

Leszek Koziol1,a, Radoslaw Pyrek1, Anna Mikos1, Anna Karas1

1 Management, Malopolska School of Economics, Tarnow, Poland

a)Corresponding author: katzarz@mwse.edu.pl

Abstract: The aim of the article is to present the concept of the innovation process and the formulation of the model the capacity of firms Malopolska region together with the determinants of this potential. Using this concept of an assessment of the surveyed enterprises innovation. The first part of the article refers to the presentation of the basic concepts related to the process of innovation and innovative capacity of the organization. This section also characterized determinants of innovation potential, such as competence of employees, modern infrastructure, the level of cooperation in knowledge management, the organization of work and the protection of knowledge (innovation) developed within the organization. The second part of the article presents the results of empirical studies that were used to assess the degree of innovation of enterprises Malopolska region. The analysis showed that the degree of innovation of enterprises is determined mainly by the knowledge and skills of employees and cooperation between the actors of the industry. The main source of innovation enterprises is so knowledge workers and knowledge acquired from the outside, from other organizations.

Keywords: Potential of innovative, innovative activity, innovative capacity, innovation process.

1. Introduction

Modern economy is characterized by a high degree of variability and complexity resulting from a number of processes, which could include m. In. significant development of knowledge and the associated increase in the importance of human capital, changes in technological knowledge and the continuous development of Internet technology, information and communication affecting globalization [1]. These processes are imposing to the modern organizations need to adopt a learning organization model, in which the creation, acquisition and transfer of knowledge contributes to the realization of innovative activity. Innovative activity is not a new process, is as old as economic activity. Globalization and global competition flourish, shortening product life cycle and the pressure of numerous political and economic organization promoting slogans such as “innovation or death” significantly accelerate the process of innovation in the
economy and businesses. On the one hand, the implementation of innovation by companies is a consequence of changes in the economy, on the other hand, applied innovations affect the amendment of that economy.

Depending on the rate and extent of response to changes in the environment, businesses can build competitive advantage and grow their business, primarily due to the development and/or application of innovation. It was innovation, among many factors in the development company, is the primary determinant of his. This thesis is widely accepted, especially by pundits and politicians, which is expressed in a variety of theoretical studies and documents of strategic nature, such as the Lisbon Strategy. Thus, among the many researchers involved in this issue, there is consensus on the perception of innovation as an important criterion for the efficiency of economic systems, mainly companies. In this context, innovation is identified with the ability of both innovation (innovation) and innovation activities.

Aim of this article is therefore to present the basic concepts of innovation and innovation, presentation determinants of the innovation capacity, and attempts to answer the question whether your potential for innovation is reflected in the activities carried out by the company?

2. The essence of innovation

In the literature, one can find many definitions of innovation, differing in degree of complexity and accuracy. This article assumes that innovation is any, with favourable assumptions, changes in different areas of the organization, the appellant improvement over the status quo. Often improve the evolutionary nature of things existing positively evaluated under the criteria of the organization. According to Schumpeter, innovation can be considered as:

- the introduction of a new product with which consumers have not yet had to deal with or a new species of a product;
- the introduction of new methods of production are virtually untried in that section of the industry;
- open a new market, it is a market in which a particular type of industry of the country has not already been entered, regardless of whether the market has existed before or not;
- acquire new sources of raw materials or semi-finished products, regardless of whether the source is already in place, or are only needed to be created;
- conduct a new organization of industry, eg. To create a monopoly or its breach.

Innovation meant the same for J. Schumpeter introduction of new solutions, primarily a new technical solution from industry and impinged on the economy.

Referring to Schumpeter’s thesis, presented an interesting concept of innovation CM Hall and AM Williams, conceiving it as a relational activity within the innovation system, if these relationships occur between individuals, units and technology, companies and individuals, companies and other companies, research institutions, and state institutions[2].

Summing up the above, we can conclude that innovation is any, the favorable assumptions, changes in different areas of the organization, the applicant was an improvement over the existing state, founded the organization or outside, which is a response to the indicated needs or satisfying the needs of previously undisclosed. Is an evolving improving existing things positively assessed according to the criteria of the organization. Another important concept is the concept of innovation, which is

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1 According to the Oslo Handbook innovation is defined as "all activities of scientific, technical, organizational, financial and commercial steps which actually lead, or are intended to lead to innovation. Some of these actions themselves are innovative,
seen as a process that is innovation. Previously unknown product of a company is the result of its innovation. If it is implemented in practice, it will become innovation. Innovation is the ability of the instrument so creative new ideas, inventions, resulting in innovation.

To innovation was established, a necessary and fundamental factor in determining it is owned by the organization’s ability to innovate (innovation). Previously unknown product of a company is the result of its innovation. If it is implemented in practice, it will become innovation. Innovation is the ability of the instrument so creative new ideas, inventions, resulting in innovation [3]. Thus, innovation is a continuous process, which results in the specific product innovation.

Literature gives different classifications of innovation. The basic division shows Oslo Handbook, which can be distinguished by innovation: product, process, marketing and organizational (Table 1).

<table>
<thead>
<tr>
<th>Type of innovation</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Product innovation</td>
<td>The introduction of the product or services that are new or significantly improved in terms of their characteristics or uses. This includes significant improvements in terms of technical specifications, components and materials, software, user friendliness or other functional characteristics. The term ‘product’ is used to denote both products and services.</td>
</tr>
<tr>
<td>process innovation</td>
<td>Implementation of a new or significantly improved production or delivery method. This category includes significant changes in technology, equipment and / or software. It is a process innovation.</td>
</tr>
<tr>
<td>Marketing innovation</td>
<td>The implementation of a new marketing method involving significant changes in the project / product design or packaging, distribution, promotion and pricing strategy. The aim of marketing innovation is to better meet the needs of customers, open new markets and new product positioning in the market to increase sales.</td>
</tr>
<tr>
<td>Organisational innovation</td>
<td>Implementation of a new organizational method in the firm’s business practices, workplace organization or external relations. The purpose of organizational innovation can achieve better results by reducing administrative costs or transaction costs, raising the level of job satisfaction (and thus labor productivity), gaining access to assets that are not traded (such as non-codified external knowledge) or reducing the cost of supplies.</td>
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Table 1. Type of innovation

Resource: Source: Authors’ own elaborations based on Handbook Oslo pp. 50-54

Conducted research on the innovation process, especially on innovation organizations require an interdisciplinary and multi-faceted approach, encompassing the causal impact of various phenomena and processes for innovation. However, this requires a new perspective on this subject, expanding the field of analysis of the issues of innovation understood as the capacity for innovation (innovation potential), as well as innovative activity, ie. To the invention and diffusion of innovation. Such an approach to innovation is more difficult when the knowledge of this phenomenon, but it can better recognize and understand its essence. You should be aware that the company does not have the ability to create and implement innovations without appropriate knowledge resources in the form of inventions, industrial designs, acquired licenses, copyrights, covert knowledge (know-how), recipes, etc.
The approach taken to the innovative capacity of the innovation process (innovation potential) is the first essential element of the system, which is also includes: creativity innovation, diffusion of innovation and the transfer of value from innovation (see. Fig. 1). The presented model belongs to the class of models of supply of the innovation process, but also in this case, as in the model of the demand, in the final analysis is the market verifies the usefulness and value of innovation.

The ability of innovative companies therefore refers to the possibility to make their significant modifications and improvements to existing technologies and create new ones. It is now seen as the basis of innovation [4], value creation, and even as a driving force of economic growth [5]. Innovation created by the company - it should be stressed - must be consistent with the organization’s strategy and take the beginning. It can therefore be noted that developed by the company in the past, resources strongly influence the innovation, growth indirectly by stimulating the innovative capacity, which is the moderator of the innovation process carried out by the company, and most of all invention and diffusion of innovation.

3. Determinants of innovation ability of enterprises

Based on a review of the literature, one can mention two, based on different criteria, types of classification determinants of innovation. The first is the distinction between internal and external determinants, the second - on objectified [11]. If you divide the determinants of internal and external, it is critical herein, the sources of innovation in organizations. This classification allows you to show how the internal conditions of the company and the changing environment conditions may affect directly or indirectly on the innovative activities of the organization.

The innovative resources, directly affecting the innovation of enterprises:
- from accumulating human capital (including the level of its education and skills), or knowledge (knowledge) and skills (skills) employed, which is the result of formal education: general and specific, and of experience. On the one hand, this factor can be considered as a creator of new knowledge and as an enabler of adaptation, the absorption of external knowledge. Human capital as well as research plays a dual role in the innovation process;
- measured resources of knowledge accumulated research expenditure in terms of employment and research staff. These include scientific research enterprise and in cooperation with other entities: domestic and foreign;
- objectified knowledge resources in the form of purchased machinery and equipment and buildings;
- not concerned knowledge resources in the form of purchased licenses and patents;
- external knowledge resources acquired as a result of the absorption of positive externalities of knowledge flowing from the environment - from other market
players and as a result of cooperation with other entities (links production, trade, financial).

- commercial resources,
- organizational resources

Internal determinants of the innovation capacity therefore refer to the process of creating and manufacturing innovation and commercialization resulting in the organization of a new product (as marketing activities). They also accompanied by organizational changes in the company, including the development and implementation of organizational innovation. This means that the launch of the company’s innovation processes will condition the emergence of other forms of innovation, for example. Marketing or organizational. Also suggests that the efficiency of technological innovation introduced is also dependent on the ability of the company to introduce various types of innovation, to adapt one to the other - previously held in the company. Shortening the time between the different types of innovations implemented by the company promotes the growth of competitiveness.

External determinants of innovation to include all of these factors, which flow from the domestic and international environment in which the company operates, and the use of resources, both directly and indirectly. Determinants of these will determine the environment in which the company operates. These include:

- broad institutional conditions (and therefore not only actors but also the rules of the game as defined by existing legislation and inherited principles), including the policy of the state and local government bodies,
- of other entities (including foreign suppliers and companies with foreign capital) in the area and in the field in which the company operates,
- cooperation with market players - companies, research institutions, public and private institutions, local and central, etc.,
- consumer behavior and other market players.

It is worth mentioning the important, in the context of external factors to identify innovation of enterprises, the concept of knowledge externalities, national and international. It shows how one company innovation may unintentionally and unpaid affect other players in the market. This influence can be both positive, and it is in a situation where the activity is an innovative company, which is a stimulant, gives rise to innovation in other companies. The same innovative activity of the company may also have a negative impact because it can lead to a “push” other companies (non-innovative) from the market.

The issue of the development of enterprise innovation is is perceived in this study, in two distinctive dimensions: innovation potential and innovative capabilities, consisting mainly on creating new products (innovation creativity) and applying it in practice (diffusion of innovation). Correlates the various dimensions are the sphere of change and development [6], i.e. areas containing specific reference to the embodiment innovation. Table 2 shows the changes in the determinants of the sphere and the development of innovative enterprises.

Listed in the table determinants of innovation potential was isolated during the study, cited in the rest of the article, using the analysis of the factors of influence. On the basis of these factors indicated that remained and will remain a significant cause-effect relationships of innovation.

<table>
<thead>
<tr>
<th>Determinants</th>
<th>Components</th>
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<tbody>
<tr>
<td>Competences of managers and employees</td>
<td>Level of education, investment in training, time and type of training, knowledge of foreign</td>
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languages, ability to use modern technologies

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<tr>
<th>Modernity of infrastructure</th>
<th>The database, type and arrangement of the computer system, the degree of utilization of the infrastructure, methods of communication within the company</th>
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<tbody>
<tr>
<td>Organization of work</td>
<td>Types of employment contracts, collaborative problem solving, innovation culture, infrastructure to support the decision making process, rewarding for innovation, forms of work organization, internal relations between workstations, the existence of R &amp; D department</td>
</tr>
<tr>
<td>External cooperation relating to innovations (knowledge alliances)</td>
<td>Cooperation with other entities, partnerships, sources of knowledge, the number of suppliers</td>
</tr>
<tr>
<td>Knowledge protection</td>
<td>Access to innovation, legal forms used in security, outsourcing, database types.</td>
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</tbody>
</table>

Source: [Kozio, Wojtowicz, Kara, 2014, p. 53].

The determinants of the sphere of change and development innovation ability of enterprises are those of the determinants of innovation potential, which are efficiently and effectively used to create innovation. In addition, and perhaps most of all, in this area are the characteristic class of innovation, which detailed figures are: the number and types of innovation, eg. Product innovation, process, organizational and marketing, the results achieved in the short and long term, and others. These detailed figures sphere of change and innovation development companies are also criteria for the evaluation of the spheres [7], [9], [10]. The above determinants therefore constituted a basis for the categorization of companies in terms held by the surveyed companies, the innovation capacity.

4. Empirical studies

The study involved 316 operators Malopolska region. The study was conducted by questionnaire, using the questionnaire. The questionnaire consisted of two parts. The first one included questions relating to the characteristics of the business, while the second concerned the assessment and evaluation of the capacity of its environment. The research shows that the analyzed companies are in the majority the SME sector. Among the surveyed companies are the largest group of companies employing between 10 and 50 employees (153 companies representing almost 50%), 30% of enterprises employment stands at 50-250 employees, and more than 250 employees work at 65 companies.

Among the respondents, nearly half of companies provides services (156 companies) most of which are of regional companies. Over 30% of respondents are manufacturing company operating primarily in the international market. In contrast, less than 20% of the companies involved in trade, mainly national or regional level.

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2 Research presented in this paper were carried out in 2010-2012 by a team of the Department of Management MWSE in their research project “Innovative activities of enterprises Tarnów and Malopolska region.”
EVALUATION OF THE POTENTIAL OF INNOVATIVE ENTERPRISES IN THE REGION OF MALOPOLSKA

According to the thesis of the article, that the invention and diffusion of innovation depends on the innovation potential of the company, the next figure shows adopted by the research team of the potential determinants (responses possible to identify the individual determinants of the innovative potential of the enterprise). It is assumed that among the determinants of innovation potential must extract the competence of management and employees to innovate (knowledge creation in the organization) [8], used the infrastructure, organization of work, the level of cooperation in knowledge management and preservation of knowledge created within the company.

As the analysis of the above data, the main factor in the innovation potential in the surveyed enterprises is mainly the knowledge and skills of employees (78%). Both in the case of those providing services (115 companies), manufacturing companies (72 companies) and commercial (43 companies) management and labor competencies are identified as the main source of creating innovation in the enterprise. Another factor influencing the capacity for innovation is the level of cooperation in knowledge management. However, as shown in the graph, the source of innovation is not sufficiently used by the surveyed companies. Only 28 companies
(approx. 10%) indicated the cooperation with other entities, which include m.in.: customers, suppliers, competitors or research centers and universities. In the case of the organization of work, less than 20 companies reported that it is a factor in the possessed capacity for innovation. In contrast, 24 companies applied measures to protect the knowledge generated in the organization (innovation), eg. through patent protection, database.

So the surveyed companies use their innovation and transform it in innovation? To answer this question made categorization of companies due to their level of innovation potential, comparing it to the business innovation, distinguished company with a low, medium and high level of innovative capacity. If the company found that it meets the criteria for one of the determinants of innovation, it has a capacity for innovation is low. If a company uses 2 or 3 factors affecting its ability to innovate, it can be concluded that such an enterprise to innovate at the secondary level. However, if manual indicate the use of four or all of said factors, we are dealing with a company belonging to the third category of highly innovative potential.

![Figure 4. Level of innovative capacity. Source: Authors’ own elaborations](image)

In the case of the analyzed companies, their innovative capacity is as. The vast majority of low (281 surveyed companies). The average level of innovation has 32 companies, mainly in the service sector. On the other hand, only 3 companies (2 production and trade 1) show a high level of innovation capability, which means that the small numbers of subjects have all the factors of innovation potential. According to the accepted assumption that affect the innovative ability of innovation, analyzes the results of the surveyed enterprises in the form of the kind of innovations in relation to the level of their innovative capacity (Fig. 5). The highest efficiency in innovative activities showed a company with a high innovative capacity. Companies characterized by a medium level of innovative capabilities introduced relatively more innovation than firms with low levels of innovation.

Companies characterized by a medium level of innovation capability, put relatively more innovation than firms with low ability to innovate. Moreover, they had created a relatively more product innovations, cherished most. What is worth noting, from the analysis of data shows that companies with a relatively low
potential, or the innovative capacity, can and innovation. Number and type of innovations were used to determine the level of innovation of the surveyed companies.

![Figure 5. Number of innovations per one enterprises according to the level of innovative capacity. Source: Authors' own elaborations.](image)

As the analysis of the data, including companies with a relatively low level of innovation ability can create and create innovation. They are not only organizational innovation and marketing, but also product innovations that are valued most. Presented in this part of the empirical results lead to the conclusion, Malopolska region that the companies have potential for innovation and regardless at what level it is formed, the majority of respondents is used effectively in the process of innovation.

5. Final Conclusions

Companies characterized by a medium level of innovation capability, put relatively more innovation than firms with low ability to innovate. Moreover, they had created a relatively more product innovations, cherished most. What is worth noting, from the analysis of data shows that companies with a relatively low potential, or the innovative capacity, can and innovation. Number and type of innovations were used to determine the level of innovation of the surveyed companies.

The paper presents the concept of the innovation process model, which focuses on the innovative potential and owned by the organization's capacity to innovate, which are determinants of invention and diffusion of innovation. This approach enables innovation on the one hand assessment of the progress in all or selected areas of innovation companies, on the other hand allows you to program and plan its dynamics and shape in accordance with the strategy and business model of the organization. The article also describes the classification of the determinants of the innovation capacity and presents an examination procedure measuring the level of innovation ability of enterprises and provides steps to verify that capacity.

As shown by the study presented in this paper, there is a relationship between the potential for innovation and innovative capacity, but this is not directly proportional relationship. There is also a correlation between the ability of innovation and innovation activity (innovation), but also in this case there is a similar relationship with respect to both size. Moreover, the analysis of the data
shows that companies with a relatively low potential, and the innovative capacity, can and innovation. Significant potential for innovation of the surveyed companies is used to a small extent, especially in the area of organization, technology and security knowledge (knowledge management more broadly). It is the intensification of the use of these determinants will constitute the development of innovative enterprises in the future.

Innovative activities of the organization is, in its essence a social phenomenon, not just as it seems the process of technical or economic mechanism. Research on the innovation process and therefore require interdisciplinary and multi-faceted approach, encompassing the causal impact of various phenomena and processes for innovation. However, this requires the extension of the field of analysis of issues of innovation potential and the ability to innovate, which are prerequisite for innovation, ie. Of invention and diffusion of innovation. The article analyzes the results of empirical studies have shown that the essential determinants of the construction of enterprise innovation are:
- managerial competence and labor, especially knowledge of the experience and knowledge gained from the outside;
- level of cooperation in the field of knowledge, ie. Building alliances knowledge with customers and other stakeholders;
- organization of work and innovation-oriented organizational culture.
While the innovative capacity is a function of how and innovation system evaluation criterion of the company and the projection of innovative business opportunities. Emphasizing the paramount importance of knowledge in the innovation process assumes that these determinants of innovation are key elements of the knowledge and enterprise knowledge management system, mainly understood in terms of the subjective, structural and instrumental.

Enterprises therefore planning innovative measures should take into account the specificities of each organization, determined by the specific characteristics of the company, which is score a m. In. size, location of the business, the type of business, financial, education, skills of the staff, and only on the basis of their chosen appropriate business models. On the other hand, equally important are the external conditions related to the changes of environment, which also have a major impact on the success in the process of conducting innovative solutions in organizations. Innovation of the organization is to be a result of many complex factors determining the scope and direction of innovative activity. Which of them are /will be important from the point of view of business innovation, will depend on the predisposition of the organization, to analyze and use the changes in the industry or the economy in general. As seen in the results of the research presented, even firms with a low level of innovative capabilities, are able to create and/or implementation of innovations, both product and process, as well as organizational and marketing. Now, with the globalization of economic activity, the best will be to cope with the organizations that will effectively utilize human resources. Successful innovative enterprise is one that will bring about change and seeking defensive. So you can say that innovation should be an integral part of the plan marketing companies, and therefore should be one of the elements marketing-mix company. The results indicate the existence of a number of ideas and innovation in companies. Employees tend to be very creative and involved in normal development of the company. However, in most cases, there are uniform reporting systems of ideas, as well as important, the emphasis in Polish and foreign publications, feedback. organization and is registered in the strategies of the organization. It can be concluded that the role of innovation in business management is the key action.
References


[3] Innowacje i wiedza, Biuletyn Informacyjny (3/2006), Centrum Innowacji i Wiedzy
Innowacyjnej Po usunięcie Wielkopolski w Ostrowie Wielkopolskim, Ostrów Wielkopolski 2006,


http://www.nber.org/papers/w15119.pdf?new_window=1


