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TRANSFER OF INNOVATION AS A PARAMETER (FACTOR) OF DEVELOPMENT OF ENTERPRISES IN THE SME SECTOR IN POLAND

Summary: The SME sector grows extremely fast in the Polish economy. Only a small number of enterprises in the SME sector decide to evaluate independently the factors that influence the efficiency and development of enterprises. It is necessary to point out that there is incomplete set of growth factors and the efficiency of SME-based enterprise-specific measures. The available literature in one-dimensional way emphasizes the influence and importance of internal and external factors on the innovation process in SMEs. In principle, only the key role of material and financial resources is described, considering them to be the main drivers of the success of the innovation process in the SME sector. The intention of this paper is to make an attempt to fill this information gap. These recommendations can provide a useful tool for managing the development process in micro, small and medium-sized enterprises.

Keywords: transfer of innovation, key success factors, SME success.

JEL Classification: O3.

Introduction

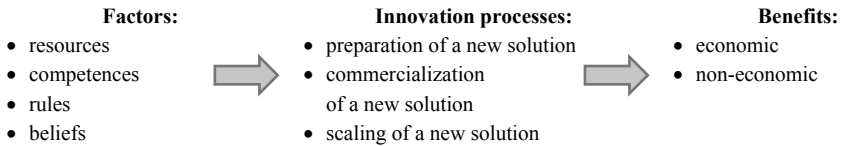
Nowadays, entrepreneurs believe that the most valuable “product” are changes and development. Innovations in SMEs cover two processes: generation and implementation of ideas [Neil, 2009, p. 43]. Innovation in micro-enterprises is a notion less frequently discussed in Polish literature (which, for instance, due to its specific linguistic nature, small entrepreneurs can access) than innovations concerning larger entities. The result is a fact that companies from the SME sector are focused on greater extent based on informal structures and short financial statements, and therefore it is difficult to carry out measurable R&D works in

this case. This results in the fact that small businesses use external knowledge sources, consulting services and licenses less frequently than their larger counterparts. This phenomenon reflects the lower capacity of SMEs in Poland to absorb external knowledge. Therefore, it is necessary to define new notions, terms, processes or strategies that would more precisely describe the special character of companies from the SME sector.

This study, on the basis of research conducted on Polish micro, small and medium-sized enterprises in 2017, is an attempt to examine the phenomenon of innovation transfer (knowledge and technology) to companies as a parameter of development of the SME sector in Poland.

1. Development of the SME sector

The available subject literature does not contain a comprehensive typology of the key factors having effect on the development of companies from the SME sector. It is important to stress that the vast group of factors, that effect big-sized enterprises cannot be considered in SME, especially in micro-companies. The reason is the volume of: staff, production scale, financing or kind of business register. Therefore, typology of key development factors should be supplemented with a set distinguishing the beliefs, rules, competencies, and resources. It would provide a new view of the development barriers and their overcoming. Distinction of these four key groups requires a new approach to the essence of the very process of development in the SME sector. For the innovation process in enterprises of the SME sector, various internal and external factors are significant. However, they are not sufficient to get to know the specific nature of this process and fully explore it. The two-dimensional view of development factors, apart from internal and external factors fully described in the literature, introduces soft and hard factors. A comparison of all those factors will enable identification of new categories, i.e.: the beliefs, rules, competences, and resources. Description of these categories and the mutual relations between them will permit better and more complete diagnosing of development factors affecting the course and the effectiveness of the innovation process in an enterprise of the SME sector (Figure 1) [Dereń et al., 2015].

Figure 1. Typology of key factors affecting the development of an enterprise

Source: Based on: [Dereń et al., 2015, p. 9].

The wealth of the environment is described by the level of resources. Creation of entrepreneurial projects and innovativeness is related (positively) with the dynamic character of the environment, since it stimulates the processes of searching for opportunities [Wang, Li, 2008]. The form of innovation uses only the progressive solution which is: efficient, effective and sustainable method that create growth [Hou, Han, 2016, p. 1]. Contemporary research shows that participants in organizations with a high degree of risk tolerance prefer actions in an uncertain and dynamic environment, as they see more opportunities to take in such an environment. An important elements of the strategic entrepreneurship are individual and organizational resources. Individual resources include the financial, human, and social capital. The financial capital has low value in building the competitive advantage, unless it is supported by non-financial resources and competences at the management level. Its significance is great during acquisition of resources we need to take opportunities or invest in the development of innovative ideas. The social capital is much more significant, since – as a set of bonds, individual and organizational relations – it helps reach additional resources. Reputation or expansion of the network of relations plays a huge role in the success of entrepreneurial projects by attracting financial capital and employees. Another resource that stimulates strategic entrepreneurship is human capital, which is important for the survival of entrepreneurial projects and implementation of innovations by organizations existing on the market. Actions of the leaders focused on effective management of resources in the organization are referred to as resource orchestration. It intermediates in the relation between resources and efficiency of an organization. The last dimension covers the process results, which are usually grouped into three categories: individual benefits, organizational benefits, and social benefits. For the concerned processes to be effective, the organization leaders should balance triggering of behaviors focused on seeking opportunities with behaviors aimed at seeking competitive advantage [Hitt et al., 2011, p. 69]. To achieve balance between these two constructs, a suitable organizational structure should be built, which would simultaneously support exploration and exploitation processes [Dyduch, 2013, pp. 79-81].

In available literature studies, issues related to innovations in small and medium-sized enterprises indicate factors and barriers affecting innovations in this kind of enterprises. Such a perspective does not constitute complete knowledge, adequate to the needs and the specific nature of the SME sector [Dereń et al., 2015].

European initiatives aiming at creating a competitive and dynamic economy can succeed only when the SME sector is perceived as the main factor of innovation development, increase in employment, entrepreneurship, and economic development in Europe. The main part of the gross domestic product in Europe is created by this sector. It is the driving force increasing the dynamics of entrepreneurship and the main source of jobs. Organizations of this sector are able to respond faster to new needs of customers [Strużycki, 2008, p. 138].

Summing up, as the base that should be completed can be the typology proposed by Matejun [2008], shown in Table 1, that presents a comparison of selected factors affecting the development of the SME sector.

Table 1. Selected development factors of the SME sector

Internal development factors of SMEs	External development factors of SMEs
<ul style="list-style-type: none"> – knowledge, experience, and entrepreneurship of the management, – ability to manage the organization's resources, – the market's nature and familiarity with it, – ability to implement technological progress, – skills and competences of employees, – production capacity, – size of the capital, – cooperation relations, – quality of offered goods and/or services, – level of sales profitability, – ability to act flexibly 	<ul style="list-style-type: none"> – legal conditions concerning undertaking and running business operations, – competition on the market, – pace of the country's economic growth, – fluctuations in demand and supply on the market, – customs policy, – access to external sources of funding, – government policy, – financial and tax regulations, – scope of financial and non-financial support from the state, – entrepreneurship culture

Source: Based on: [Matejun, 2008, p. 27].

2. Innovations and knowledge as the driving force for the development of SMEs

Innovation can be defined as a series of activities that lead to the creation of new or improved products, technological processes or organizational systems. Very good and basic division of innovation was proposed by J.A. Schumpeter [after: Wiśniewska, 2013, p. 10]:

- creating a new product,
- application of new technology, production methods,

- creating a new market,
- acquiring unknown raw materials,
- reorganization of a specific branch of the economy.

The conditions for the innovativeness of enterprises can be divided into two perspectives: external (e.g. government policy, access to capital) and internal determinants, namely those that are closely related to the organization's business operations. These conditions can be assigned to several groups, such as: organizational resources, organizational structure, organizational culture, style of leadership, characteristics of executives, communication system, etc. The elements of innovativeness are related to the innovation potential possessed and used by the organization. This potential can be examined from the multi-dimensional perspective, among others, the perspective of the product, process, strategy, market, and behavior. The innovative potential is usually perceived as a group of four elements, such as: human, financial, and material potential as well as knowledge, which are typical of internal potential. External potential is related to factors emerging from the environment. The relation of the innovation level in an enterprise with its size and organizational and legal form is not excluded [Kraśnicka, 2013]. An exemplary typology of factors conditioning the innovation of companies is presented in Table 2.

Table 2. Classification of factors conditioning the innovation of companies

Name of the factor	Significance of the factor	Comments
The resource of scientific and technological knowledge, research, and scientific potential	Determines the basis for innovative activities, is an important source of innovations	These knowledge resources are determined by scientific research
The strategy of development of science and technology, innovation policy	Sets out the directions, determines the amount of outlays allocated on R&D	This strategy is subordinated to achievement of socio-economic objectives
The study of the socio-economic development of the country, economic structure	Determines the general shape of the innovation mechanism	Determines the role of the state in shaping the organizational mechanism
The system of functioning of the economy	Determines the effectiveness of the innovation mechanism	The market's nature plays an important role
Sociopsychological and cultural factors	Contain significant motives for innovative activity	Reveal the threat of asymmetry between rapid development of technology and assimilation processes in the sphere of human psyche and culture

Source: Based on: [Szopik, 2008, p. 31].

A huge role in the innovative activity is played by such components as: globalization of markets, increase in the importance of strategic coalitions, technological development of other countries, internationalization of companies, mutual and intensive crossing of science with technology, increase in costs of research and unemployment, great pressure on environmental protection. Introduction of innovations consists of several processes, such as: creation of creative ideas, implementation of ideas, adaptation and absorption of new solutions, distribution of innovations outside and inside the company.

Another classification divides groups into [Ruszała, 2011]:

- economic – high costs of innovations, difficulties in finding and choosing sources of financing, high economic risk,
- internal – the size of resources of the company and its skills, including staff qualifications, lack of information on markets and technologies,
- other – legal regulations, provisions, standards, procedures, lack of customers' reaction to new products.

Today's companies functioning in the knowledge-based economy operate using information technology, generate data and information based on a certain potential knowledge, and offer possibilities of storage and wide access to information. The notions of knowledge, data, and information are often identified with each other [Trajer, Paszek, Iwan, 2012]. The relation between the listed terms can be determined as follows: a set of data becomes information after being assigned purposefulness and significance; a set of information becomes knowledge after being placed in an adequate context, assigned structure and properly interpreted; a set of knowledge becomes wisdom after being skillfully used, and a set of wisdom becomes truth after being skillfully applied. The entire process of these changes requires time and skills [Antczak, 2013, p. 20].

The notion of knowledge has a universal and basic character in culture, at the same time being polysemous, multi-range, and multi-aspect. The concept is often presented in an interdisciplinary manner and formulated in different research perspectives. It is emphasized that many definitions exist which sometimes supplement each other, and other times – exclude each other [Grudzewski, Hejduk, 2002]. Creation of knowledge takes place at the company's learning phase and is based on the process of externalization of knowledge (progress in transferring hidden knowledge into clear notions). Externalization of knowledge is an initial condition for creation of knowledge, which involves preparation of a specialized plan that describes actions, people, and information. Transfer of knowledge is the level where knowledge is implemented and used in processes. Technological support leads to improvement and acquisition of knowledge.

Transfer of knowledge requires integration of knowledge with the existing knowledge base of the company through tools, such as: meetings, networks, project groups, documentation, presentations, expert systems, etc. Retention of knowledge is the level of business development. Retention consists in experience, knowledge and schemes that form the structure of the company, which co-determines the company's success [Chournazidis, 2013].

In economic practice, the kind of knowledge most favorable for the development are innovations. New ideas and technologies are the driving force for the functioning of the economy. Knowledge that is transferred has the form of innovations.

3. Transfer of innovations

Before an innovation is created, a creative invention appears, which is put into practice in the form of innovations. Transformation of the invention into an innovation requires the use of various types of knowledge, capabilities, skills, and resources. It is a continuous process, which means that e.g. a smartphone, which is currently the most advanced, will over time become outdated and will cease to be so gladly chosen by customers. Therefore, it requires continuous improvement [Fagerberg, Mowery, Nelson (eds.), 2005]. Innovations are discontinuous projects of new combinations of production factors in five cases [Szatkowski, 2016, pp. 24-26]:

- introduction of a new product the consumers have not yet seen (it can be a new kind or version a product),
- application of a new production method never before used in practice of the specific branch of production,
- opening of a new market, where a specific production branch is not present (whether this market has already existed or not),
- acquisition of a new supplier of raw materials or semi-finished products, whether it is a new or an already existing source,
- reorganization of business processes both in production and in circulation of goods (e.g. development of a monopoly, oligopoly, or on the contrary – breaking it).

In the Polish subject literature we can find indicators of innovative activity depending on the field in which they occur. These are, among others [Szatkowski, 2016, pp. 24-26]:

- the technological innovations field: statistics concerning the share of companies that implemented product or process innovations in the surveyed population,

- in the field of non-technological innovations: the share of companies which successfully introduced organizational or marketing innovations,
- R&D expenditures, constituting general expenses on research and development activities,
- effects of innovations in the sales results, employment costs, and the impact on performance and productivity,
- objectives and obstacles of innovations, such as: cost factors, market factors or knowledge factors.

An important innovation index relating to the entrepreneur is the so-called personal innovation, namely the tendency to take risks, appearing in some people and not in others. Those entrepreneurs are willing to take risks and try new things, and are able to deal with a high level of uncertainty [Thakur, Angriawan, Summey, 2016].

Thus, the transfer of innovations is process, thanks to which results of scientific research have a chance to be implemented and reach the final user in the form of a new product. For various reasons, this process may be laborious and long-lasting. Implementation of a new scientific idea and its introduction into the market practice in the form of a new technology or product is usually associated with large costs and other hindering factors. The development (also innovation) of the Polish SME sector largely depends on the size of the development capital that originates from the entrepreneur's own resources and from foreign (external) capital. Obtaining the capital for innovations is particularly difficult in the case of small and medium-sized enterprises. Acquisition of long-term capital by entities from the SME sector is complicated and often ineffective, which was called the Macmillan gap (capital gap). It means shortage of capital for financing of innovative operations of the company at the initial stage of the project or the difference between the capital that entrepreneurs can acquire from own private sources and the one they may apply for to the capital market entities. In the SME sector, it is one of the main barriers for development. A loan or a credit is not a good solution, since they increase the level of financial risk [Janasz, 2011, pp. 53-54].

The present financial and tax policy, resulting from the state of the Polish economy, does not encourage acquisition of funds for investment purposes, development and promotion of export. Thus, it is necessary to undertake actions that will result in further reduction in the amount of taxes and other fiscal burdens. Depreciation write-downs do not ensure regeneration of fixed assets. High social insurance premium increases labor costs, which affect the growth in the product/service prices and limit organizational competitiveness [Strużycki, 2008, p. 138]. Another

barrier is formed by the conditions to be met in order to obtain a credit. The often high real percentage rate involves the risks of loss of liquidity of the company, or even bankruptcy [Łuczka, 1997, pp. 115-116]. The huge requirements of banks hinder the access to bank funding. There is a connection between the amount of debt of SMEs and the investment attractiveness of the region in which the company operates. Delays in payment of liabilities adversely affect SMEs [Mikołajczyk, 1996, p. 57]. There are also huge obstacles of bureaucratic nature, which hinder the commencement and conduct of business operations. They are related, among others, to conditions that are difficult to meet, procedures and criteria for obtaining licenses and permits, as well as lack of clarity and the need to obtain additional information concerning interpretation of legal regulations [Popławski, Sojak, 1994, p. 14]. The economic condition and the innovation of SMEs is also affected by microeconomic determinants, such as [Strużycki, 2008, p. 142]:

- size of the entrepreneur's property,
- ability to implement scientific and technological progress,
- ability to manage the company's resources,
- knowledge and entrepreneurship of employees,
- quality of the offered products,
- level of return,
- cooperation relations.

The most important of the above-mentioned barriers in the sector of microenterprises and SMEs are staff qualifications, since if the company has one, two or several people – competencies are main resource.

4. Phases of the innovation transfer process

The process of innovation transfer is conducted in several phases [Marciniak, 2007, pp. 22-23]:

- conduct of basic research under self-funding projects (referred to as own research),
- the industry's interest in the research project – significantly lowers the investment's uncertainty,
- signing of a contract for the commissioned research (usually between the research unit and the company); from that moment, the research already constitutes private research carried out on regular orders in research and development centers of huge international concerns.

A trend that can be observed in Poland in the last decade is naming each change in the organization as innovative change. However, there are some restrictions. Acosta in the study entitled *Understanding Innovation Based on Company Optics: Interpretation Mistakes on the Types of Innovation Developed*, when referring to OCDE, presented what should not be interpreted as an innovation with regard to type (of innovation); and so [Acosta, Acosta, Espinoza, 2016]:

1. The following are not product innovations:
 - modifications and minor corrections,
 - improvements concerning normal or usual procedures,
 - regular stationary changes,
 - adjustment to the needs of a specific customer, which does not differ significantly from products manufactured for other customers,
 - redesigns that do not modify the function,
 - previously agreed upon setting or technological features of a product or service,
 - services purchased for other companies.
2. The following are not process innovations:
 - small changes or improvements,
 - increase in production or service capacity in connection with the introduction of new production systems or logistic systems similar to those that are already in use.
3. The following are not marketing innovations:
 - redesigns, changes in packing, product placement, sales or prices, based on marketing methods which the company used,
 - seasonal, regular or ordinary changes in marketing instruments,
 - use of marketing methods already in use to enter a new geographical market or a new market segment.
4. The following are not organizational innovations:
 - changes in business practices, organization of the workplace or external relations, which are based on organizational methods already used in the company,
 - changes in the management strategy, unless they are accompanied by introduction of a new organizational method,
 - mergers or takeover of other companies.

All models of the innovation process have specific shared qualities. These are, among others [Szatkowski, 2016, pp. 24-26]:

- phased cycle means that the innovation cycle consists of the following consecutive phases – stages, under which specific tasks are implemented (it is recommended that all stages are completed);

- limited cycle, which places the cycle between two events: the idea and its implementation into the market;
- diversity of performed tasks, which means that tasks at various stages differ from one another depending on the project, due to the individual nature of innovation and uniqueness of the undertaken works; this characteristic prevents construction of a universal model covering all innovation processes;
- logical consequence, meaning that all tasks in the cycle can be arranged in a simple manner and brought within the scope of the main objective.

In the contemporary economy, popularization of innovation plays an increasing role. People are getting more and more aware of the fact that the benefits of running an innovative business are greater than the benefits of any other operations. Inventions implemented and used in economic practice usually deliver numerous social and economic benefits. Such innovations may relate to better use of worktime, production measures, workforce, material savings, or improvement in the state of the environment, etc. Practice shows that implementation of an invention may result in formation of subsequent modern technological solutions. Additionally, through connections among different industry branches, they require equalization of the innovation level of interdependent domains [Szatkowski, 2016, pp. 24-26].

5. Transfer of knowledge

Transfer of knowledge is a process during which knowledge, created in scientific units, namely universities and other specialized entities, is transferred to business units. According to United Nations Conference on Trade and Development (UNCTAD), transfer of knowledge consists in systematic transfer of knowledge in order to manufacture a product, apply a process or provide a service. However, it does not include transactions consisting in sale or rental of goods. It concerns knowledge that serves to create goods and services. According to the research of the Institute for Structural Research, Poland has four directions of knowledge flow [UNCTAD, 2015]:

- between companies within the private sector,
- between the public and the private sector,
- diffusion of improving innovation as a result of purchases of innovative goods and services,
- diffusion “silent knowledge” as a result of employee mobility.

The success of knowledge transfer depends largely on the company's ability to adapt to the local environment. A good location increases the chance to acquire knowledge, which will enable development of the right strategy, and thus achievement of competitive advantage. A huge role is played by employment of local managers, thanks to which the communication between particular levels within the company is improved. It is also important to promote communication culture and explore new ideas [Tuan, 2012]. It is different in the case of micro, small and medium-sized enterprises, where the owner needs to demonstrate pro-innovation attitude and be willing to conduct transfer activities.

The idea prevalent in the society about production plants or service-oriented companies assumes that a given company develops the product itself. Nothing can be further from the truth. Development of new products in a given organization may take place in different ways, such as [Szatkowski, 2016, pp. 24-26]:

- transfer of ready-made technological solutions,
- purchase of external technological solutions,
- purchase of new machines and equipment for production,
- as a result of R&D activities conducted by the company,
- internal production orders,
- modernization of the previous assortment.

Key and base technologies have the highest degree of saturation of potential applications. In the case of an emerging technology, emphasis must be put on monitoring. In the case of technology setting the pace, it is critical to apply selective investment. The Key Technology requires development and constant control, and in the case of the base technology – selective withdrawal [Klajbor, Koszałka, 2013, pp. 11-13]. The process of technology transfer is a difficult and multi-layered process spread over time. The course of this process may be spontaneous and accidental, it may also be interfered in, so that it would have the proper shape and structure. Adaptation of this process, control over it and its subordination makes up the management. This management should cover the following actions [Szatkowski, 2016, pp. 24-26]:

- acquisition of knowledge about the latest technologies in a given industry,
- monitoring of the condition of the technology modernity in the field of interests of the company,
- constant effectiveness analysis of technologies used in the company,
- analysis of various options of obtaining technologies,
- analysis of the impact of the particular technology on the parameters of a particular product in the company,

- suitability analysis of new technologies with regard to the company's own technological base,
- analysis of outlays on investment in new technologies and the possible achieved results,
- continuous comparison of the company's own technological level with the competition's level.

As it may be easily noted, a crucial role is played by R&D works, which are systematically conducted creative works aiming at solving problems that have not been diagnosed on the basis of the previous state of knowledge (they are new). Presently, the technology transfer covers also such forms of operations as [Klajbor, Koszałka, 2013, pp. 11-13]:

- academic entrepreneurship, consisting in using research results or academic works carried out at universities by students or young scholarly employees, as well as start-up of small technological companies under academic business incubators or university technology transfer centers;
- the support systems for innovative projects implemented under government and local administration schemes or projects, offering consulting, enabling technology transfer, initiation of transfer with simultaneous financing and organizational support of activities;
- support for small and medium enterprises within the scope of innovations, through their fast and cheap introduction, in a manner more efficient than in large enterprises, thanks to which the development of the industrial structure of the country and the development of particular regions is facilitated;
- initiation of cooperation and interaction under network solutions, such as clusters or industry groups of companies.

6. Pilot studies on knowledge transfer barriers

The need to analyze transfer of innovation to enterprises as a key development factor was recognized during a pilot study carried out by A.M. Kamińska in the form of interviews with scientists taking an active part in the technology transfer from Wrocław universities to businesses. The study shows several factors that affect development.

First factor is **the lack of an industrial consumer for the given innovation**. The Polish market is shallow, and the industrial base is too small. Scientists need to go as far as to coerce the interest of production companies in a given innovation. This is further hindered by stereotypes about “mad scientists” and the

varied implementation times of research or development of innovations. Companies are interested in obtaining results in the shortest possible time, which, considering the length of the research process and the bureaucratization at the university, is not always possible.

A barrier linked to the previous one is **the problem with entering the market**. New companies or undertakings very often fall through, and those that manage to stay on the market compensate their losses that arose when working on those that went bankrupt. Scientists are able to establish small businesses, and thus they often operate as sub-suppliers for large companies.

Another barrier distinguished by scientists is **the unsuitable promotion in the mass media**. Contacts with mass media are very important. In Poland, the level of trust towards journalists is approx. 55% – it is the highest coefficient that can be encountered in Europe (in other countries, the level of trust is at approximately 20%). It is important to organize conferences and meetings, and to invite journalists thereto, who would communicate the transfer ideas to the masses.

The scientists very often pointed out to the **unsuitable funding of pro-entrepreneurial and transfer activities**. Poland still hardly invest in innovative solutions, and the innovations that can be encountered are mainly investments of foreign concerns. It turns out that entrepreneurs prefer to buy a given technology abroad than develop it on their own in Poland. This also results in existential problems of scientists – the salary they receive in Poland is much lower than in foreign projects, which leads to them choosing other forms of operations or another way of life.

The barrier that scientists are very afraid of is **the risk of return**. It is encountered when a scientist with an innovative idea opens a spin-off company. A question is asked: “What will happen to the scientist who takes the risk of opening this spin-off and in 2-3 years it turns out that the idea is unsuccessful and poor?”. The essence in this case are the consequences that will be borne by the scientist, who gave up working at the university to run his own company. Will he be able to return to working at the university?

One of the barriers is **the lack of a competent coordinator**. Each project, commencement of an action or establishment of a company requires a “boss”. Every undertaking, the goal of which is to transfer innovations (specific technology), should have a leader, who will connect companies with the scientific part. However, it often turns out that the university has no person with the relevant competencies.

The most difficult barrier can be found at the very beginning of the innovation process – **incorrect identification of the demand for innovations**. Scientists are guided by the idea of creating new things, previously undiscovered. On the other hand, the entrepreneur expects quick return on the investment, and then profits related to application of changes to the already existing solutions or products, or the implementation of new ones.

The problem of demand for innovation and its transfer has been highlighted by several scientists who emphasize that only big companies are prepared to transfer the innovation, and it is often necessary to cooperate with small ones, that are specialized in particular field of research [Kamińska, Skonieczny, 2012].

7. Study – transfer of knowledge and innovations as a parameter (factor) of development of enterprises in the SME sector in Poland

The primary purpose of the research procedure pursued in the present article was to analyze the effect of particular factors determining the development of enterprises from the SME sector. The conducted survey was supposed to answer the following questions:

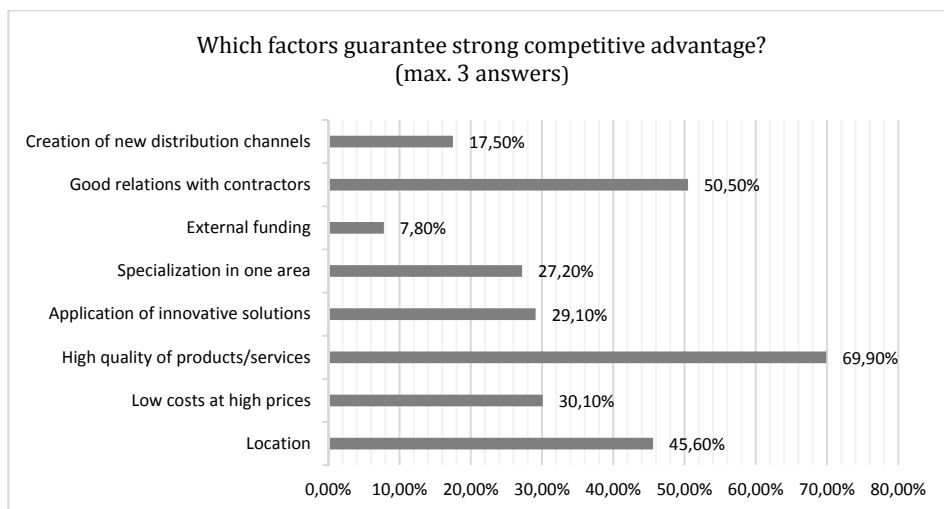
1. What important factors do the respondents identify?
2. What are, according to the respondents, the areas of knowledge transfer affecting development?

To verify this purpose, empirical research was conducted in the period from April to November 2017, on the sample of 100 randomly selected companies within the entire Poland from the SME sector, operating in different industries. The sample was selected randomly, and thus the following results should be treated with caution, as hypotheses, since the collected data prevent clear verification of the significance of factors and are fragmentary. However, they may constitute the basis for deductive reasoning.

A survey questionnaire was used in order to conduct the study. It was designed specifically for the purposes of this study, after taking account of the pilot study. The questionnaire contains only multiple-choice questions divided into groups. The questionnaire consists of 42 questions, which the respondents answered on their own – electronically or in paper version. The results published below are only a small glance at the study, but they outline the research problem contained in this paper.

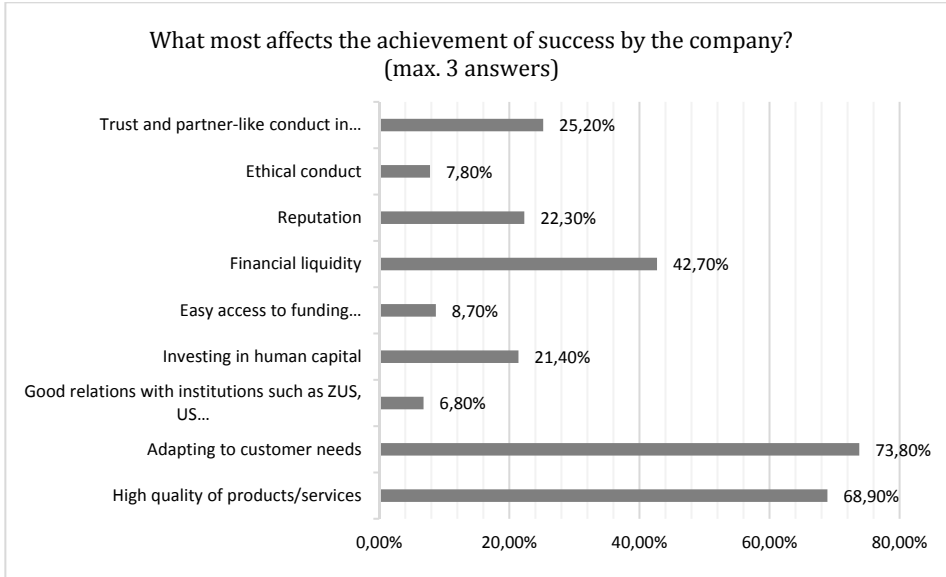
One of the questions addressed to the respondents concerned the factors guaranteeing strong competitive advantage. The results are presented in Figure 2.

Figure 2. Results of surveys concerning competitive advantage factors



The analysis of the obtained answers suggests that the respondents value the most, as the guarantor of competitive advantage on the market, high quality of offered products and services (69.9%), as well as good relationships with contractors (50.5%), and proper location (45.6%). The respondents also deemed the use of innovative solutions or specialization as important factors. Only 7.8% of the respondents regarded external funding as a crucial success factor.

In another question, the respondents were asked what affects the achievement of success (Figure 3) and the vast majority – as much as 73.8% – indicated adjustment to the customer needs, and 68.90% – high quality of the offered products. 42.7% of the respondents also emphasized the importance of maintaining financial liquidity. Relationships with business environment institutions, such as the Tax Revenue Office and the Social Insurance Institution (ZUS), as well as ethical conduct affect the company's success to the smallest degree of all mentioned factors, according to the respondents.

Figure 3. Results of surveys – company's success factors

The questionnaire also covers the topic of investment outlays incurred in the company, and more precisely – their purpose (Figure 4). Companies invest the most often (59.2%) in the purchase of software and systems. The second place was held by investments in the purchase of machines and equipment. A high number of entrepreneurs also invests in equipment necessary every day: phones, tablets, etc. – 56.3%. Half of the respondents indicated that workforce training is also an important investment in their company.

The respondents were asked to indicate the part of turnover spent on development in the company. The results presented in Figure 5 show that as much as 30% of the respondents have no idea of the percent of their profits allocated on investments. This may be caused by the fact that the examined companies were micro-enterprises and SMEs, which very often do not conduct detailed analyses, but only consider whether they can at a given time afford to invest funds or not. 18% of the surveyed pointed out that they invest over 10% of their turnover. Only 5% do not spend funds on development, which seems to be a good percentage, if we consider the fact that there exist industries where it is difficult to implement new solutions.

Figure 4. Results of surveys – incurred investment outlays

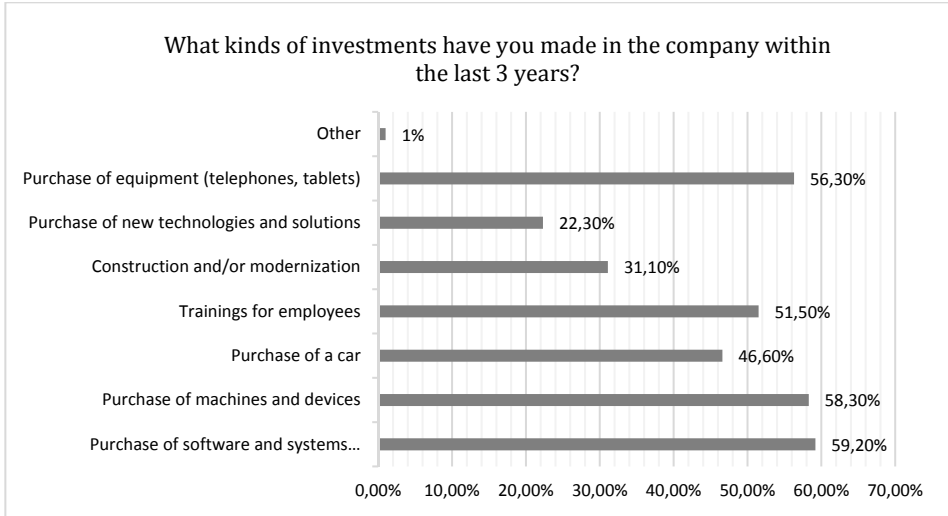
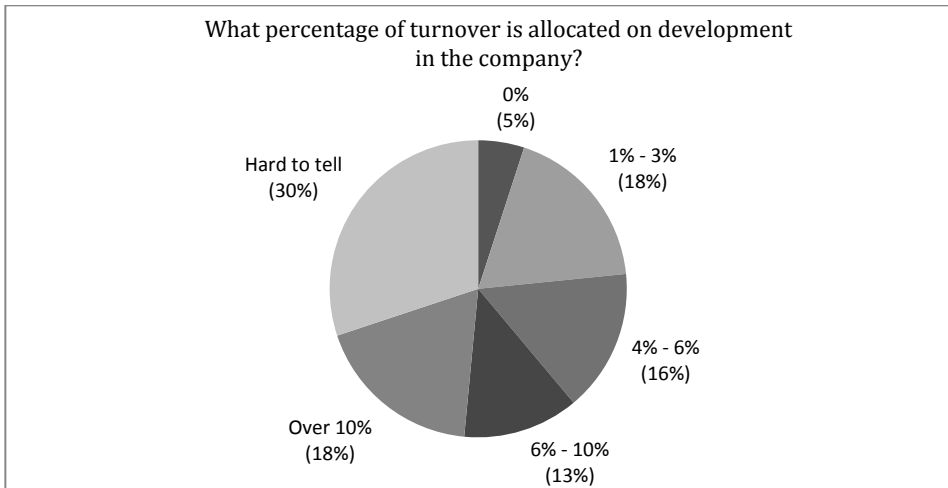
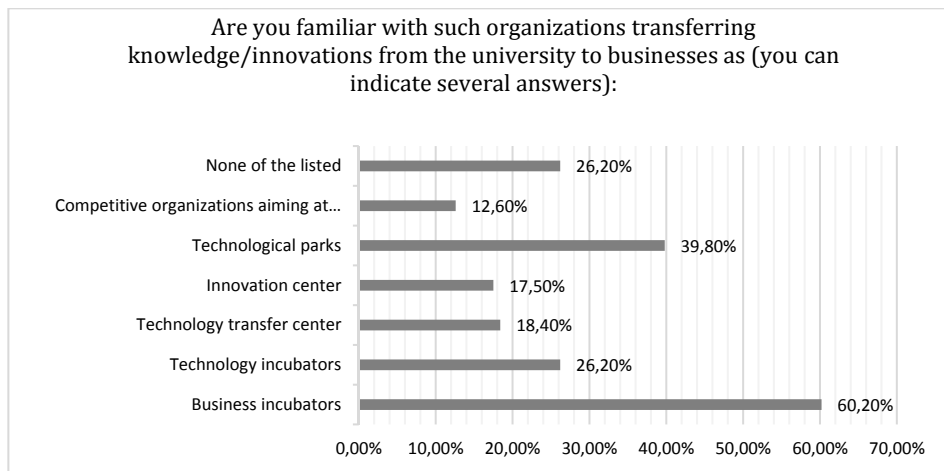


Figure 5. Results of surveys – percentage of turnover spent on development



The reason for the expenditures on development being so small is, among others, the lack of knowledge of companies about the methods to reach the relevant institutions supporting the transfer of knowledge and technologies. Figure 6 presents results concerning the familiarity with institutions supporting the technology transfer. Although, 60% of respondents recognize business incubators and 39.8% – technology parks, as much as 26% have not heard of any of the aforementioned institutions supporting the transfer of knowledge and technologies.

Figure 6. Results of surveys – familiarity with organizations transferring innovations

The analyses of answers show that companies from the sector of micro, small and medium-sized enterprises invest in equipment, software, purchase of machines – generally speaking, in development. However, the results also show that the percentage of turnover invested is small, or that the companies do not know how much they are investing. They are also unfamiliar with institutions supporting the development of companies. This results in unfamiliarity with the offer of these institutions – namely the possibilities of obtaining innovative solutions as well as proper financing.

Conclusions

SME is an extremely quickly developing sector in the Polish economy. The significance of technology transfer for the development of contemporary companies is unquestionable. However, the degree to which the transfer of knowledge and technologies in form of innovation determines the organization's success is subject to discussion. Knowledge should be examined from two points of view. On the one hand, it may be treated as a measure of success, while on the other hand – as an important factor conditioning the achievement of success.

Bearing in mind the research findings presented above, it can be concluded that the readiness and the ability to consider the transfer of innovation as a success factor of companies from the SME sector is a challenge greater than ever; a challenge that needs to be taken up to not weaken our own competitive position in the face of the dynamic changes taking place. This paper references lit-

erature studies, which have been contrasted with the opinions of companies. They may form the basis and the starting point for further discussion on the role of the transfer of innovation in the context of the determinants of development of companies from the SME sector.

References

- Acosta B., Acosta M., Espinoza B. (2016), *Understanding Innovation Based on Company Optics: Interpretation Mistakes on the Types of Innovation Developed*, "Revista de Administração e Inovação", Vol. 13, pp. 295-304.
- Antczak Z. (2013), *Zagadnienie wiedzy w kontekście organizacji (w ujęciu epistemologiczno-semantycznym)*, „Nauki Społeczne = Social Sciences”, 1(7), pp. 7-27.
- Chournazidis A.J. (2013), *Functionality and Feasibility of Knowledge Management in Enterprises*, "Procedia – Social and Behavioral Sciences", Vol. 73, pp. 327-336.
- Dereń A., Parkitna A., Skonieczny J., Świda A. (2015), *Grant – Wniosek badawczy pt.: „Kluczowe czynniki skalowalności przedsiębiorstw innowacyjnych sektora MŚP”*, ID 289479.
- Dyduch W. (2013), *Twórcza strategia organizacji*, Wydawnictwo Uniwersytetu Ekonomicznego, Katowice.
- Fagerberg J., Mowery D.C., Nelson R.R., eds. (2005), *The Oxford Handbook of Innovation*, Oxford University Press, Oxford.
- Grudzewski W.M., Hejduk I.K. (2002), *Kreowanie systemów zarządzania wiedzą podstawą dla osiągania przewagi konkurencyjnej współczesnych przedsiębiorstw* [in:] W.M. Grudzewski, I.K. Hejduk (red.), *Przedsiębiorstwo przyszłości – wizja strategiczna*, Difin, Warszawa.
- Hitt M.A., Ireland R.D., Sirmon G., Trahms Ch.A. (2011), *Strategic Entrepreneurship: Creating Value of Individuals, Organizations and Society*, "Academy of Management Perspectives", Vol. 25, No. 2, pp. 57-75.
- Hou Sheng-Tsung, Han I. (2016), *Social Innovation and Business in Taiwan*, Palgrave Macmillan, New York.
- Janasz W. (2011), *Innowacje w zrównoważonym rozwoju organizacji*, Difin, Warszawa.
- Kamińska A., Skonieczny J. (2012), *Transfer technologii z uniwersytetu do biznesu* [in:] R. Knosal (red.), *Komputerowo zintegrowane zarządzanie*, Wydawnictwo PTZP, Opole.
- Klajbor T., Koszałka J. (2013), *Poradnik dla przedsiębiorców – praktyczny transfer technologii w firmach*, Urząd Marszałkowski Województwa Mazowieckiego, Warszawa.
- Kraśnicka T. (2013), *Innowacyjność przedsiębiorstw – uwarunkowania organizacyjne*, „Studia Ekonomiczne. Zeszyty Naukowe Uniwersytetu Ekonomicznego w Katowicach”, nr 136, pp. 165-179.

- Łuczka T. (1997), *Kapitał jako przedmiot gospodarki finansowej MŚP prywatnego*, Wydawnictwo Politechniki Poznańskiej, Poznań.
- Marciniak B.M. (2007), *Rola parków naukowo-technologicznych w rozwoju małych i średnich przedsiębiorstw*, Wydawnictwo Poznańskie, Poznań.
- Matejun M. (2008), *Barriers to Development of High-Technology Small and Medium-Sized Enterprises*, Technical University of Lodz Press, Lodz.
- Mikołajczyk B. (1996), *Instytucje wspomagające rozwój małych i średnich przedsiębiorstw*, Akademia Ekonomiczna, Kraków.
- Neil T. (2009), *Kreatywność i innowacje według Johna Adaira*, Oficyna a Wolters Kluwer business, Kraków.
- Popławski W., Sojak S. (1994), *Wprowadzenie do zarządzania małym przedsiębiorstwem*, Toruńska Szkoła Zarządzania, Toruń.
- Ruszała J. (2011), *Wspomaganie innowacyjności przedsiębiorstw* [in:] J. Perenc, J. Hałub-Iwan (red.), *Innowacje w rozwijaniu konkurencyjności firm*, C.H. Beck, Warszawa.
- Strużycki M. (2008), *Małe i średnie przedsiębiorstwa w świetle Strategii Lizbońskiej*, Wydawnictwo SGH, Warszawa.
- Szatkowski K. (2016), *Zarządzanie innowacjami i transferem technologii*, Wydawnictwo Naukowe PWN, Warszawa.
- Szopik K. (2008), *Klasyfikacja uwarunkowań innowacyjności przedsiębiorstw*, „Studia i Prace Wydziału Nauk Ekonomicznych i Zarządzania”, nr 1, pp. 29-39.
- Thakur R., Angriawan A., Summey J.H. (2016), *Technological Opinion Leadership: The Role of Personal Innovativeness, Gadget Love, and Technological Innovativeness*, “Journal of Business Research”, Vol. 69, Iss. 8, pp. 2764-2773.
- Trajer J., Paszek A., Iwan S. (2012), *Zarządzanie wiedzą*, PWE, Warszawa.
- Tuan L.T. (2012), *Behind Knowledge Transfer*, “Management Decision”, Vol. 50, Iss. 3, pp. 459-478.
- UNCTAD (2015), *Technology and Innovation Report 2015. Fostering Innovation Policies for Industrial Development*, New York – Geneva.
- Wang P., Li J. (2008), *Untangling the Effects of Over-exploration and Overexploitation on Organizational Performance. The Moderating Role of Environmental Dynamism*, “Journal of Management”, Vol. 34 (5), pp. 925-951.
- Wiśniewska S. (2013), *Skuteczność niekomercyjnych instytucji otoczenia biznesu we wspieraniu innowacji marketingowych małych i średnich przedsiębiorstw*, Wydawnictwo Uniwersytetu Ekonomicznego, Kraków.

**TRANSFER INNOWACJI JAKO CZYNNIK ROZWOJU PRZEDSIĘBIORSTW
SEKTORA MŚP W POLSCE**

Streszczenie: Sektor małych i średnich przedsiębiorstw rozwija się w Polsce w zawrotnym tempie. Tylko mała ich część decyduje się na samodzielne wyodrębnienie i nazwanie czynników, które wpływają na ich efektywność i tempo rozwoju. Ważne jest jednakże wskazanie na to, iż dostępne listy czynników wpływających na wydajność przedsiębiorstw sektora MŚP są niekompletne, gdyż nie uwzględniają one ich specyfiki. Dostępna literatura w jednowymiarowy sposób podkreśla wpływ oraz znaczenie wewnętrznych i zewnętrznych czynników na proces tworzenia innowacji w MŚP. Zasadniczo opisuje się jedynie kluczową rolę zasobów materialnych i finansowych, uznając je za główną siłę napędową sukcesu procesu innowacyjnego w sektorze MŚP. Celem niniejszego artykułu jest próba zapalenia tej luki informacyjnej. Rekomendacje wskazane w artykule mogą stać się istotnym narzędziem, które przyczyni się do rozwoju przedsiębiorstw sektora MŚP.

Słowa kluczowe: transfer innowacji, kluczowe czynniki sukcesu, sukces firm MŚP.