

INNOVATIVENESS AS AN ELEMENT OF ENTERPRISE COMPETITIVENESS

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ABSTRACT

Innovative activities of selected industrial enterprises were estimated in the paper. Compared were small and medium-sized enterprises and the basis for comparison were survey studies on innovation level in firms. Innovativeness was defined in the studies as individual enterprise ability to create new products improving the competitiveness of enterprises.

KEY WORDS

innovativeness, competitiveness, competences, creativity

INTRODUCTION

At the time of constantly changing conditions of enterprise management it is particularly important to respond to the occurring transformations. Enterprises constantly undergo a process of major changes. Both external trends and their own internal changes affecting them cause that efficient management of changes becomes a most important element of their activity. Recognising the character and causes of these transformations is a crucial element of efficient change management and endeavours connected with them, particularly in the case of innovative enterprises. Strong competition which rules the contemporary market requires efficient activities from firms to guarantee their market success.

One of basic tasks in the innovative enterprise process of activities is creating conditions for constant process of research and development of new products capable of turning the whole potential of new ideas, concepts or theories into marketable products warranting the enterprise success.

An enterprise described as innovative is characterised by the following features [1]:

- it conducts research and development works or purchases R +D projects on wide scale,
- it allocates big financial outlays to this activity,
- it constantly implements modern scientific and technical solutions and
- is distinguished by considerable share of novelties, products and technologies in the volume of production or services.

Therefore innovative firms must be creative units, capable of responding to changes, which constantly occur under conditions in which they are operating. The innovative enterprise management system should comprise the elements of institutionalised information flow and initiatives aimed at creating proper climate for supporting innovation among the staff [2].

MATERIAL AND METHOD

In conditions of growing competitiveness the basis of enterprise operation on a global market is the capability of overall constructing and implementing innovations. Innovation is a synonym of successfully completed production, it denotes adjusting and utilising novelties in economic and social spheres. It illustrates new solutions of problems, satisfies the needs of both individuals and whole social groups.

Innovative activity is mainly a social phenomenon, not only a technical process or strictly economic mechanism. Innovations provide an answer to critical problems of the present time, contribute to improvements in living standards, environmental protection, suggest new means of diagnosis and curing diseases, transport safety, they facilitate communication, protection

of natural environment and energy resources, provide answers to demographic challenges and facilitate new forms of work[4].

The general objective of the work is to point out the place of innovation on contemporary market and analyse the usefulness of innovative activity from the perspective of enterprise management needs. Particular attention was paid to the estimation of the state of innovativeness in enterprises in Poland.

The specific objective is an assessment of the level of expenditure on innovative activity in the years 1998-2003 and estimation of outlays on research and development activities (R+D) according to the sources of finance. The other specific objective is an evaluation of innovative activity and demonstrating the basic aims of innovative activity. Another important research problem is the answer to the question: Do Polish enterprises perceive a necessity of pursuing activities targeting an increase in innovativeness?

Dynamics and structure ratios were used for the realisation of the general and specific objectives.

Due to a considerable variability of absolute values in time, dynamics ratios were computed assuming the previous year = 100%.

The following source materials were used in the work:

- Polish Statistical Yearbooks for 1999, 2000, 2001, 2002, 2003 and 2004;
- Statistical elaborations of the Main Statistical Office including; The Report on the state of science and technology in Poland in 1999"; "Innovative activities of industrial enterprises in the years 1994-1996 and 1998-2000", "Science and technology in 2002 and 2003";
- Results of studies conducted by Ipsos –Demoskop on commission from Polish Agency for Enterprise Development (PAED).

The source material for the years 1998-2003 presented in the paper should be considered reliable.

RESULTS AND DISCUSSION

Innovative activities encompass scientific, technical, organisational, financial and commercial works undertaken in order to develop or implement new or significantly improved products and processes and also new and improved organisation of work and production [3].

The rate and scope of creating and implementing innovations determines the competitive superiority of enterprises.

Table 1. Most important indices in research and development activities in Poland in 1998-2003

No.	Specification	1998	1999	2000	2001	2002	2003
1.	Expenditure on R+D Relation to GDP (in percent)	0.72	0.75	0.66	0.64	0.58	0.56
2.	Employment in R+D activity						
2.2	Per 100 professionally active persons	5.1	4.8	4.6	4.5	4.5	4.5
	In which research workers	3.4	3.3	3.2	3.3	3.3	3.4
3.	Number of R+D units						
	Total	905	955	860	920	838	925
	In which:						
	Scientific and research-development units	353	339	321	331	338	314
	In which units of the Polish Academy of Sciences	82	81	81	81	81	80

	Research-development units	246	240	222	232	211	201
	Higher education institutions	114	115	114	121	119	128
4.	Utilisation of scientific equipment	7.08	69.9	69.0	71.2	74.0	77.9

Source: elaborated on the basis of Statistical Yearbook 1999 pp.320 and 324; 2000, pp.306-310; 2003 pp. 328, 332 and 333; 2004, p. 421; Report on the state of science and technology in Poland, 1999, pp.30,33; Science and technology in 2002 and 2003, CSO website, www.stat.gov.pl

The ratio of expenditures on R+D in GDP in 2003 was only 0.56% and was by 0.02 percent point lower than the previous year.

The value is one of the lowest in the EU and OECD countries. The National Development Plan for 2004-2006 assumes that in 2006 the value of the above mentioned relationship should reach 1.5%.

Therefore 2003 was another year when value of this ratio decreased, which in 2001 and 2002 was lower than the previous year respectively by 0.02 and 0.06 percent point.

Another decline in the number of persons employed in R+D activity since 1998 was registered in 2003 when it reached about 4.5% as compared to c.a. 5.1% in 1998. The number of researchers decreased in a majority of units composing so called R+D sphere in Poland, i.e. scientific units of the Polish Academy of Sciences (PAS), branch research-development units and in so called development units (enterprises), it was 3.3% in 2002 and increased only slightly in 2003 reaching 3.4%. Public higher education institutions have been an exception, because these have been recently the most vital element of this sphere (private institutions of higher education focus mostly on didactic activities and few are engaged in R+D activity but only in a limited scope).

A disadvantageous structure of expenditures on R+D has been also perceivable (Table 2).

Table 2. Structure of expenditures on R+D activity in 1998-2003 (in percent) by source of funds

Specification	1998	1999	2000	2001	2002	2003
Total, in which funds from	100.0	100.0	100.0	100.0	100.0	100.0
- the state budget	59.0	58.5	63.4	64.8	61.9	62.7
- economic entities	29.7	30.6	24.5	24.3	23.0	3.5
- R+D units and scientific units of the Polish Academy of Sciences	8.2	7.5	7.7	6.5	6.3	5.9
- other units	1.6	1.7	2.6	2.0	4.0	3.3
- international organizations and foreign institutions	1.5	1.7	1.8	2.4	4.8	4.6

Source: Elaborated on the basis of Statistical Yearbook: 2001, CSO, Warszawa 2001, p. 309; Statistical Yearbook 2003, CSO, Warszawa 2003, p. 331; Science and technology in 2002, CSO, Warszawa 2004, p. 30; Statistical Yearbook 2004, CSO, Warszawa 2004, p. 419.

In Poland funding research from the state budget still prevails with a small share of funds provided by enterprises. In 2000-2003 the share of budgetary means in R+D (research and development) activity financing was on the level above 60% and in 1998-1999 approximated 60%, whereas *“in highly industrialized countries a significant increase in the share of enterprises in expenditure on innovations has been registered [5]”*.

W. Wiszniewski writes that *“the state budget remains the basis of financing for this sphere in Poland and the proverbial good foreign uncle is still expected. In highly developed countries of the world support for research works in the enterprises is sought both in the native country and abroad”*[6].

Statistical data analysis allows to draw a conclusion about a relatively low level of innovativeness in Polish enterprises (Table 3).

Table 3. Innovativeness of Polish enterprises by their size and sector affiliation

Specification	Enterprises which implemented innovations in the years:				Enterprises which planned to implement innovations in the years :		
	1992	1994-1996	1997-1998	1998-2000	1993-1994	1997-1999	2001-2003
	In percent of studied enterprises						
Enterprises total including:	60.9	37.6	28.9	16.9	69.2	40.0	21.4
Public sector	69.1	52.11	35.5	35.3	77.3	55.0	40.6
Private sector	55.0	30.3	26.9	15.7	61.6	32.0	20.2
Small enterprises (up to 50 employees)	48.2	16.0	4.1	10.7	53.1	20.0	15.9
Middle sized enterprises (51-500 employees)	59.3	33.0	23.6	26.4	69.7	35.0	29.8
Big enterprises (501- 2000 employees)	77.9	72.5	63.6	63.9	84.6	73.0	64.6
Large enterprises (over 2000 employees)	92.2	87.5	78.1	77.2	91.6	88.0	74.6

Source: elaborated on the basis of: Innovative activity of industrial enterprises in 1994 - 1996, CSO, Warszawa 1998, p.25; Report on the state of science and technology in Poland 1999, CSO, Warszawa 2000, p. 99; Innovative activity of industrial enterprises in 1998 - 2000, CSO, Warszawa 2002, p. 41.

Ratio of innovativeness expressed as the share of enterprises, which in the investigated period applied at least one technical innovation (new or modernized product, new or improved process) or one organizational and technical innovation was 61.9%. In 1998-2000 the ratio was 16.9%.

In 1993-1994 almost 70% of enterprises expressed the intention of implementing innovation, in 1997-1999 there were 40% of such firms, whereas in the subsequent years 2001-2003, the percent declined by 21.4%. This is the real situation in all enterprises.

If we look at the situation from the small and medium-sized enterprise perspective, it looks much worse. Small firms proved the least innovative. 48.2% of these businesses implemented one innovation in 1992 and in the subsequent years this ratio was systematically declining reaching the level 4.1% in 1997-1998, which means that only 4 in 100 small enterprises implemented innovations. An increase to 10.7% of the percent of small firms which introduced innovations in 1998-2000 may seem satisfactory. On the other hand the constantly decreasing ratio of optimism concerning potential application of innovations in 2001-2003 is distressing. Such intention was expressed only by 15.9 % of the investigated firms and it was the lowest value of this ratio since 1993.

Medium-sized enterprises employing between 51 and 500 persons were more active introducing innovations, but even this does not mean the satisfactory level. In 1992 over 59% of medium-sized firms implemented at least one innovation but in 1997-1998 they constituted only 23.6%. Like in the case of small enterprises, in 1998-2000 a slight rally in innovative activity of medium-sized enterprises was observed, since in this period the innovativeness ratio raised to 26.4%, i.e. by 2.8 percent point. Slightly more firms in this category, i.e. 29.8% intended to implement innovations in 2001-2003.

The highest innovative activity was registered in the group of big (employing between 501 and 2000 persons) and large firms (employing over 2000 persons).

Evolution of innovativeness level of Polish enterprises was researched by Ipsos-Demoskop on commission from Polish Agency for Enterprise Development (PAED).

The investigations aimed at getting orientation as to innovativeness of enterprises in Poland divided into two groups; small enterprises employing up to 9 persons and medium sized and big firms employing 10 and more persons. They were randomly selected and the data were collected by individual interview questionnaires.

Among the small enterprises employing up to 5 persons:

- 8% use strategic planning;
- 5% use patents, purchased licences and know-how;
- 3% have own patents developed in the enterprise or sells their own developed licences and know-how;
- 5% allocate special funds for research and development aims;
- 6% are currently collaborating with a scientific institution, research centre of higher education institution.

The results concerning medium-sized and big businesses look as follows:

- 22% use strategic planning;
- 40% of businesses employing 250 persons develop strategic plans;
- the lowest percentage of medium-sized and big enterprises using long-term planning operate in construction - 8 %, the highest in services – 27%, trade – 24% and multi-branch businesses - 34%.

On average 15% of medium-sized and big enterprises use purchased patents and licences;

- a considerable percentage among the medium-sized and big firms using the purchased patents and licenses are enterprises with turnover exceeding 5 000 000zloties, located in big cities (21%), with the share of foreign capital (32%);
- less than half of medium-sized and big enterprises, which use patents use strategic planning.

An important factor, which causes increase in innovativeness in enterprises is developing and possessing own patents.

- One third (33%) of medium-sized and big enterprises using patents at the same time possess their own developed patents and licenses;
- 40% of the above mentioned 33% conduct their own research and development works and one third collaborate with a research institute, scientific institution or higher education institution;
- Big enterprises are most efficient in creating innovations.

The other index measuring innovativeness is allocation of funds for research and development works (R+D).

- On average 13% of medium-sized and big businesses allocate special funds for research and development activities; among those state owned firms and commercial companies with turnover exceeding 5 000 000 zloties and engaged in foreign trade constitute the greatest number.

The amount of funding allocated by medium-sized and big enterprises to research and development activities approximates 20 000 zloties (37%), whereas 27% of firms assign on research between 20 000 and 50 000 zloties. However, there is quite a numerous group of firms (17%) which spend over 1 000 000 zloties annually on research.

CONCLUSION

A considerably heightened interest in innovations was observed in the last decades of the 20th century, which is the result of developed knowledge on the nature of innovative processes on one hand and on the other recognizing the force of their influence on the overall economic and social development. The awareness of this fact causes that activities aimed at improving organization and management of innovations on a macro and a micro scale gains importance.

A growing number of enterprises consider innovation management as a normal element of their operation. Without the risk, experimenting, without using forecast, an enterprise faces a possible loss in the market competition. The changes which occurred after 1989 in the conditions of functioning of Polish economic entities placed them in a position where they had to reevaluate the importance of individual functions. Introducing the rules of market economy attached a priority importance to development functions of an enterprise, so innovations have started to play a crucial role in competitiveness of businesses.

Only the enterprises which are ready to take the risk connected with innovations and vividly respond to occurring changes in their surrounding have a chance for further operation.

Enterprises are fully aware of this, so some of them strive to implement innovations. Only if they respond to changes and customers' needs, the firms may be competitive.

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