



## PROINNOVATIVE ACTIVITIES OF SMEs IN EMPIRICAL RESEARCH

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**Abstract:** The paper is devoted to the problem of innovativeness of SMEs. The aim of the study is to present innovation landscape in terms of matrix (the theoretical part) and the attempt to exemplify innovation areas in the system of regions and appropriate innovative activities of enterprises (the empirical part). To achieve the intended objective there has been used the methodology of the review of the domestic and foreign literature and the methods of comparisons and surveys conducted among entrepreneurs of SME. The value of the study consists in the presentation of new trends in the landscape of innovative activities of SME and the indication of the desired actions to develop the interest of SME in these activities.

**Keywords:** innovation, innovation landscape, innovation of SMEs

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### Introduction

In 2009 the OECD released Innovation Strategy in which there were indicated new characteristics of innovation. Modern innovation, among others, is characterized by: the number of participants larger than before, mixing and merging of the number of participants larger than before, creation in accordance with increasingly diversified mechanisms, the course in increasingly varied environments: research consortia, new technological companies, centers of technology transfer, venture capital companies and an increase in importance of hybrid value chains on the way of the integration of innovation and entrepreneurship of the business sector and the social sector (OECD 2009).

A well thought-out strategy requires consistent, long-term activities and coordination at each stage of enterprise management. The research by KPMG indicated that less than one fifth of medium and large enterprises in Poland have formally specified innovation strategy; only every tenth company appointed the board member responsible for innovation. Innovativeness is the element of the strategy of 47% of medium and large enterprises, however, it is more common in industrial companies (50%) than in trading and service ones (43%). Nevertheless, in practice, only in every fifth company, innovativeness is of crucial importance compared to the other strategic goals, whereas in as many as two thirds – rather big. Only every tenth company appointed the board member responsible for this area. The studies indicate that only 17% of industrial companies and 13% of trade

and service companies are experienced innovators or innovation leaders. Early-stage innovators constitute 30% of industrial companies and 23% of trading and service companies. The other enterprises are the ones of little innovation (respectively 32% and 42%) and non-innovative ones (21% and 22%) (The report by KPMG 2017, The report by KPMG 2014; Szajt 2010). A well thought-out strategy allows for the selection of such an approach to innovation which is also the most suitable for the opportunities and needs of SME (Krupski 2014; Krupski 2007; Prahalad, Ramaswamy 2005).

### **Innovation management of enterprises (selected issues)**

Innovativeness is the resultant of many complex and various factors conditioning the scope, scales, intensity and directions of the conducted innovation activity (Wiśniewska, Janasz 2015; Jelonek 2017, p. 77). C. Christensen identifies radical changes (disruptive innovation that changes the course of development) and incremental ones (sustaining innovation) (Christensen 2010, p. 75). Innovation is any new idea or approach that is used in substantially different manner to create value for the organization and customers, suppliers and also the whole of the human race. Therefore, innovation is directly linked to value creation (Lee, Olson 2012; Romanowska 2017, p. 69).

In literature, it is underlined that any innovation can be characterized in two respects:

- degree of technological change,
- degree of change in business model.

The combination of the above mentioned aspects of innovation allows for the isolation of four categories of innovation: routine innovation, disruptive innovation, radical innovation and architectural innovation (see: *Table 1*).

**Table 1. The map of innovation landscape: business model and technological competences**

Requires a new business model	<b>DISRUPTIVE INNOVATION</b>	<b>ARCHITECTURAL INNOVATION</b>
Uses the existing business model	<b>ROUTINE INNOVATION</b>	<b>RADICAL INNOVATION</b>
	Uses the existing technological competences	Requires new technological competences

Source: Author's own study based on (Pisano 2015, p. 95)

The above innovation landscape matrix has four quarters that illustrate four categories of innovation<sup>1</sup>.

*Disruptive innovation* is based on a new business model; technological revolution is not necessarily needed for its development. This type of innovative activities affects undermining or disrupting business models of competitors. The

<sup>1</sup> The presented matrix is based on the research and achievements of such scientists as: Gary P. Pisano, William Abernathy, Klim Clark, Clayton Christensen, Rebecca Henderson, Michael Tushman.

activity of the Google consortium, which uses the Android operating system in mobile devices, is given as an example of innovative activities in this field. Moreover, users get this system for free; this affects the competitiveness of the Apple and Microsoft system which users must pay for. *Routine innovation* amounts to the development of technological competences owned by the enterprise with full adjustment to the current business model and current customer base. The example of innovation from this group is new versions of the Windows operating system and subsequent models of iPhone. As an example there are given: the production of new generation BMW 3 or the activities of the Intel company, which launches more and more efficient microprocessors onto the market, which allows for maintaining high margins. *Architectural innovation* is the combination of changes in technology and business model. Innovative activities of this type particularly adversely affect the condition of old-established enterprises. An example of innovation in this field is digital photography. For the Polaroid and Kodak companies it amounted to the necessity of acquiring new competences in the field of design of photographic cameras, semi-conductors, or imaging technology; for pharmaceutical companies, this meant the necessity to personalize medical services. *Architectural innovation* indicates the newness of technological competences. An example of radical innovation is, dating back to the seventies and eighties of the previous century, the use of genetic engineering and biotechnology in research on new drugs; drugs that are the result of biotechnological research fit well the business models which required large investments in research and development; the source of their funding was the profits from highly profitable products. For flight companies, radical innovation was jet engines, and for telecommunication companies – fiber optic cables.

In the context of the presented attempt to order innovation landscape, the question arises: what is the preferred type of innovation? The examples presented above indicate that different types of innovation within the specified time not so much replace but complement each other. The Intel, Apple, Microsoft companies would not have had the opportunity to generate huge profits if they had not introduced disruptive innovation. Returning to the posed question, it should be noted that the structure of innovation is the resultant of many factors, such as: pace of technological changes, intensity of competition, changes in the main world markets, strengths of the organization or degree of satisfying customers' needs. In innovation strategic management it is important to balance own capabilities and the size of technological opportunity in this field. It should be emphasized that the road to economic and social success is difficult and complex; huge financial outlays on research and development do not always mean the promotion on the ranking lists of countries and innovative enterprises (Romanowska 2015, p. 4).

### **The research in the field of innovation development of SME in Poland**

On the basis of the research by EFL SA, extended to the reports of Polish Agency for Enterprise Development, Central Statistical Office, Deloitte and own research, below, there are presented the results of the empirical research in the field

of innovation of micro-, small and medium enterprises. The results of the research include: the assessment of innovativeness of SME by regions (there have been isolated six regions in the country), indication of activities that could increase the level of investments in innovation and determination of areas of innovative activities in the country and among enterprises of the Silesia Province (Knop, Brzóska 2017, p. 87).

In the opinion of the surveyed entrepreneurs, the southern region is characterized by the highest innovativeness (59% of indications), including the Lesser Poland Province and the Silesia Province. The second position, with about 55% of indications, is occupied by the central region, including the Mazovia Province and the Łódź Province. The third position is occupied by the south-west region (47.1% of indications) (see: *Table 2*).

**Table 2. Innovation of companies by regions (own opinions of the companies)**

No.	Region	% of indications
1	Southern (the Lesser Poland Province, the Silesia Province)	59.0
2	Central ( the Mazovia Province and the Łódź Province)	55.5
3	South-West (the Opole Province, the Lower Silesia Province)	47.1
4	North-West (the Western Pomerania Province, the Lubuskie Province, the Greater Poland Province)	46.1
5	Eastern (the Świętokrzyskie Province, the Lublin Province, the Podkarpackie Province)	40.3
6	Northern (the Pomerania Province, the Kuyavia-Pomerania Province)	30.4

Source: The report by EFL SA (EFL 2016)

The north-west region received by 1% less indications than the south-west region. The subsequent position in the innovation ranking is occupied by the eastern region; the number of indications specifying innovativeness of the region was lower by about 19% than in the case of the region occupying the first position in terms of innovativeness. The lowest score in terms of innovativeness of SME was achieved by the northern region (about 30% of indications) (see: *Table 2*). Summing up, it should be noted that, in the light of the presented research, the southern part of Poland is more innovative than the northern one (Kawczyk-Sokołowska 2012, p. 145).

In the situation where the spread between the regions occupying the first and last positions amounts to approximately 50%, it is reasonable to investigate, collect information on what should be done to make the increased number of SMEs invest in innovation. The research carried out among entrepreneurs of SME indicates that the sources of funding are of the key importance in this field. 32% of the entrepreneurs indicated the opportunity to obtain non-repayable grants for innovative activities. A significant determinant of innovative activities is legal

provisions; 30% of the entrepreneurs were in favor of regulations favorable for innovative activities. Further steps to improve the level of innovativeness are innovation reliefs for works on innovation (20% of indications) (see: *Table 3*).

**Table 3. What should be done to make the increased number of SMEs invest in innovation**

No.	Specification	% of responses
1	Provide greater opportunities to receive non-repayable grants for innovation	32
2	Change legal provisions for the ones favorable for innovative companies	30
3	Introduce innovation reliefs for works on innovation	20
4	Increase availability of external funding (credit, lease)	16
5	Provide consulting, knowledge, cooperation (e.g. with universities)	2
6	Other suggestions	4
7	Don't know, it is difficult to say	3

Source: (EFL 2016; Wiśniewska, Janasz 2017, p. 17-27)

According to the respondents, for SME, the access to external funding ought to improve (16% of the responses). Entrepreneurs mostly build their safety and development on their own funds, profits (92% of those questioned) – by Keralla Research for EFL SA; in the case where external support is used. The most popular are bank loans - 44% of the respondents use them; lease takes the second position – this form of funding is indicated by every fifth entrepreneur. About 30% of the respondents indicate that a significant reason for not conducting proinnovative activities is the lack of funds. According to the entrepreneurs, in the absence of own financial surplus, there are no opportunities for investment in innovation. The selection of own funds as the source of financing mainly refers to the purchase of fixed assets. Entrepreneurs decide on such a solution since they do not want to have liabilities; arranging external sources is time-consuming and requires a lot of formalities. The entrepreneurs underline that they their business is too small to get into debt and there is no offer for SME on the market.

As the research by EFL SA indicates, as much as 48% of the respondents claim that the investments they made in the last 3 years were innovative in their nature. Unquestionably, the purchase of software occupied the top position, followed by technologies – new lines, new manufacturing methods and new or substantially improved products. On the other hand, a definitely small percentage decided on organizational changes or improving the competences of their employees – respectively 5 and 5.4%. With the division into types, 547 enterprises made investments in process innovation, i.e. the one that results in new or significantly improved methods of manufacturing, distribution, logistics or support processes in the company. Technological innovation, e.g. new production lines, new machines –

was implemented by fewer, since approximately 48%, enterprises of the SME sector. Product innovation is implemented less often by the companies of the SME sector. The expenses concerning organizational innovation, resulting in at least new operation methods (12%) and marketing innovation (8.2%), which would significantly alter the marketing strategy of the company, occurred the most rarely (see: *Table 4*).

**Table 4. Areas of innovation of SME in the country and the Silesia Province**

No.	Areas of innovation	% of indications	
		The country	The Silesia Province
1	Software	39.0	20.0
2	Technologies, solutions (new lines, new manufacturing methods)	37.0	31.0
3	New or significantly improved products	24.0	13.0
4	Process improvements (new or significantly improved methods of manufacturing, distribution, logistics)	12.0	22.0
5	Construction or modernization of buildings, lodging, purchase of land	12.0	5.0
6	Marketing (re-positioning, changes in the strategy concept)	8.2	9.0
7	The latest machines and equipment	8.0	8.5
8	Employees (including training, competences)	5.4	7.0
9	Organization (new methods in the principles of operation)	5.0	3.0
10	New technologies (tablets, mobile devices)	3.0	3.0
11	Purchase of vehicles	2.0	5.0
12	Others	2.0	4.0
13	Refusal	2.0	4.0

Source: Author's own study based on Author's own research<sup>2</sup> and the report developed by EFL SA (EFL 2016)

Marketing and organizational innovation areas of SME of the Silesia Province were comparable to the average obtained in the country; in this innovation area, the activity of the Silesian enterprises was low. The areas of innovativeness in the field of technology were significantly different. There dominated new lines and new manufacturing methods (31% of indications) and new or significantly improved methods of manufacturing, distribution, logistics (22% of indications); software occupied only the third position (20% of indications). The author's own research indicates that innovation in the field of software was conducted in the surveyed

<sup>2</sup> Author's own research included the group of 53 production, trading and service companies of the SME sector. The questionnaires were addressed to the owners of enterprises via e-mail in November 2016.

companies in previous years. Three years ago there was exchanged specialized software used in production, designed tools, management software, platforms for communication with customers and contractors.

## Conclusions

Proinnovative activities of enterprises are subjected to development and improvement in the field of theoretical concepts and areas of practical applications. Changes in the functionality of innovation occur along with changes in external and internal conditions of the functioning of enterprises which affect innovation management systems. The conducted quantitative and qualitative research indicates that the innovative enterprise must have determined owners who will consistently manage the company while stimulating their innovative activities; 76% of the respondents indicate the decision of managers who get involved in innovative activities.

Nevertheless, a very small percentage of the respondents (about 5%) invested in training and development of employees' competences. Polish entrepreneurs are reluctant to invest in staff development for fear they would expect a pay rise or move on to competitors.

Innovation strategies are subjected to evolution; they are verified by market realities, technologies, regulations and competitors (Kościelniak 2017, p. 112-119; Pachura, Zajac, Matlović 2017, p. 110). Also, innovative activities of SME are subjected to constant experimenting, learning and adapting to external constraints.

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## **PROINNOWACYJNE DZIAŁANIA MŚP W BADANIACH EMPIRYCZNYCH**

**Streszczenie:** Artykuł poświęcono problematyce innowacyjności MŚP. Celem opracowania jest ukazanie krajobrazu innowacji w ujęciu macierzy (część teoretyczna) oraz próba egzemplifikacji obszarów innowacji w układzie regionów i właściwych działań innowacyjnych przedsiębiorstw (część praktyczna). Dla osiągnięcia zamierzonego celu zastosowano metodę krytycznej analizy literatury krajowej i zagranicznej oraz metody porównań i badań ankietowych przeprowadzonych wśród przedsiębiorców MŚP. Wartość opracowania stanowi ukazanie nowych tendencji w krajobrazie działań innowacyjnych MŚP oraz wskazanie działań pożądaných, celem pogłębienia wiedzy o stosunku MŚP wobec tych przedsięwzięć.

**Słowa kluczowe:** innowacje, krajobraz innowacji, innowacje MŚP