

INNOVATIVE ACTIVITIES OF SMALL AND MEDIUM-SIZED ENTERPRISES IN POLAND

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Abstract

Specialist literature offers a range of definitions of innovation. It most commonly denotes implementation of new or significantly improved product, manufacturing process, organisation and marketing solutions to economic practice.

This paper is aimed at analysing and evaluating innovation activities of enterprises in the Polish economy.

It presents results of the author's research into 106 enterprises operating in the Mazovian region concerning the period 2010-2014.

Four research hypotheses are postulated, concerning the dependence between size of an enterprise and frequency of its innovation activities, reasons for and limitations to implementing innovations by enterprises, and the most common types of innovations introduced to businesses.

The research undertaken suggests small enterprises introduce innovations less frequently than medium-sized businesses do. Entrepreneurs normally state the following are the most common reasons for introducing innovations: expansion of the product range, improvement of product quality, increasing market share and improving competitiveness. Shortage of financial resources for such actions is the most frequently declared reason for not introducing innovations, on the other hand. Small and medium-sized enterprises primarily introduce changes that consist in improvement of existing products, introduction of a new product or of new marketing methods, including changes to product packaging, promotion or pricing.

Key words: innovation, enterprises, competitiveness.

JEL Code: O31,O32,L25.

Introduction

The importance of innovation and advanced technologies as factors determining economic processes is growing in the contemporary economy. Innovation standard of an enterprise has

considerable impact on lines and rate of economic development. By implementing technological, process and organisational innovations, one can cut production costs, improve quality of products and increase export revenue.

Innovation of enterprises is a major area of interest to both theoreticians of economics and other scientific disciplines and specialists – practitioners in areas of economy and enterprise management. It should be noted, however, that innovation remains an illusive concept, associated with notions like: creativity, novelty or change. It most commonly denotes implementation of new or significantly improved product, manufacturing process, organisation and marketing solutions to economic practice.

This paper is aimed at analysing and evaluating innovation activities of enterprises in the Polish economy.

It presents results of the author's research into 106 enterprises operating in the Mazovian region concerning the period 2010-2014.

Four research hypotheses are postulated in this article:

- H1. Size of an enterprise affects frequency of its innovation activities.
- H2. Small and medium-sized enterprises most often introduce product and marketing innovations.
- H3. Shortage of investment capital is the most common reason for limiting innovation activities of enterprises.
- H4. Increasing the range of commodities produced is the most frequent reason for implementing innovations.

Innovations by enterprises primarily encompass creation or modification of existing processes, products, methods and techniques of action that should be perceived by a business as new and progressive in a given area. Such innovations lead to greater efficiency of resources available to an enterprise.

1 Review of literature

Innovativeness is a common term in books and papers in a variety of scientific disciplines (Merickova et al., 2015; Harmancioglu et al., 2010; Maráková et al., 2015; Nowacki & Bachnik, 2016), which produces a high number of definitions. It is currently regarded as a socio-economic development determinant of enterprises and entire states. The debate on the role of innovation in the economy was initiated by J. Schumpeter, who believed it is the basic factor of economic growth. His definition of innovation comprised (Schumpeter, 1939):

- Introduction of new or improvement of existing products,
- Introduction of new or improvement of existing manufacturing processes,
- Application of a new methods of sale or purchasing,
- Opening of a new market,
- Application of new raw materials or intermediate products,
- New organisation of manufacturing.

Economic literature also offers a narrow interpretation of innovation, according to which innovations are changes in the area of manufacturing (methods of manufacturing and products) based on new or previously unused knowledge (Barker et al.1958). Other specialists claim innovations are any processes of research and development intended to apply and utilise improved technical, technological and organisational solutions (Freemen & Soete,1997). In turn, Drucker (2006) defines innovation from the viewpoint of change. Change is the foundation of innovation as it leads to creation of new products or services. These products are innovative precisely because they are new and do not copy existing solutions, but introduce something novel, distinctive, different from an earlier state of affairs. Taking advantage of change, innovation creates resources, changes productivity of resources, modifies value and consumer satisfaction with utilisation of resources.

Some authors stress the degree of novelty, treating only absolute novelties as innovations (Schumpeter, 1939; Mansfield, 1968), while others accept novelties that are not necessarily global in scale (Rothwell,1985).

At present, the most frequently employed definition of innovation is the one introduced by the Organisation of Economic Cooperation and Development (OECD): innovation denotes putting into practice of a new or substantially improved solution to a process, production, marketing or organisation.

A number of authors expand the concept of innovation to include not only use of an invention in business but also a series of earlier actions, such as: the act of inventing itself, design, implementation and methods of innovation manufacturing (Duda & Gašior, 2014). Other authors see innovation as an idea which is new and different from earlier ideas or a long-existing idea which has been perceived and used like an innovation by a given enterprise in some specific circumstances. To some, these are minor, insignificant shifts, to others, great and momentous inventions. Table 1 shows selected definitions of innovation.

Tab. 1: Selected definitions of innovation

| Author | Definitions |
|--------|-------------|
|--------|-------------|

| | |
|--|--|
| F. O. Okpara | Innovation is a process that transforms new ideas into new value - turning an idea into value. You cannot innovate without creativity. Innovation is the process that combines ideas and knowledge into new value. Without innovation an enterprise and what it provides quickly become obsolete |
| D. A. Cavagnoli | Process of creative use of knowledge, transformation of knowledge possessed by an organisation or acquired externally into new products, services or processes |
| H.P. Barker, C.F. Carter & B.R. Williams | Introducing an invention that is part of untapped engineering knowledge |
| R. Rothwell | Innovation is 'technical, financial, management, design, manufacturing or marketing actions devoted to commercialisation of a new (or improved) manufacturing process or product |

Source: the author's own compilation on the basis of: Okpara ,2007; Cavagnoli , 2011; Barker et al., 1958; Rothwell ,1985.

These definitions imply innovation may be understood as a tool or process of creating or utilising new ideas. However, it can also be considered as a certain organisational capability. It can be said, therefore, that innovation means ability or tendency of an enterprise to create and introduce new or improved products, processes, methods of marketing, organisation and management.

Innovative capacities of enterprises depend on a range of factors that require launching of new products with high cost effectiveness and at a very fast pace (Wolak-Tuzimek et al., 2015; Sieradzka, 2013). Innovations in enterprises cannot be accidental – they should be analysed and evaluated on a systematic basis.

2. Methodology

The research concerned a group of enterprises active in the Mazovian region. This is the central region (including the capital of Poland) covering 11.4% of the country's area and inhabited by approximately 5 million people. It comes top in terms of the dynamics of economic development and business activity and attracts the most foreign investments. In addition, the proportion of industrial enterprises in Mazovia that introduced innovations in 2012- 2014 was among the highest nationally, reaching 20.2%.

The sample for purposes of the survey has been selected at random in accordance with the first and second principles of randomisation, that is, each element of the general population was eligible for the sample and elements of the same category were taken into account.

The simple random selection was applied. A sample is random where all probabilities of selection of sample elements are identical and constant in the entire process of sampling.

A random sample enables to determine a representative sample of a population in probabilistic terms and in all possible respects. Simple random samples are considered the most appropriate to objective research.

Interviews with respondents were conducted by means of electronic mail surveys. The survey questionnaire (research tool) was distributed to 400 enterprises in June 2014. Telephone calls were made to invite participation in the survey and monitor its progress in parallel. As a result, 106 correctly filled questionnaires were returned by the end of October, producing a return of 26.5%.

Private enterprises, i.e. firms owned by private individuals, and domestic capital companies were queried.

Tab.2: Division of the enterprises surveyed according to size.

| Specification | Micro enterprises | Small enterprises | Medium enterprises | Large enterprises |
|---------------|-------------------|-------------------|--------------------|-------------------|
| 106 | 38 | 29 | 25 | 14 |
| 100% | 35.8% | 27.4% | 23.6% | 13.2% |

Source: The authors' own research.

The survey questionnaire contained metrics on general characteristics of an enterprise and 25 questions. The group of questions regarding conditions of enterprise development comprised 4 questions about innovation:

1. Has your business introduced innovations? If so, state the type of innovations applied.
2. What are benefits from introducing innovation to your business?
3. What are key barriers to implementing innovation in your business?
4. What are sources of financing for innovative activities in your business?

Responses to the first three questions are analysed and evaluated in this paper.

3. Results

Not all enterprises introduced innovations in the survey period of 2010-2014. Employers of 250 and more were most active in this respect (71.4%), while micro-enterprises were the least active (23.7%). This was most likely associated with considerably more funds available to large businesses, some of which could be dedicated to innovative activities. The remaining enterprises could not afford activities of this kind.

Tab.3: Share of innovative enterprises in the group of enterprises examined in 2010-2014 (%)

| Micro enterprises | Small enterprises | Medium enterprises | Large enterprises |
|-------------------|-------------------|--------------------|-------------------|
| 23.7 | 34.5 | 48.0 | 71.4 |

Source: The authors' own research.

With regard to type, product and marketing innovations prevailed throughout the period surveyed. A majority of medium-sized enterprises (58.3%) launched products or services that exhibited new or substantially improved features or applications, whereas employers of between 10 and 49 showed a poorer performance (40.0%). A similar share of medium-sized and small enterprises (50% each) carried out marketing innovations involving implementation of new marketing concepts or strategies that were markedly different to the methods previously employed by a given enterprise. They also changed designs of products, packaging, distribution, promotion and pricing. Those entities were more willing to satisfy customer requirements and enter new sales markets.

Tab.4: Types of innovations implemented in 2010-2014 (%)

| Type of innovations | Small enterprises | Medium enterprises |
|----------------------------|-------------------|--------------------|
| Process innovations | 30.0 | 41.7 |
| Product innovations | 40.0 | 58.3 |
| Organisational innovations | 30.0 | 33.3 |
| Marketing innovations | 50.0 | 50.0 |

Source: The authors' own research.

More than 60% of innovating employers of up to 10 stated their innovations had contributed to expansion of their product ranges and improvement of their products' quality. 60.4% and 59% of medium-sized enterprises indicated these impacts, respectively (for 2014). Innovative actions also increased numbers of customers. Innovative products of high quality and originality enhanced consumer demand for new, improved products. 52% small and 48.8% medium-sized enterprises, on average, confirmed their rising market shares. These results suggest introducing innovations brings a great variety of benefits to enterprises.

Tab.5: Benefits from introducing innovations to small and medium-sized enterprises*

| Specification | Small enterprises | | | | | Medium enterprises | | | | |
|--|-------------------|------|------|------|------|--------------------|------|------|------|------|
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2010 | 2011 | 2012 | 2013 | 2014 |
| Growth of customer numbers | 52.4 | 53.0 | 53.7 | 54.0 | 55.8 | 54.7 | 55.1 | 56.6 | 56.0 | 57.4 |
| Improved quality of products/ services | 61.5 | 62.0 | 63.5 | 64.0 | 64.0 | 57.6 | 57.0 | 59.0 | 58.3 | 59.0 |
| Greater competitiveness | 43.7 | 44.2 | 45.0 | 45.0 | 46.5 | 39.7 | 39.2 | 41.4 | 42.8 | 43.3 |
| Rising market share | 49.2 | 51.0 | 52.7 | 53.2 | 54.5 | 45.7 | 47.2 | 49.0 | 50.3 | 52.0 |
| Expansion of product range | 62.1 | 64.5 | 63.7 | 64.1 | 64.1 | 55.7 | 56.9 | 58.5 | 59.0 | 60.4 |

*Several responses could be indicated

Source: The author's own research.

The respondents most often cited the impossibility of financing innovations out of either their own or external capitals as barriers to innovation. More than 64% of small and 48.7% of medium-sized enterprises pointed to these limitations. Financial problems of the enterprises stemmed chiefly from payment bottlenecks and restricted credit ratings. Lack of suitably qualified personnel was the least commonly mentioned barrier to innovation in small and medium-sized enterprises (10.0% and 9.0% in 2014, respectively). This is due to the fact specialists prefer working for large enterprises, where they are able to improve their skills and professional qualifications by attending trainings and internships.

Tab.6:Barriers to implementing innovations by small and medium-sized enterprises*(%)

| Specification | Small enterprises | | | | | Medium enterprises | | | | |
|---|-------------------|------|------|------|------|--------------------|------|------|------|------|
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2010 | 2011 | 2012 | 2013 | 2014 |
| Impossibility of financing with own capital | 35.1 | 34.0 | 34.2 | 33.3 | 32.5 | 28.9 | 30.2 | 29.7 | 29.1 | 29.9 |
| Limited ability to obtain external funding | 34.5 | 33.2 | 32.8 | 33.3 | 31.2 | 20.0 | 19.7 | 19.4 | 18.3 | 18.1 |
| Lack of demand for innovative products | 18.2 | 18.5 | 17.6 | 16.4 | 17.5 | 15.4 | 15.0 | 14.7 | 13.2 | 12.0 |
| High risk of project failure | 33.2 | 31.8 | 32.1 | 33.0 | 33.0 | 22.7 | 21.5 | 21.5 | 20.0 | 19.3 |
| Many competitors in the market | 25.7 | 24.3 | 26.4 | 25.9 | 25.1 | 19.8 | 18.9 | 18.0 | 18.0 | 17.2 |
| Lack of suitably qualified personnel | 12.5 | 11.8 | 13.3 | 12.9 | 12.5 | 10.0 | 10.5 | 9.8 | 9.5 | 9.0 |

*Several responses could be indicated

Source: The author's own research

It should be noted the factors restricting innovation processes can cause three types of effects:

- Delay of innovation processes,
- Interruption of innovation processes in progress;
- Prevention of innovation processes.

Conclusion

Innovation is a continuous process as new technological ideas are adopted at a rapid pace and progress is uninterrupted. A single improvement will not always generate expected effects. To maintain their market standing, enterprises always need further innovations and more changes. Innovative solutions are part of a continuing strategy together with collaboration with scientific centres, regarded as partners in creation of state-of-the-art

solutions. Businesses introducing innovations take effective advantage of their personnel's knowledge.

The hypotheses posited in this paper have been proven in full. Results of a survey in the Mazovian region demonstrate:

1. Size of an enterprise affects frequency of its innovation activities. The dependence is observable that the larger an enterprise, the more often innovations are introduced. As many as 71.4% large enterprises in Mazovia undertook innovative operations, that is, 47.7 percentage points more than micro-enterprises

2. Enterprises most often introduce product and marketing innovations. In 2010-2014, 40.0% of small and 58.3% of medium-sized enterprises on average implemented changes consisting in improvements to their existing products and 50% of the entities introduced new methods of marketing, including significant changes of product design, packaging and promotion and price strategies

3. All the enterprises queried found expansion of their ranges and improvement of their quality to be key reasons for innovating. Approximately 60% of small and medium-sized enterprises indicated these considerations as the most important

4. Shortage of capital was the basic barrier to innovation activities of enterprises. An average of 34% small enterprises pointed to limited possibilities of securing owner capital and 33% cited restrictions on availability of external funding. Medium-sized enterprises, enjoying more opportunities for obtaining third-party capitals in the market, claimed their main problems related to securing of their own capital (29% responses on average).

All enterprises, even the smallest businesses, feel intense innovation pressures at the moment, commonly in a number of areas at the same time. Effectiveness of entrepreneurs in this respect is largely dependent on their competences, management skills and development strategies adopted.

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