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Innovation as a determinant of SMEs competitiveness in Poland

The aim of the paper is to present the impact of innovations on the competitiveness of Polish small and medium-sized enterprises (SMEs) and to analyse the trends in implementing innovations in the sector of Polish SMEs in 2012–2015 in eight areas of operation: new products or services, new approach to customer service, expansion into new geographic markets, significant changes of the existing offer, significant organizational changes, changes in technology or method of production of goods or services, marketing innovations, and changes in distribution methods. The method of direct interview was used to collect data from the respondents representing the SME sector. Data have been analysed using correspondence analysis which allowed to build a model summarizing the results of the correspondence between groups of enterprises and types of innovations.

Keywords: competitiveness, innovations, Polish SMEs

JEL classification: D210, M21

Innowacje jako wyznacznik konkurencyjności MŚP w Polsce

Celem artykułu jest przedstawienie wpływu innowacji na konkurencyjność polskich małych i średnich przedsiębiorstw (MŚP) oraz analiza tendencji we wdrażaniu innowacji w sektorze polskich MŚP w latach 2012–2015. Wdrażanie innowacji dotyczy ośmiu obszarów działalności: nowy produkt lub usługa, nowy sposób obsługi klienta, ekspansja na nowe rynki geograficzne, istotne zmiany istniejącej oferty, istotne zmiany w organizacji, zmiany w technologii lub metodzie produkcji towarów lub usług, innowacje marketingowe oraz zmiany w metodach dystrybucji. Weryfikacja założeń nastąpiła w oparciu o badania empiryczne zrealizowane metodą wywiadu bezpośredniego przeprowadzonego z respondentami reprezentującymi sektor MŚP. Dane analizowano za pomocą analizy korespondencji, która pozwoliła na zbudowanie modelu prezentującego podsumowanie wyników korespondencji między grupami przedsiębiorstw i rodzajami innowacji.

Słowa kluczowe: konkurencyjność, innowacje, polskie przedsiębiorstwa MSP

Klasyfikacja JEL: D210, M21

Introduction

High volatility and high competitiveness are characteristic features of the modern economy. Competitiveness has become a necessary condition for success in the market, driving enterprises to search for new business solutions to improve their competitive position. This situation forces companies to engage in a continuous struggle for development and orientation towards consumer needs. Knowledge, entrepreneurship, and innovativeness are becoming more and more important. Innovativeness, understood as an ability to create and implement innovation, allows to introduce new and significantly improved products to the market and implement new or improved technological, organizational, or technical processes. To achieve an effective competitive advantage, companies should strive to be ahead of others in seeking all that is innovative and difficult to imitate. Only companies that systematically strengthen their competitive position are able to stay in business. Competitive advantage can be largely achieved by continually striving towards higher innovativeness and thus improving efficiency.

1. Innovations in building competitive advantage

As one of the basic features of a market economy, competition also characterizes Polish enterprises, which debuted on the global market as a result of political and economic changes that occurred in the late 1980s and 1990s in Central and Eastern Europe. The period of transformation begun with citizens obtaining access to various sectors of the economy, lifting many legal barriers, and creating huge opportunities for business development. "Economic freedom creates a chance for companies to undertake various kinds of activities, limited only by the system and legal norms aimed at ensuring a dynamic development and focused primarily on quality" [Żurek, 1999].

Although the issue of the competitiveness of a company has been discussed in the scientific literature for quite some time, no unanimous position has been developed. According to Adamkiewicz-Drwiłło, "the competitiveness of a company can be considered as its ability to continually create development trends, productivity growth, […] and to effectively develop markets for its products, despite its competitors introducing new, better, and cheaper goods or services" [2001]. In this definition, the concept of competitiveness is related to the fact of a company offering a better product than its competitors in terms of quality, price, and functionality.

The concept is more broadly defined by Gorynia [2002], who considers competitiveness to be the company's ability to effectively compete in the market, thus

ensuring the effectiveness of its operations and development in a competitive environment.

Competition is therefore both a feature and a mechanism for regulating companies' behaviour in the market, which determines their competitive potential and governs the use of intangible and material resources necessary to compete in the market [Jankowska-Mihułowicz, 2008]. Moreover, competitiveness:

- is a relative quality, meaningful only when compared to other companies in the same sector, the same strategic group, or to a perfect enterprise (real or imagined),
- is built upon decisions made by high-level managers, which directly or indirectly contribute to the long-term, multi-dimensional business development (especially in the key dimensions of competitiveness: purposeful, economic, systemic, and social),
- involves developing competitive advantage and then consistently building a competitive strategy around this advantage,
- enables increasing competitive strength and even taking leadership in the market,
- is the goal of company's activities achieved through meeting different strategic goals (including satisfying customer needs and building customer satisfaction).

The skills required to gain a sustainable competitive advantage in the market form the so-called key competitiveness [Faulkner, Bowman, 1996]. In addition to key competitiveness, Faulkner and Bowman also distinguish basic competitiveness, consisting either of specific technical skills important in a given market (operational competitiveness) or of activities undertaken in the area of overall performance and costs (system competitiveness). System competitiveness involves providing value, increasing value, and implementing innovations.

The sources of the competitiveness of enterprises include different areas of their operations, i.a., production, distribution, marketing, technology, position in the market, uniqueness of them and their products, management quality, knowledge and information, time management [Szymański, 1995].

The competitive position of a company is determined by its orientation towards innovation, which is why companies strive to achieve maximum benefit from being the first to gain an innovative advantage and thus strengthen their position in the market. Low-cost and high-quality products and customer service are considered to be traditional sources of competitiveness. Meanwhile, the importance of non-traditional competitiveness sources, such as fast reaction, knowledge, building entry barriers for competitors, financial resources, and strong position in the sector, is significantly increasing [Zorska, 2008].

The factors affecting the competitiveness of a company, regardless of its core business, can be divided into internal (related to decisions made at different levels

of management regarding the development of production, cost reduction, improving the quality of manufactured goods and services, introducing new types of goods or services, increasing productivity) and external (those come into play when a company's influence is limited or non-existent and relate primarily to applicable legal and technical standards) [Adamkiewicz, 1999]. Skilful use of methods improving business productivity directly increases the competitiveness of not only one company but also the whole country's economy.

Increased competitiveness in the market allows companies to consider new forms of business operations and grasp the opportunities stemming from the rapid development of technologies. In the global market, the competitive advantage of a company is mainly ensured by identifying the major benefits for a purchaser which simultaneously form a base for distinguishing the company's offer from competing offers.

The classic approach to innovation proposed by Schumpeter [1960] defines it as implementation of a new product or a new method of production, opening new markets, acquiring new sources of raw materials, or establishing a new type of business organization. Drucker [1992], in turn, defines innovation as "a specific tool of entrepreneurs, by means of which they transfer a change into an opportunity to take up a new business or to provide new services". According to Kotler [1999], on the other hand, innovation refers to a product or an idea that may have existed for a long time, but is subjectively perceived by someone as new. In narrow terms, innovation is the first launch of a new product, process, or system. From a technological point of view, innovation is defined as a desire to move away from the existing technologies or practices and implement new ones in order to adapt to the changes in the market conditions. Some definitions, instead of focusing solely on a technical, economic, marketing, or organizational point of view, use a multi-faceted approach; the behavioural approach, for instance, centres around the changes in behaviour and willingness to accept new ideas by the consumer or the company compared to other market participants.

According to the Oslo methodology[1], innovative activity consists of a series of actions having scientific, technical, organisational, financial, and commercial characteristics that aim at elaboration and introduction of new or markedly improved products and processes; at the same time, these products and processes are new at least from the viewpoint of the company introducing them [CSO, 2007]. Bachnik [2006] understands innovativeness as a company's ability to conduct constant re-

[1] The Central Statistical Office of Poland (Główny Urząd Statystyczny) has a long and rich tradition of statistical research on innovation. The system of statistical research on business innovation activities conducted by the Office is based on international standardisation methodology called the "Oslo methodology" (developed by the OECD and Eurostat in the *Oslo manual: Proposed guidelines for collecting and interpreting technological innovation data*), which represents a generally accepted international standard currently applied to statistical research on innovation in all developed countries in the world.

search as well as to implement and spread innovation. It is a process comprising a series of actions leading to the establishment and first implementation of new technological solutions, i.e., new or modified products, processes, and organisational changes [Romanowski, 2000]. Innovation is the consequence of a process that, from the point of view of the company, results in the launch of new solutions. As noted by Pomykalski [2001], creating innovations consists in coming up with a theoretical concept, developing a technological invention, and its commercial exploitation, i.e., introduction and diffusion throughout the market.

Innovation can be understood as the result of a process of identifying the problems facing the company and actively developing new knowledge to solve them. Therefore, in order to introduce some standardization of terms, the paper adopts the following definition of innovation: a technological or non-technological solution applied for the first time in a given enterprise or community that allows it to achieve certain economic and social benefits. It is a deliberately designed change that alters the existing status and concerns, e.g. by introducing a new or improved product, process, organizational method, or way of managing marketing, finances, or human resources [Oniszczuk-Jastrząbek, 2013].

An important issue in assessing innovation is to identify the degree of novelty that distinguishes radical and incremental innovations. Any change considered as innovation can be analysed as a novelty for the company, the industry, the market, or the buyers [Baruk, 2004]. It should be noted that radical innovations are a source of a long-term competitive advantage, while incremental innovations can only produce a short-term competitive advantage as they are implemented by many companies operating in the market [Oniszczuk-Jastrząbek, 2013].

Today, innovations are considered as one of the most important factors of the development of companies because of their impact on entrepreneurship and thus on the competitive capacity and position in the market. The pace and scope of creating and implementing innovations impacts the operations of companies on many levels and becomes one of the most important factors of their competitiveness by bringing many advantages in different areas, e.g., increasing sales revenue, market share, productivity, and efficiency [Oniszczuk-Jastrząbek, 2016].

Recognizing innovation as one of the most important factors in building the competitive capacity of a company stems directly from its characteristics [Skawińska, 2002]:

- its name contains the element of novelty and change, it is dynamic and creative,
- it is associated with other factors that affect the strengthening of a competitive ability, and thus the overall efficiency of the company,
- has a strong impact on the creation of demand.

Technological innovations involve developing new or improved products and introducing them into the market or implementing new or improved produc-

tion processes in order to increase revenue. In contrast, non-technological innovations can be divided into [Oniszczuk-Jastrząbek, 2013]:

- financial innovations, e.g., new forms, ways, and methods of financing and development (new sources of financing and revenue, savings, e-business development, investment, improved accounting liquidity),
- organizational innovations, e.g., new solutions in organizational structures (division of tasks, information, power) and organization of processes (work, information, decision-making), mergers and acquisitions, internationalization, implementation of advanced management support systems, quality management systems, or supply chain management systems, winning strategic investors, signing strategic alliances,
- innovations in human resources management, e.g., employee training, effective work management and organization, development of incentive schemes conducive to innovation, generating ideas, knowledge exchange, change of recruitment and employment systems, flexible working hours and employee development system, instituting task forces and knowledge management appointments,
- marketing innovations, e.g., entering new markets, introduction of new brands, products, and after-sales service systems, forms of market communication and promotion, methods of pricing, distribution management, market research and analysis, and financing marketing activities, use of new advertising media, change of business profile, outsourcing or offshoring marketing efforts.

Proper management, in which a special place is granted to innovation, has become especially important in modern day business as it determines company success. The implementation of a new strategy should result from the rational use of resources and, in turn, bring competitive advantage, thus strengthening the competitive position of a company. Determining a specific strategy is therefore of great importance for further development [Bojewska, 2009].

2. Small and medium-sized enterprise sector in Poland

The recommendation of the Commission of the European Communities of 6 May 2003, which defines micro, small, and medium-sized enterprises, came into force in Poland on 1 January 2005. According to the definition, in so-called microenterprises employment does not exceed 10 people and annual turnover does not exceed EUR 2 mn. This definition is confirmed by the Polish law in the Act on freedom of economic activity of 2004. Polish legislation also distinguishes small and medium-sized

enterprises. This way of defining enterprises was the intention of the EU, which could thereby increase the number of entrepreneurs eligible for the EU aid.

Small and medium-sized enterprises have a similar impact on the Polish economy as is observed in more developed countries. It can be bear out by the largest number of SMEs in Poland, as well as throughout Europe. According to the Polish Central Statistical Office, SMEs account for almost three-quarters of Polish GDP. After a slight decrease in 2010 and 2011, in 2012 their share in GDP amounted to 73.0%, which could mean a return to the upward trend observed in 2006–2009. SMEs generate every second zloty (48.5%), out of which nearly one-third (29.7%) is generated by microenterprises, while the share of medium-sized businesses is three times smaller (11.0%) and the share of small companies is almost four times smaller (7.8%). In 2012, the share of micro and medium-sized businesses in GDP increased as compared to 2011, while the share of small and large enterprises (employing 250 people or more) remained at the same level [Qualifact, 2014].

According to Eurostat data, in 2011 there were ca. 22 million companies in the EU-28. The largest number of companies operate in Italy (3.8 million, ca. 2.5 times more than in Poland). The second place in terms of small enterprises belongs to France (2.6 million), followed by Germany (2.2 million) and Spain (2.1 million). A similar number of companies as in Poland operates in the UK (1.7 million). In Central Europe, the number of companies reached 1 million in the Czech Republic, followed by Hungary (550,000), Slovakia (415,000), Romania (409,000), and Bulgaria (310,000). However, a different picture emerges when comparing the number of enterprises to the population of a given country – in Poland, there are only 40 enterprises per 1,000 inhabitants. In the EU, this indicator is the highest in the Czech Republic (96), followed by Portugal (79), Slovakia (77), Sweden (69), and Italy (63), and the lowest in Romania (20), Germany (26), and the UK (27) [Qualifact, 2014].

An analysis of the dynamics of the number of SMEs in Poland in the years 2004–2012 reveals that in 2006–2008, which was a period of economic recovery, this number was increasing (average annual growth of 2.1%). In 2009 the number of SMEs declined by 6.4%, but in 2010–2012 it started increasing again (average annual growth of 2.3%) [Qualifact, 2014]. In 2011–2013, companies considered as innovative accounted for 18.4% and 12.9% of the total number of production and service entities, respectively (compared to 17.7% and 13.9% in 2010–2012), and the highest share of innovative companies was again recorded among large enterprises. In 2011–2013, the share of innovative enterprises reached 17.1% among production companies and 11.4% among service companies. In 2010–2012, these values were higher by 0.6% and lower by 1.0%, respectively. Again, product and process innovations were most frequently introduced by large companies (57.7% of production companies and 45.6% of service companies, compared to 56.2% and 44.7% in the previous period, respectively) [Kacperczyk, Rzymek, 2014].

In the analysed period, organizational innovations were implemented by 8.3% of production companies and 7.1% of service companies. Compared to the years 2010–2012, these shares were lower by 2.0% and 3.4%, respectively. As in the previous period, such innovations were mostly implemented in large enterprises. In 2011–2013, marketing innovations were implemented by 7.5% of production companies and 7.0% of service companies. In 2010–2012, these shares were higher by 2.7% and 4.1%, respectively. Among production enterprises, marketing innovations were usually implemented by those involved in production of beverages (26.2% compared to 27.6% in 2010–2012), and among service by those dealing with insurance, reinsurance, and pension funds (45.2% compared to 39.2% in 2010–2012) [Kacperczyk, Rzymek, 2014].

The innovative activity of enterprises is therefore particularly sensitive to adverse changes in economic conditions, as in response to growing financial difficulties enterprises first reduce spending on innovations. It should also be noted that during recession banks, market participants, and investors are sceptical about the risks associated with pro-innovation activities, which limits access to external financing sources, and this, in turn, makes short-term innovations more popular. Generally, low innovativeness of Polish enterprises is a consequence of their financial situation and insufficient interest in conducting research and development activities characterized by high risk of failure.

The main factors hindering the implementation of innovative projects include economic (high costs, lack of funds) and internal reasons (inflexible organizational structures, lack of qualified personnel, market information, and technology), as well as regulations, standards, rules, and the customer's unresponsiveness to new products [Oniszczuk-Jastrząbek, 2013]. The development of SMEs indicates broadly understood entrepreneurial inclination of a community, as they constitute ca. 99% of all business entities in Poland. They create the majority of jobs and make a significant contribution to GDP. In the period of crisis and slow economic growth, entrepreneurial behaviour is what allows small and medium-sized enterprises to strengthen their competitive position.

3. Innovations in the SME sector – research results

3.1. Research method

The data was collected through direct interviews with respondents representing the SME sector. The samples are representative for each group. To present the results independently from the number of employees shown in the report as total SMEs (total weighted data), a system of weightings was developed to obtain re-

sults for the entire market. The interviews were conducted in the following periods: 9 March 2012 – 30 March 2012, 12 April 2013 – 12 May 2013, 20 March 2014 – 11 April 2014, and 5 March 2015 – 26 March 2015. The research covered all 16 provinces: mazowieckie, śląskie, wielkopolskie, małopolskie, dolnośląskie, łódzkie, kujawsko-pomorskie, pomorskie, lubelskie, podkarpackie, zachodnio-pomorskie, opolskie, lubuskie, świętokrzyskie, warmińsko-mazurskie, and podlaskie.

Table 1. Size of sample

Year	Total SMEs	Micro (0–9 employees)	Small (10–49 employees)	Medium-sized (50–249 employees)
2012	1,094	n = 612	n = 318	n = 164
2013	1,094	n = 603	n = 300	n = 200
2014	1,100	n = 600	n = 300	n = 200
2015	1,100	n = 600	n = 300	n = 200

Source: [Qualifact, 2012, p. 7; 2013, p. 7; 2014, p. 7; 2015, p. 7].

Companies representing the SME sector were selected randomly from a list prepared by the Polish Central Statistical Office. The systematic sampling algorithm was developed by a team of specialists from the Qualifact company. Thanks to the layering of the researched population by section (manufacturing, construction, commerce, hotels/restaurants, transport, financial services, real estate agencies, education, other, etc.) and province it was possible to select representatives of various sectors of the economy in the right proportions.

3.2. Types of innovations

In the analysed period of 2012–2015, growing innovativeness is observed in all three groups of enterprises. The share of enterprises declaring implementation of innovations increased by 1.6% in micro, by 10.4% in small, and by 8.4% in medium-sized enterprises. Along with the number of employees, willingness to implement innovations also increases. In 2012, 24.7% of micro, 28.6% of small, and 34.1% of medium-sized companies implemented innovations. In 2015, innovations were implemented in 26.3% of micro, 39% of small, and 42.5% of medium-sized companies.

In 2012, the most frequently introduced innovations were related to new products or services (12.9%), followed by new approach to customer service (4.5%), expansion into new geographic markets (3.8%), significant changes in the existing offer (3.0%), significant organizational changes (3.0%), changes in technology or method of production of goods or services (2.8%), marketing (2.5%), and changes in distribution methods (2.0%).

Table 2. Implementation of innovations in Polish SMEs

Year	Implementation of innovations	Total SMEs (%)	Micro		Small		Medium-sized	
			n	%	n	%	n	%
2012	No	75.1	461	75.3	227	71.4	108	65.9
	Yes	24.9	151	24.7	91	28.6	56	34.1
	Total	100	612	100	318	100	164	100
2013	No	74.4	449	74.7	208	69.3	132	66.7
	Yes	25.6	152	25.3	92	30.7	66	33.3
	Total	100	601	100	300	100	198	100
2014	No	78.7	476	79.3	200	66.7	132	66.0
	Yes	21.3	124	20.7	100	33.3	68	34.0
	Total	100	600	100	300	100	200	100
2015	No	73.0	442	73.7	183	61.0	115	57.5
	Yes	27.0	158	26.3	117	39.0	85	42.5
	Total	100	600	100	300	100	200	100

Source: [Qualifact, 2012, p. 57; 2013, p. 57; 2014, p. 55; 2015, p. 50].

Introduction of new products or services remained the dominant type of innovation in SMEs in the following years (18.4% in 2013, 14.7% in 2014, 20.4% in 2015). The highest increase of interest in this type of innovation was observed in medium-sized enterprises (by 16.9% in 2012–2015), followed by small and microenterprises (by 11.2% and 7.3%, respectively).

The share of enterprises introducing new approaches to customer services decreased from 4.5% in 2012 to 2.4% in 2015. The same trend was observed in other types of innovations (2.2% decline in expansion into new geographic markets, 0.2% in significant changes in the existing offer, 1.5% in significant organizational changes, 0.5% in changes in technology or method of production of goods or services, and 1.2% in changes of distribution methods).

Although the number of SMEs implementing the above types of innovations (excluding introduction of new products or services) has been declining in general, we can still observe a certain growth tendency, especially in small enterprises. In the years 2012–2015, this group recorded an increase in all but one type of innovations, particularly related to changes in technology or method of production of goods or services (2.5%) and changes of distribution methods. An increase was also recorded in medium-sized enterprises, but only with regard to introducing new products or services (16.9%), significant changes to existing offer (2.4%), and changes in distribution methods (0.7%).

Table 3. Implementation of innovations in Polish SMEs

Year	Total SMEs (%)	Micro		Small		Medium-sized	
		n	%	n	%	n	%
New products or services							
2012	12.9	79	12.9	43	13.5	19	11.6
2013	18.4	110	18.3	61	20.3	38	19.2
2014	14.7	87	14.5	56	18.7	40	20.0
2015	20.4	121	20.2	74	24.7	57	28.5
New approach to customer service							
2012	4.5	28	4.6	11	3.5	7	4.3
2013	4.5	27	4.5	11	3.7	10	5.1
2014	3.9	23	3.8	14	4.7	7	3.5
2015	2.4	14	2.3	11	3.7	2	1.0
Expansion into new geographic markets							
2012	3.8	23	3.8	12	3.8	13	7.9
2013	2.6	15	2.5	14	4.7	7	3.5
2014	2.0	11	1.8	14	4.7	14	7.0
2015	1.6	9	1.5	12	4.0	11	5.5
Significant changes in the existing offer							
2012	3.0	18	2.9	12	3.8	4	2.4
2013	2.7	16	2.7	11	3.7	10	5.1
2014	3.7	21	3.5	21	7.0	13	6.5
2015	2.8	16	2.7	19	6.3	12	6.0
Significant changes in the organization							
2012	3.0	18	2.9	15	4.7	7	4.3
2013	1.9	11	1.8	10	3.3	6	3.0
2014	1.9	11	1.8	9	3.0	9	4.5
2015	1.5	9	1.5	7	2.3	6	3.0
Changes in technology/method of production of goods/services							
2012	2.8	17	2.8	9	2.8	13	7.9
2013	2.5	15	2.5	8	2.7	16	8.1
2014	3.0	17	2.8	18	6.0	15	7.5
2015	2.3	13	2.2	15	5.0	12	6.0
Marketing innovations							
2012	2.5	15	2.5	11	3.5	5	3.0
2013	2.7	16	2.7	7	2.3	9	4.5
2014	1.6	9	1.5	9	3.0	5	2.5
2015	0.6	3	0.5	8	2.7	2	1.0
Changes in distribution methods							
2012	2.0	12	2.0	8	2.5	3	1.8
2013	2.2	13	2.2	7	2.3	5	2.5
2014	1.0	5	0.8	14	4.7	9	4.5
2015	0.8	4	0.7	9	3.0	5	2.5

Year	Total SMEs (%)	Micro		Small		Medium-sized	
		n	%	n	%	n	%
Lack of innovations							
2012	75.1	461	75.3	227	71.4	108	65.9
2013	74.4	449	74.7	208	69.3	132	66.7
2014	78.7	476	79.3	200	66.7	132	66.0
2015	73.0	442	73.7	183	61.0	115	57.5

Source: [Qualifact, 2012, p. 58; 2013, p. 58; 2014, p. 56; 2015, p. 51].

3.3. Results of the correspondence analysis

Correspondence analysis is a multivariate statistical technique proposed by Hirschfeld [1935] and developed by Benzécri [1973]. It is conceptually similar to principal component analysis, but applies to variables in nominal measurement scale. It also provides a means of displaying or summarizing a set of data in two-dimensional projection. Correspondence analysis decomposes the chi-squared statistic associated with contingency table into orthogonal factors. Because it is a descriptive technique, it can be applied to tables whether they have been chi-squared or not. Correspondence analysis also creates orthogonal components

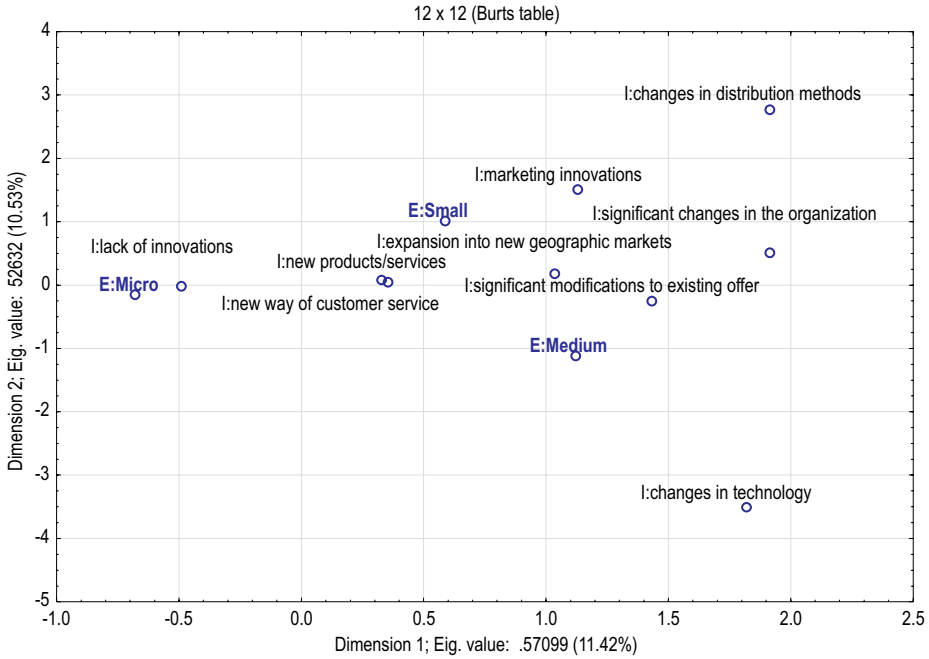

Figure 1. Results of the correspondence analysis for implementation of innovations in Polish SMEs

Source: Own elaboration.

and, for each item in a table, a set of scores (called factor scores). The term "correspondence" denotes a "system of associations" between the elements of two sets. The key factor in interpreting the obtained model of results is the distance between cases representing the frequency of synergies. The strength of association is growing with diminishing distance between the two analysed variables [Czechowski, Badyda, Majewski, 2013].

The analysis revealed a strong correspondence between microenterprises and lack of innovations. In the analysed period, a large number of microenterprises did not introduce any innovations, perhaps as a result of a lack of financial resources and market barriers. Small and medium-sized enterprises most often introduced non-technological innovations. The most frequently introduced innovations in small businesses included marketing innovations and expansion into new geographic markets. Medium-sized companies introduced mostly changes in their offer and new approaches to customer service. It should be remembered that small and medium-sized enterprises, often struggling with financial constraints, cannot afford to introduce expensive innovations and make the necessary investments. They usually implement innovations that are not necessarily linked to the disbursement of funds, but if they contribute to their development, it gives them a chance to stay in business.

Conclusions

The rate of changes in the economic, technological, political, and legal environment, the expanding markets, and the complexity of forecasting consumer demand, behaviour, and preferences play special roles in the decision-making process of a modern company. Therefore, in order to gain a competitive advantage, it is essential to maintain high innovativeness, i.e., ensure the implementation of new solutions, ideas, and concepts that contribute to the improvement of competitiveness on a global scale. Creating conditions for the development of entrepreneurship should involve creating a friendly environment system, supporting innovation, improving the legal environment (regulatory reform), as well as an active cooperation between businesses and administration. These factors can facilitate building a sustainable advantage in an increasingly competitive global market.

It should be noted that the institutional environment within which companies operate largely determines their development potential. Difficult and complicated legal regulations, high taxes and fees discourage people from setting up and running businesses, reduce the effectiveness of existing companies, and ultimately contribute to weakening the competitive position of companies and the entire economy, while clear and simple rules foster the development of entrepreneur-

ship. Steps that may be taken to increase opportunities for development therefore include: removing barriers to the demand for goods and services produced in the country, expanding sales opportunities in foreign markets by easing the fiscal burden (taxes and social security contributions), facilitating access to sources of capital, building new businesses, supporting entrepreneurs who want to find their niche in the market by management sciences, and improving the qualifications of entrepreneurs and employees.

References

Adamkiewicz H., 1999, *Uwarunkowania konkurencyjności przedsiębiorstw w gospodarce rynkowej*, Wydawnictwo Akademii Morskiej w Gdyni, Gdynia.

Adamkiewicz-Drwiłło H.G., 2001, *Adaptacja rynkowa jako istotny czynnik strategiczny osiągnięcia sukcesu przez przedsiębiorstwo w warunkach globalizacji*, Prace Naukowe Katedry Zarządzania, Wyższa Szkoła Morska, Gdynia.

Bachnik K., 2006, *Innowacyjność jako jeden z kluczowych elementów polityki Unii Europejskiej*, [in:] *Innowacyjność w teorii i praktyce*, ed. M. Strużycki, Oficyna Wydawnicza SGH, Warszawa.

Baruk J., 2004, *Innowacje jako instrument zarządzania współczesnym przedsiębiorstwem*, [in:] *Instrumenty i formy organizacyjne procesów zarządzania w społeczeństwie informacyjnym*, t. 1, ed. A. Stabryła, Wydawnictwo Akademii Ekonomicznej w Krakowie, Kraków.

Benzécri J.-P.,1973, *L'Analyse des Données*, vol. 2: *L'Analyse des Correspondances*, Dunod, Paris.

Bojewska B., 2009, *Zarządzanie innowacjami jako źródło przedsiębiorczości małych i średnich przedsiębiorstw w Polsce*, Szkoła Główna Handlowa, Warszawa.

CSO, 2007, Central Statistical Office, *Science and Technology in Poland in 2006*, https://stat.gov.pl/files/gfx/portalinformacyjny/en/defaultaktualnosci/3313/1/2/1/science_and_technology_in_poland_in_2006.pdf [access: 07.09.2018].

Czechowski P.O., Badyda A., Majewski G., 2013, *Data mining system for air quality monitoring networks.* Archives of Environmnetal Protection, vol. 39, no. 4.

Drucker P.F., 1992, *Innowacja i przedsiębiorczość. Praktyka i zasady*, PWE, Warszawa.

Faulkner D., Bosman C., 1996, *Strategie konkurencji*, Gobether i S-ka, Warszawa.

Goławska M., 2004, *Koncepcja innowacyjności*, Marketing i Rynek, vol. 11.

Gorynia M., 2002, *Luka konkurencyjna na poziomie przedsiębiorstwa a przystąpienie Polski do Unii Europejskiej*, Wydawnictwo Akademia Ekonomiczna w Poznaniu, Poznań.

Hirschfeld H.O., 1935, *A connection between correlation and contingency*, Proceeding of the Cambridge Philosophical Society, vol. 31.

Jankowska-Mihułowicz M., 2008, *Decyzje menedżerskie jako wewnętrzne czynniki konkurencyjności przedsiębiorstw*, [in:] *Przedsiębiorstwo w otoczeniu globalnym*, eds. O. Dębicka, A. Oniszczuk-Jastrząbek, T. Gutowski, J. Winiarski, Fundacja Rozwoju Uniwersytetu Gdańskiego, Gdańsk.

Jasiński A.H., 2006, *Innowacje i transfer techniki w procesie transformacji*, Wydawnictwo Difin, Warszawa.

Kacperczyk E., Rzymek B. (eds.), 2014, *Działalność innowacyjna przedsiębiorstw w latach 2011–2013*, Główny Urząd Statystyczny, Warszawa.

Kotler P., 1999, *Marketing-analiza, planowanie, wdrożenie i kontrola*, Wydawnictwo Felberg SJA, Warszawa.

Oniszczuk-Jastrząbek A., 2013, *Przedsiębiorczość w budowaniu zdolności konkurencyjnej przedsiębiorstwa*, Wydawnictwo Uniwersytetu Gdańskiego, Gdańsk.

Oniszczuk-Jastrząbek A., 2016, *Wdrażanie innowacji technologicznych i nie technologicznych*, [in:] *Przedsiębiorstwo. Drogi sukcesu rynkowego*, ed. J. Żurek, PWE, Warszawa.

Pomykalski A., 2001, *Innovation management*, PWN, Warsaw.

Qualifact, 2012, *Finanse MSP 2012. Rynek usług ubezpieczeniowych*, Gdańsk.

Qualifact, 2013, *Finanse MSP 2013. Rynek usług ubezpieczeniowych*, Gdańsk.

Qualifact, 2014, *Finanse MSP 2014. Rynek usług ubezpieczeniowych*, Gdańsk.

Qualifact, 2015, *Finanse MSP 2015. Rynek usług ubezpieczeniowych*, Gdańsk.

Ustawa z dnia 2 lipca 2004 r. o swobodzie działalności gospodarczej, Dz. U., 2004 r., nr 173, poz. 1807, art. 104–106.

Romanowski R., 2000, *Innovations as determinants for the strategic activities*, [in:] *Premises and implements for undertaking marketing decisions*, The Poznań University of Economics, Poznań.

Schumpeter J., 1960, *Teoria rozwoju gospodarczego*, PWN, Warszawa.

Skawińska E., 2002, *Reakcja na zmiany a konkurencyjność przedsiębiorstw*, [in:] *Konkurencyjność przedsiębiorstw – nowe podejście*, ed. E. Skawińska, PWN, Warszawa–Poznań.

Szymański W. (ed.), 1995, *Przedsiębiorstwo, rynek, konkurencja*, Wydawnictwo SGH, Warszawa.

Zadura-Lichota P., Tarnawa A. (eds.), 2014, *Raport o stanie małych i średnich przedsiębiorstw w Polsce w latach 2012–2013,* Polska Agencja Rozwoju Przedsiębiorczości, Warszawa.

Zorska A., 2008, *Przemiany konkurencji międzynarodowej w wyzwania dla polskich przedsiębiorstw*, [in:] *Przedsiębiorstwo w otoczeniu globalnym*, eds. O. Dębicka, A. Oniszczuk-Jastrząbek, T. Gutowski, J. Winiarski, Fundacja Rozwoju Uniwersytetu Gdańskiego, Gdańsk.

Żurek J., 1999, *Warunki poprawy konkurencyjności przedsiębiorstw żeglugi morskiej. Konkurencyjność transportu morskiego Polski*, FRUG, Gdańsk.

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