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THE INNOVATIVE POTENTIAL OF POLISH ENTERPRISES

Zarys treści: Innovativeness is, beside competitiveness, one of the key questions and challenge stands before modern enterprises in global economy. How forcefully plan and accustom innovation? What kind of resources we should developed if we want to be innovative enterprise? – this is only a clipping of questions which stands before managers of global corporation and small and medium-sized enterprises. Helpfully in this process can be the analysis of innovative potential witch forms the background for the considerations included in the present paper.

Słowa kluczowe: innovativeness; innovative potential; determinants of innovativeness; enterprises sector

Klasyfikacja JEL: L26; O32

INTRODUCTION

Issues related to the problems of the innovation of contemporary economies are still considered a significant area of investigation by scientists and managers worldwide. Although we have been studying these issues for many years, they still surprise us and compel us to undertake further in-depth analysis and scientific research. We are still wondering why this

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is happening, and what are the processes and phenomena that contribute to that, whether they can be modelled and, if so, how – however, this is only part of the vital questions in the area of innovation. When reflecting on the key causes of the increasing interest in the issues of innovation, it is worth mentioning a few of them. Firstly, the very concept of ‘innovation’ is both ubiquitous and extremely broad. Today, it relates not only to the technical, organizational, financial and economic spheres but also increasingly to artistic and social ones. One can even sometimes get the impression that it is being abused. Secondly, nowadays, more and more frequently, innovation as a feature, is regarded as one of the most important intangible assets that back the shaping of the competitiveness of companies developing within the global economy. J. Low and P. C. Kalafut indicate that it belongs to one of the twelve key intangible assets that affect the functioning of American companies [Low, Kalafut, 2004, pp. 160–169]. Thirdly, in the subject literature, for many years there have been made statements indicating that the lack of innovation in a company denotes its collapse in the long term [Freeman, 1982, pp. 169]. Fourthly, innovation is discussed not only among scientists and management practitioners, but also among local government officials and politicians. Stimulating innovation of enterprises, regions and countries, creating favourable political, legal and economic conditions has become one of the key priorities of today’s ruling elites. The implementation of those priorities should impact the reduction of unemployment, economic development and increases in the competitiveness of individual countries. Based on the above, it is worth noting that within the broadly understood problems of innovation there are still many areas that require in-depth analysis. One of these areas seems to be the question of the potential of innovative companies, the resources that form it and its place within the broader process of commercialization of innovations. In conclusion, the main goal of this paper is an attempt to identify the key resources that build the innovative potential of modern Polish companies.

1. THE ENTERPRISE INNOVATIVE POTENTIAL IN THE LIGHT OF THE THEORY

Companies’ innovative potential is defined variously in the subject literature. You can meet both definitions presenting its essence very narrowly, and definitions, according to which the potential is part of a broad model of innovation management. A narrow approach to the innovative potential is

presented by K. Poznańska who claims that it is about its ability to implement innovations effectively, *i.e.*, new products, new technologies, organizational methods, and marketing innovations. The potential understood in that way is determined by four key elements: the financial potential, the human potential, the material potential and knowledge. The first of the elements – the financial potential – means primarily own financial resources and the facilities offered by various financial and non-financial institutions operating in the company's operating area. The human potential is the number of employees and their structure as well as qualifications and skills possessed by them. In turn, in the context of the material potential, what should be recognized first is the structure of the productive apparatus and its flexibility, *i.e.*, the ability to adjust production quickly to the changing needs of the market. Also, the age, the level of mechanization and automation of the machinery should also be taken into account. According to Poznańska, the final element of the innovation potential is knowledge, within which special attention should be paid to the technical knowledge and information obtained from the market [Poznańska, 1998, pp. 40–41].

Similarly, a narrow approach to innovative potential is adopted by A. Żołnierski who believes that it is determined by the internal innovation potential and by access to external sources of innovation. The internal innovation potential is composed of the following:

- staff (their knowledge and experience, skills and qualifications and the manner of managing the available resources, information management),
- research and development (the isolated R&D cells, R&D work being conducted, commissioned work, etc.)
- and technology (computers and ICT technology, machinery and equipment, and their degree of technological advancement).

External sources of innovation, in turn, are primarily higher education institutions and R&D units as well as rival companies, or customers and suppliers [Żołnierski, 2005, pp. 5–6].

Among the definitions that show the innovative potential of companies as part of a broader concept, it is worth indicating the theory of the absorptive capacity of the organization developed by W. M. Cohen and D. A. Lewinthal, or an interactive model of innovation devised by R. Rothwell and W. Zegveld. What is emphasised in the theory of absorptive capacity, apart from the external environment within which the process of the evolution of technology is realised, is the internal environment of the organization. The ability of the organization to the appropriate external

recognition of innovative ideas depends also on it. Within this theory this ability is represented by the potential for absorption of innovative external components. This potential depends on the individual and organizational factors such as, for instance, organizational culture [Cohen, Lewinthal, 1990, p. 128]. In turn, the interactive model developed by R. Rothwell and W. Zegveld indicates that in order to realise the process of innovation successfully it is essential that the company should have departments conducting research and development, design, production and marketing activities. In other words, this suggests that the innovative potential of enterprises should be based on R&D, production and marketing units [Rothwell, Zegveld, 1985, p. 50].

M. Pichlak's approach also seems to be interesting. She indicates in her model that a company's innovation is dependent on its determinants. Pichlak cites research resources, a communication system, a culture of innovation and its attributes, a dominant leadership style in the organization, the characteristics of the members of the management team, the size of the structure, and the intensity of cooperation in innovative activities [Pichlak, 2012, p. 134].

A similar trend incorporates the views of J. Łunarski and D. Stadnicka who suggest that the innovative potential of the organization consists of nine elements. These elements are the potential of marketing staff, research and development, technology and production, personnel of the organization, the management style and system, the adopted information system, the organization's external contacts, and the financial potential [Łunarski, Stadnicka, 2007, pp. 37–41].

Based on the concepts of the so-called resource school of strategic thinking [Prahalad, Hamel, 1990; Barney, 2001] it was assumed that within the considerations presented here the resources being at the disposal of enterprises are defined as the base of the innovative potential being developed by it. However, the innovative potential is composed of the resources that the company should have to create and commercialize innovations effectively [Zastempowski, 2010, pp. 153–157].

2. THE INNOVATIVE POTENTIAL OF POLISH ENTERPRISES IN THE LIGHT OF EMPIRICAL RESEARCH

The empirical part, which is the basis for the analysis, are the results of three studies conducted in the years 2006–2011:

- a research project of the Ministry of Science and Higher Education No. 1H02D 02530 titled: ‘*The cooperation of enterprises in Poland in the process of building their innovative potential*’ [Popławski, Sudolska, Zastempowski, 2008],
- research project of Nicolaus Copernicus University in Torun, titled: ‘*The determinants of the process of building the innovation capacity of small and medium-sized enterprises in Poland*’ [Zastempowski, 2010],
- a research project of the Ministry of Science and Higher Education No. N N115 008237 titled: ‘*Intangible values as a source of the hidden competitive advantage of the hidden champions of the Polish economy*’ [Grego-Planer, Popławski, Zastempowski, 2011].

The first study covered 89 leaders of the Polish economy (LPE) – companies from ‘The 2000 list’ published by *Rzeczpospolita* [Popławski, Sudolska, Zastempowski, 2008, pp. 43–49] were invited to participate in the research. For the purposes of the second study 200 Polish enterprises were selected randomly within the SMEs group and those companies possessed characteristics representative of the total population [Zastempowski, 2010, pp. 159–167]. The third study covered 41 hidden champions of the Polish economy (HC) – a target attempt [Grego-Planer, Popławski, Zastempowski, 2011, pp. 51–76].

In order to identify and analyse the innovative potential of the surveyed companies, based on the concept of M. J. Stankiewicz [Stankiewicz, 1999, pp. 240–244], all of their material and immaterial resources were divided into the following ten areas: production, employment, logistics, research and development, organization and management, quality management, marketing, invisible resources, finance, information, and communication. Also, individual components of the analysed areas were determined, *i.e.*, the components of the innovation potential of the company. Altogether 90 of such potential components were analysed. During the main empirical study the surveyed companies were asked to assess the extent to which the individual components of the analysed resource groups influence the development of their innovation capacity. In order to extract the resource key components of the innovation potential in all of the studies, the ABC method was applied with the use of the 20:80 rule, which is rooted in the concept of V. Pareto [Krajewski, Ritzman, 2002, pp. 601–602; Stevenson, 1999, pp. 565–567]. Based on this concept, we can say that a general regularity is that 20% of the components of the system determines 80% of the effects of the same system [Martyniak, 1996, pp. 130–134]. It should be

noted that it is not about 20% of arbitrarily selected components, but about the most essential ones. When applying the above mentioned 20:80 rule to extract key components of the innovation potential of leaders of the Polish economy, small and medium enterprises, and hidden champions of the Polish economy, it was assumed that this analysis should focus on the 20% of the total of the tested components. With a view to extracting them, a list of comprising all 90 potential components was made by their impact force starting from the component with the strongest positive impact. Finally, 18 elements were recognised as key components of the innovation potential of Polish enterprises. They are presented in Table 1.

Table 1. Key components of the innovative potential of Polish enterprises

No.	Key resource components	LPE	SMEs	HC
1	Condition of the machinery (modernity, flexibility)	x	x	x
2	Knowledge, experience and abilities of engineering staff	x	x	x
3	Knowledge of the needs, preferences and behaviours of customers and the ability to anticipate future changes	x	x	x
4	The financial potential of the company	x	x	x
5	Employees' level of education	x	x	x
6	Knowledge of the current situation in the markets served and ability to anticipate future changes	x	x	x
7	Knowledge, experience and managerial skills of managerial staff	x	x	x
8	Employees' creativity	x	x	x
9	Knowledge of the current situation on supply markets and the ability to anticipate future changes	x	x	
10	Willing to raise qualifications	x	x	
11	Knowledge, experience and abilities of marketing staff	x	x	
12	Knowledge, experience and management skills of project managers	x		x
13	Attitudes of managerial staff towards innovation	x		x

Table 1. Continued

No.	Key resource components	LPE	SMEs	HC
14	Leadership skills of managerial staff		x	x
15	The ability to create new products	x		
16	The possessed quality assurance systems (ISO, HACCAP)	x		
17	Knowledge, experience and abilities of logistics staff	x		
18	The ability to create new technologies	x		
19	The possessed strategy for functioning and development	x		
20	Types of links with suppliers		x	
21	Employees' efficiency		x	
22	Past experience and contacts		x	
23	The level of automation and robotic manufacturing processes		x	
24	The possession of own marketing units		x	
25	Applied employee motivation systems		x	
26	Unique skills			x
27	The scope of the internationalization of the enterprise			x
28	Knowledge of foreign languages among managerial staff			x
29	Knowledge and skills in designing new technologies			x
30	The flexibility of the organizational structure			x
31	The knowledge and skills of staff involved in R&D			x
32	The advancement of technical equipment used in the R&D unit			x

Source: elaborated by the author.

Analysis of this table leads to the conclusion that in spite of the observed differences between specific groups of the Polish companies surveyed in the area of specific key components of their innovative potential, some of them have been identified in each of the groups. There were eight such components. LPE, SMEs and HC indicated here the following key components of their innovative potential: the condition of the machinery, its modernity, flexibility, knowledge, experience and abilities of the engineering staff, knowledge of the needs, preferences and behaviours of customers and the ability to predict future changes, the financial potential of the company, employees' level of education, knowledge of the current situation on supply markets and the ability to anticipate future changes, knowledge, experience and abilities of managerial staff, and employees' creativity. By assigning these key ingredients to specific functional and resource areas analysed one can note there the components representing the following spheres:

- production – the condition of the machinery, its modernity, flexibility and knowledge,
- experience and abilities of engineering staff,
- marketing – knowledge of the needs, preferences and behaviours of customers and the ability to predict future changes, and knowledge of the current situation in the markets served and ability to predict future changes,
- employment – employees' level of education and employees' creativity,
- finance – the financial potential of the company,
- organization and management – knowledge, experience and managerial skills of managerial staff.

The key components of the innovation potential indicated by all of the Polish companies surveyed did not include any components from the sphere of logistics, R&D, quality management, invisible resources, and from information and communication.

The key components of the innovation potential identified only by LPE and SMEs included three additional components belonging to the following spheres:

- marketing – knowledge of the current situation on supply markets and the ability to anticipate future changes and the knowledge, experience and abilities of marketing staff,
- employment – willingness to raise qualifications.

On the other hand, one of the key components of the innovation potential identified only by LPE and HC were also two components belonging to the following areas:

- organization and management – knowledge, experience and management skills of project managers,
- invisible resource – attitudes of managerial staff towards innovation.

Similarly, the key components of the innovation potential of SMEs indicated only by and TM included only one component belonging to the sphere of invisible resources, namely, managerial skills of managerial staff.

Other components that were included in Table 1 are considered as key ones only by particular groups of the researched Polish companies.

CONCLUSIONS

The obtained results allow the formulation of the following general conclusions:

- the innovative potential of Polish enterprises is built primarily on the basis of eight key components. They represent a kind of critical mass of the innovative potential of contemporary Polish companies;
- considering the development of innovative enterprises, modern managers should take into account mainly resource components in the following spheres: production, marketing, employment, finance, management and organization;
- lack in the group of key components of the innovation potential of Polish enterprises, components from the sphere of R&D, and the indication of the importance of the sphere of marketing may suggest that the models used in creating innovation are far more demand than supply-side;
- lack of components of R&D (indicated only by HC) seems to be quite alarming, since it is the level of expenditure on R&D in relation to GDP that is one of the most important measures of innovation in developed economies.

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A b s t r a c t : Innowacyjność to obok konkurencyjności jedno z kluczowych zagadnień, ale i wyzwań stojących przed współczesnymi przedsiębiorstwami funkcjonującymi w globalnej gospodarce. Jak skutecznie planować i wdrażać innowacje?, jakie zasoby rozwijać, aby stać się innowacyjnym przedsiębiorstwem? – to jedynie wycinek pytań, z którymi borykają się menedżerowie nie tylko globalnych korporacji, ale i małych i średnich przedsiębiorstw. Pomocą w próbie znalezienia odpowiedzi na te pytania może być analiza potencjałów innowacyjnych, a więc zasobów o kluczowym znaczeniu z punktu widzenia kreowania i komercjalizowania innowacji, czemu poświęcony jest niniejszy artykuł.

K e y w o r d s : innowacyjność; potencjał innowacyjny; determinanty innowacyjności; sektor przedsiębiorstw.