

Nowacki, Robert; Staniewski, Marcin W.

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INNOVATION IN THE MANAGEMENT OF SMEs IN THE SERVICE SECTOR IN POLAND

Robert Nowacki¹ and Marcin W. Staniewski^{2*}

^{1) 2)} *University of Finance and Management in Warsaw, Poland*

Abstract

The present study focuses on the issue of innovation among small and medium-sized enterprises (SMEs), which constitute the lifeblood of economic growth. The power of this lifeblood depends on the level of innovativeness of these enterprises insofar as SMEs consider innovation their main operational strategy for gaining a competitive advantage over large companies. Innovation accrues various economic advantages for SMEs that may not be overlooked in the management process. The authors of this paper therefore analyze the awareness and use of innovative solutions in the management process of SMEs operating within the service sector in Poland. The research was conducted in 2009 to 2010 through direct face-to-face interviews with 608 top managers.

Keywords: innovation, management, SME, service sector, Poland

JEL Classification: D00

Introduction

SMEs are believed to be the lifeblood of economic growth and employment. Global competition forces organizations to apply an innovative approach to the activities related to the management of the enterprise (Staniewski, 2008, 290). Development and commercialization of innovation is of considerable importance in this matter (Radas and Bo, 2009). According to Porter (1985), innovation enhances the competitiveness of countries, particular sectors of industry, and companies. It contributes to maintaining a company's profitability and keeps it running for a longer period of time. Moreover, innovation leads to increased quality and greater variety of products, and it positively influences productivity, turnover, profitability, and employment (Guinet and Pilat, 1999). Further advantages brought about by innovation include: reinforcement of the market position or gaining a larger market share, increase in the effectiveness of operations, improvement of reputation, and decrease in cost (Cooke and Mayes, 1996). Innovation thus serves as the main contributing factor in the effectiveness of enterprises (Talke et al., 2011) operating in the environment of constantly increasing business competition (Marinova, 2004). Innovation has become essential to maintaining the competitive advantage and

* Corresponding author, Marcin W. Staniewski – staniewski@vizja.pl

ensuring the survival (Van de Vrande et al., 2009) of SMEs operating in a highly industrial economy (Leitner, 2011). The key to this advantage is the adoption of a strategic orientation towards innovation, which consists in the relevant expert advice on strategies and directions leading to innovation (Zhou et al. 2005). Innovative approaches are one of the most significant competitive strategies both for small and large enterprises (Kaufmann and Tödtling, 2002). However, as Bos-Brouwers (2009) puts it, small firms rarely have an innovation strategy available as a formal document.

The issue that many researchers find worth exploring is how SMEs and large enterprises differ in their approach to innovation and in the effectiveness of their innovative activities. For some researchers, innovation may be even more important for SMEs than for large companies (Fritz, 1989). Consequently, stimulating innovation among SMEs is a very significant task from the perspective of the whole economy (Keizer et al., 2002).

The aim of this paper is to analyze the level of awareness and use of innovative solutions in the management processes among SMEs in the service sector in Poland. To achieve this aim, the authors pose several research questions:

- How important is innovation for the development of SMEs operating in the service sector?
- What is the level of innovation in SMEs in the service sector compared with their direct rivals?
- What is the scale of actual introduction of innovation in the management of SMEs and what are the intentions behind it?
- What are the potential benefits offered by innovation in management?
- What is the level of awareness of SME managers about the significance of management innovations for developing one's market competitiveness?

The following paper provides a review of the literature elaborating on the issue of innovation in the SME sector, which forms the basis for the research hypotheses used in the study. Furthermore, the paper contains a section describing the methodology of research on SMEs in the Polish service sector and a presentation of empirical results. Finally, the authors interpret and discuss the findings of their research results and present major conclusions and recommendations for managers and policy makers.

1. Overview

Innovation is considered to be a strategic means employed to develop and increase companies' capabilities (Farazmand, 2004, 5). It is a key factor in economic development and progress and it also constitutes a source of inventions in various areas of life, society, technology and administration (Farazmand, 2004, 8). Innovation is described as novelty regarding ideas, approaches, methods, processes, structures, behaviors, attitudes, cultures, technologies and capabilities. It is also related to the knowledge employed in providing new products and services, in managing and administering societies, and in managing various types of organizations (Farazmand, 2004, 8).

Damanpour (1991) defines innovation as a product, service, process or piece of equipment that is new for the organization adopting or implementing it. From the organizational perspective, Amabile et al. (1996, 1154-1155) describe innovation as a creative idea successfully applied in a company. From this point of view, individual and group creativity is a point of departure for innovation. Although creativity is essential, it remains insufficient. Luecke and Katz (2003) offer a general definition of innovation as the introduction of something new. Innovation is the integration or synthesis of knowledge to form an original, useful, and valuable new product, process or service. According to other researchers (Amabile, 1997; Harper and Becker, 2004), for innovation to be effective, it should first and foremost bring about significant change. However, the change does not necessarily need to be an introduction of something completely new but may sometimes take the form of meaningful improvements (of a product, process or service) relative to previous achievements.

Some studies claim that innovation is more common among large enterprises whereas other studies suggest that it is more prevalent among the smaller ones (Harmancioglu et al., 2010). On the one hand, innovation can be used by SMEs as a chief strategy for gaining a competitive advantage over larger companies because they are more flexible and capable of adapting to market changes (Knight and Cavusgil, 2004). On the other hand, innovation may be more common among large enterprises because they have greater access to the required resources (Harmancioglu et al., 2010). Studies reveal that, compared with larger companies, SMEs tend to use various measures to achieve innovation ambidexterity (Cao et al., 2009; Ebben and Jahnson, 2005).

The most common barriers to innovation in companies are lack of funds for innovation, the prohibitive risks involved in innovation projects, and the prohibitive costs of technology. Both small and large enterprises confront these problems. Human resource availability is yet another common barrier to innovation (because there is usually not enough qualified staff or free time to undertake innovative activity) (Kaufmann and Tödtling, 2002).

Nonetheless, compared with larger companies, smaller enterprises have less access to resources such as human or financial capital (Forbes and Milliken, 1999). Researchers note that human capital is one of the resources that top managers employ to utilize skills essential for exploring new possibilities (Wiklund and Shepherd, 2003). Consequently, the abovementioned weakness limits these companies' access to information about the market (e.g., professional scientific research or industrial data that requires purchase) (Burke and Jarrat, 2004) and their capabilities to develop new products (Kaufmann and Tödtling, 2002). Moreover, a tight internal network of knowledge is practically nonexistent within small companies (Peng and Lou, 2000). Thus, it seems that innovation is especially important for small entrepreneurial firms having limited resources (Van de Vrande et al., 2009; Rhee et al., 2010).

However, as Van Dijk et al. (1997) claim, most researchers find no significant difference between innovation among SMEs and innovation in large enterprises (i.e., the quality and significance of their innovations do not differ in any way).

Given the analysis of the literature presented above, the authors of this paper formulate the following hypothesis:

H1: the scale of implementation of innovative solutions among SMEs in the Polish service sector is comparable with the scale of this phenomenon observable among the whole population of enterprises.

According to Keizer et al. (2002), the factors that may exert influence over innovation in an SME can be divided into external and internal ones. The external factors are connected with the major characteristics of the service sector and its policies, and the internal factors are concerned with the possibilities that are offered by the SME's environment and that the SME may consider.

The internal factors that seem to be the most important determinants of innovative activity among enterprises include, inter alia, the presence of highly qualified scientists and engineers, and the strong leadership of a highly educated head or founder of a company (Hoffman et al., 1998). The importance of the manager/owner in nurturing innovation is one of the advantages that SMEs have over large companies (Bos-Brouwers, 2009).

High-ranking managers (or top managers) play a major role in setting innovation goals for a company and in pursuing these goals (Camelo-Ordaz et al., 2005; Elenkov et al., 2005). The influence of managers on innovation will be greater in small enterprises for the following reasons: they have less bureaucracy, a flat organizational structure, and less diversification (Forbes and Milliken, 1999); their organizational culture is flexible, and they use a smaller number of formal systems, procedures, and planning measures (Busenitz and Barney, 1997); finally, small enterprises are managed by a modest number of dominating managers (Knight and Cavusgil, 2004). Nevertheless, the dominating position of a manager, entrepreneur or owner of an enterprise may also lead to adverse consequences. The weaker managerial and planning skills of SME managers or owners, owing to their lack formal education or appropriate qualifications (Smallbone et al., 2000), may lead them to focus mainly on short-term results rather than on the long-term strategic goals that would make the development of the organization more balanced and stable (Bos-Brouwers, 2009).

The crucial determinant of an SME's success in the field of innovation is the horizontal management style resulting from its flat organizational structure (Rothwell, 1992). However, Pelham and Wilson (1996) claim that a completely reversed situation is also realistic. Therefore, the central role of a manager/owner in an SME is of key importance in the process of innovation (Hartman et al., 1994). The commitment to develop human capital, signaled by means of formal and informal training programs, may be of major importance with respect to successful product or process innovations (Kleinknecht et al, 2002; Freel, 2005).

SMEs face a greater number of challenges connected with undertaking actions aimed at seeking and utilizing innovations compared with bigger companies (Lubatkin et al, 2006; Mom et al., 2007). These actions may encompass managing tensions, contradictions or tradeoffs (Andriopoulos and Lewis, 2009). It is also important for managers to show a positive and accepting attitude with regard to employees taking risk and to the cost of possible mistakes and failures (Kohli and Jaworski, 1990). If such an attitude is displayed, the employees will be more willing to seek and implement new solutions in response to the demand generated by the market (He and Wong, 2004).

However, considering the SME's significantly limited access to resources, another prominent weakness of SMEs is the lack of managerial competency (Pissarides, 1999) in effectively managing the changing internal and external environment of a company (Ebben

and Johnson, 2005). Additionally, some studies show (Salaman and Storey, 2002) that, in practice, managers frequently have difficulty conceptualizing the nature of innovative organizations.

As regards the SMEs in Poland, both the highly qualified specialists and highly educated managerial staff are rarely found in these enterprises. Because these firms strive to lower their operational costs, they cannot afford to hire such employees. Such an enterprise is usually managed by one person – an owner/entrepreneur (usually lacking managerial education) who is supported by the members of their family. It is thus hard to expect such a manager to be aware of the importance of innovation in the management of a company. The abovementioned arguments lead us to pose the following hypothesis:

H2: Managers of SMEs operating in the service sectors in Poland are marked by a lower level of awareness of the importance of innovation in developing a competitive market position compared with other representatives of the whole population of enterprises.

Keizer et al. (2002) grouped the external factors influencing innovation among SMEs into three categories:

- cooperation with other enterprises,
- cooperation with knowledge centers,
- initiatives or projects with external support (e.g., support and development governmental programs for SMEs, including financial aid).

These external factors are strongly influenced by the region where a given company operates. A company's region is a very significant factor in its process of innovation mainly because the region offers possibilities to cooperate with other entities in the market. Opportunities to cooperate with other firms are perceived by entrepreneurs as a very important factor for upscaling their innovative undertakings (Groen et al., 2008; Massa and Testa, 2008). A region may be the source of opportunities to engage in face-to-face interactions, to exchange tacit knowledge, and to cooperate in group innovation projects. Another advantage offered by the close clustering of companies is that the mobility of employees and graduates (i.e., the two highly significant elements of knowledge transfer in enterprises) is spatially limited (Kaufmann and Tödtling, 2002). Gaining access to external knowledge is also more important for small than for large companies (Harmancioglu et al., 2010).

Nieto and Santamaría (2010) note that technological cooperation is especially fruitful in increasing the effectiveness of an enterprise's innovation irrespective of its size. Cooperation is indeed indispensable for SMEs. Because they cannot manage everything on their own due to their limited access to resources, they need to enter into cooperative ventures with other entities (e.g., as far as developing new products is concerned) (Rogers, 2004). Through inter-organizational relationships, the "burden" of innovation is shared among several organizations (Ritter and Gemünden, 2003). As stated by Feams et al. (2005), the more organizations that become involved in inter-organizational cooperation of various types, the more probable it becomes that they will launch new or improved products that might ensure their commercial success. A larger number of cooperating parties leads to group diversity, which may positively influence group creativity, task reflexivity and exchange of information, and it may eventually lead to improved results in the field of innovation (Dahlin et al., 2005). The importance of this diversity is worth

highlighting. Lack of cooperation with knowledge suppliers from outside the enterprise's sector serves to block external influences that could stimulate and facilitate innovative undertakings (Kaufmann and Tödtling, 2002). Conversely, cooperation with them can contribute to an increase in innovation within a company (Kaminski et al., 2008). Furthermore, cooperation with buyers may trigger demands for technological improvement (Le Blanc et al., 1997). If strategic alliances constitute an integral part of the development plan of an enterprise, they may exert strong influence over fostering innovation as well (Cooke and Wills, 1999). According to some researchers (Lawson et al., 2009; Rindfleisch and Moorman, 2001), companies' innovations may be implemented through cooperation with other organizations; such relationships are established with the intention to benefit from cooperation within a network. Hence, the more companies that operate in the same region, the better their chances to form cooperative ventures (e.g., as a consortium or a cluster, etc.), which may in turn lead to an increase in innovation among the involved parties. Managerial ties serve an important role in this matter because social interactions between top managers and their business partners or the representatives of central and local administration allow companies to benefit from cooperation within a network (Shu et al., 2012). Additionally, the processes of organizational knowledge creation allow for the internalization of these benefits and for their integration into the enterprises' own internal knowledge infrastructure, which in turn leads to product or process innovation (Shu et al., 2012). Furthermore, establishing relationships with technological centers, innovation centers, Chambers of Commerce, and knowledge centers allows companies to consult professional advisors or academic researchers for advice (Hoffman et al., 1998; Oerlemans et al., 1998). Many researchers (Madhavan and Grover, 1998; Nonaka, 1991) consider knowledge creation to be a pioneering activity in the field of innovation. SMEs are usually less predisposed to seek and utilize codified knowledge (especially scientific knowledge), which forces them to rely on personal means of sharing knowledge (Plumb and Zamfir, 2009) and on their skills in learning through operation and interaction/cooperation. Furthermore, because it is harder for these companies to use formal agreements for these purposes, they have to rely on trust and informal relationships. The level of support for the process of innovation provided by a region depends on the arrangement of institutions (e.g., universities and other research organizations, professional education centers, technological centers, and transfer agencies) in a given territory and on the structure of regional economy (e.g., the dominant industries, availability of service companies, suitable suppliers, and organizations offering financing of innovation, etc.) (Kaufmann and Tödtling, 2002).

Hence, the external factors influencing innovation of SMEs described by Keizer et al. (2002) and the possibilities arising from these factors derive from the attractiveness of a given region in which companies operate. From the point of view of innovation, the region of operation is especially important for SMEs (Cooke et al., 2000) because they usually have strong connections to their region. Thus, the factors determining their innovativeness depend on the characteristics of the region where they operate (Kaufman and Todtling, 2002; Radas and Božić, 2009). The analysis of literature provided above has influenced the construction of the following research hypothesis:

H3: There is territorial differentiation in the scale of implementation of innovative solutions in the management of SMEs in the Polish service sector mainly due to the varying levels of socio-economic development of different regions in Poland.

2. Methodology

The subject of the present study is the issue of innovation in management (i.e., awareness of it, reasons for implementation, possible effects, its scope and scale of implementation, and intentions behind implementation). Research was carried out in the years 2009 to 2010 on a quota and stratified sample of 282 SMEs conducting service activity. Micro-firms were the most numerous in the sample (46.5%), and the less numerous groups of small (30.1%) and medium-sized (23.4%) enterprises comprised the remainder of the sample. The survey was part of a much larger research project encompassing a representation of the whole population of enterprises operating in Poland and carried out on a sample of 608 entities. The population of these enterprises was treated as a benchmark against which to judge the results of the analysis and to verify the first two hypotheses.

The research was carried out in the whole of Poland extending across all voivodeships, which are classified into four categories on the basis of the attractiveness of investment in a region (which results from socio-economic development) according to the Gdansk Institute for Market Economics (Nowicki et al., 2011):

- group A – the most attractive voivodeships for investments (the value of the synthetic index of investment attractiveness over 0.5) – śląskie, mazowieckie, and dolnośląskie,
- group B – voivodeships with a modestly positive value of the investment index between 0 and 0.5 – małopolskie, wielkopolskie, zachodniopomorskie, and pomorskie,
- group C – voivodeships with the value of investment attractiveness index below zero between minus 0.3 and 0 – łódzkie, kujawsko-pomorskie, lubuskie, and opolskie,
- group D – the least attractive voivodeships for investment with the attractiveness index below minus 0.3 – podkarpackie, świętokrzyskie, warmińsko-mazurskie, lubelskie, podlaskie,

The number of entities for each voivodeship group is as follows: 25.9% enterprises – group A, 27.0% enterprises – group B, 20.6% enterprises – group C, and 26.6% enterprises – group D.

The survey was conducted through direct face-to-face interviews with managers in charge of the studied entities. Interviews were conducted with the use of a questionnaire prepared by the authors of this paper, which contained categorized questions. The total number of questions encompassed fifty substantive questions concerning the issue of innovation and implementation of innovative solutions in various areas of a company's operations and eleven statistical questions describing the studied population of enterprises.

Data analysis was performed with the use of statistically significant indices of the structures and correlations between the variables under analysis. To verify the formulated hypotheses, the t-test of equality of averages for the independent samples, formed by the population of SMEs and the population of all enterprises under analysis, was performed.

3. Results

First the significance of innovation for the development of an enterprise was analyzed based on the study results. Over half of the managers of SMEs operating in the service sector who took part in the survey believed the significance of innovation was high (42.2% responses) or even key (11.3%). Every third company, on the other hand, believed that innovation was of little importance, and almost every tenth company – in line with the respondents' declarations – found innovation unimportant or its significance difficult to judge (table 1).

Table no. 1: Evaluation of the significance of innovation for the development of an enterprise in the opinions of managers of SMEs in the service sector (N=282)

Response	%
Very high	11.3
High	42.2
Little	32.2
Not at all	6.7
Hard to say	2.5

Source: Author's research.

Comparison of the responses provided above with the answers of managers representing the whole population of enterprises in Poland shows that no statistically significant differences between the two groups exist. Application of the t-test of equality of averages for independent samples (the values of the averages were 2.44 for service companies and 2.33 for the whole population) verifies the constructed null hypothesis about the equality of averages against the alternative hypothesis about the existence of a difference between the averages. Hence, the test result does not allow us to reject the null hypothesis. This result suggests that the evaluation by SME managers in the service sector of the importance of innovation for the development of their enterprise is similar to the one expressed by the whole population of enterprises. This is supported by the statistical data presented in table 2.

Table no. 2: Statistic of the t-test for independent samples with respect to the evaluation of the importance of innovation for the development of an enterprise in the opinion of managers of SMEs in the service sector vis-à-vis managers in the whole population of enterprises

		Equality of variation is assumed	Equality of variation is not assumed
Levene's test of the homogeneity of variance			
F		0.435	-
Significance		0.510	-
T-test of equality of averages			
t		-1.510	-1.512
df		480	429.876
Bilateral significance		0.132	0.131
Difference between averages		-0.113	-0.113
Standard error of difference		0.075	0.075
95% confidence interval for difference between averages	Lower limit	-0.261	-0.261
	Upper limit	0.34	0.34

Source: Author's research.

The survey also studied the general level of innovation in SMEs in the service sector. In evaluating the level of innovation in their own enterprises, slightly more than 23 percent of managers assessed it as higher than in rival companies. Likewise, only 21 percent believed it to be lower. The rest of the respondents evaluated it as similar to the level of innovation of their competition (table 3).

Table no. 3: Evaluation of the level of innovation in SMEs in the service sector against competition (N=282)

Response	%
We are definitely more innovative	4.3
We are rather more innovative	18.8
We are as innovative	56.0
We are less innovative	16.7
We are definitely less innovative	4.3

Source: Author's research.

The average value of the variable describing the level of innovation was 2.98 in the case of SMEs in the service sector under analysis and 2.95 for the total number of enterprises. The difference between these averages is modest, with the self-appraisal of the level of innovation being only slightly lower in the case of SMEs in the service sector. The null hypothesis was formulated with respect to the nonexistence of a difference between averages in the sample of SMEs in the service sector and the sample of all enterprises, and an alternative hypothesis regarding the existence of the difference between these averages was also posed. Application of the t-test of equality of averages revealed no statistically significant difference (the value of t-test -0.430) between the averages in the two samples. Therefore, there is no reason to reject the null hypothesis (table 4).

Table no. 4: Statistic of the t-test for independent samples with respect to the evaluation of the level of innovation in a company against competition in the opinion of managers of SMEs in the service sector vis-à-vis managers in the population of all enterprises

		Equality of variation is assumed	Equality of variation is not assumed
Levene's test of the homogeneity of variance			
F		0.195	-
Significance		0.659	-
T-test of equality of averages			
t		-0.432	-0.430
df		480	421,519
Bilateral significance		0.666	0.667
Difference between averages		-0.034	-0.034
Standard error of difference		0.078	0.078
95% confidence interval for difference between averages	Lower limit	-0.187	-0.188
	Upper limit	0.120	0.120

Source: Author's research.

The scale of utilization of innovative solutions in management plays an important role in the assessment of the level of innovation in the service enterprises under analysis. The portion of entities declaring such an activity within the last two years before the survey, which were also listed among entities belonging to the SME service sector, amounted to 70.2 percent.

As with the assessment of the significance of innovation for development and the general evaluation of the level of innovation in the SME service sector, in order for the level of innovation in management to be analyzed, the t-test of equality of averages for independent samples was employed. The values of averages characterizing implementation of innovative solutions in the field of management amounted to 0.70 for the SMEs in the service sector and 0.75 for the total population of enterprises (where 1 stands for implementation of such innovation, and 0 for no such action). A working null hypothesis was formulated: there is no difference between the averages in the sample of SMEs in the service sector and the sample of the whole population. An alternative hypothesis about the existence of the difference between these averages was also formulated. The test results showed that no statistically significant difference exists between the averages in both samples (the value of t-test -1.279). Hence, there is no justification for the exclusion of the formulated null hypothesis. The statistic of this test is provided in table 5.

Table no. 5: Statistic of the t-test for independent samples with respect to the evaluation of the implementation of innovative solutions in management by SMEs in the service sector against the whole population of enterprises in Poland

		Equality of variation is assumed	Equality of variation is not assumed
Levene's test of the homogeneity of variance			
F		6.814	-
Significance		0.009	-
T-test of equality of averages			
t		-1.279	-1.292
df		480	443.777
Bilateral significance		0.201	0.197
Difference between averages		-0.053	-0.053
Standard error of difference		0.041	0.041
95% confidence interval for difference between averages	Lower limit	-0.134	-0.133
	Upper limit	0.028	0.028

Source: Author's research.

To summarize this part of the analysis, there is no reason to reject the initially constructed hypothesis H1: the scale of implementation of innovative solutions by SMEs in the service sector is comparable with the one characteristic of the whole population of enterprises.

Another issue covered in this article was the level of awareness of managers with respect to the advantages of implementation of management innovations. Only about four percent of the managers participating in the survey had problems identifying any positive effects from the introduction of innovation in managerial processes in an enterprise. The rest of the group provided a variety of different benefits but the most common was the possibility of gaining new customers (almost 50% of the responses). Typical revenue effects (i.e., increase in turnover and profit), the possibility of improving market reputation, and widely recognized improvements in competitiveness were less cited. These benefits were enumerated by about one third of the respondents. Thus, generally speaking, the level of awareness of the significance of management innovations in shaping the competitiveness of a company is not high among managers of SMEs in the Polish service sector.

Detailed analysis of the distribution of the responses yields conclusions that verify the second of the formulated hypotheses (table 6). The t-test of equality of averages for independent samples was also applied, and the average value of the response indicator

concerning improvement of the company's market competitiveness in the opinion of the representatives of the service sector SME vis-à-vis those of the entire population of enterprises was estimated. This value was 0.36 in the case of the first group and 0.35 in the case of the second group. Based on this result, a null hypothesis about the equality of these averages was formulated, as well as an alternative hypothesis that these two averages differ. The obtained value of the t-test amounted to -0.297, which suggests that there is no reason to reject the null hypothesis. That is to say, the answers of managers of service firms are no different from the answers of managers of other companies. Therefore, the hypothesis H2 predicting that managers of SMEs in the Polish service sector have lower awareness of the importance of management innovation in shaping a competitive position than the representatives of the whole population of enterprises must be rejected. In other words, the knowledge of the managerial staff in SMEs does not diverge from the knowledge of managers of other firms.

Table no. 6: Statistic of the t-test for independent samples with respect to the influence of the introduction of innovative solutions in management on shaping the competitiveness of an enterprise in the opinion of managers of SMEs in the service sector vis-à-vis managers in the entire population of companies

		Equality of variation is assumed	Equality of variation is not assumed
Levene's test of the homogeneity of variance			
F		0.385	-
Significance		0.550	-
T-test of equality of averages			
t		-0.297	-0.298
df		480	430.704
Bilateral significance		0.766	0.766
Difference between averages		-0.013	-0.013
Standard error of difference		0.044	0.044
95% confidence interval for difference between averages	Lower limit	-0.100	-0.100
	Upper limit	0.074	0.074

Source: Author's research.

The last issue discussed in this paper is the interrelation between the implementation of innovative solutions in management and the location of an enterprise. A detailed analysis of the responses to the questions regarding the actual implementation of management innovations in the period within two years preceding the survey and plans in this matter for the successive two years allowed us to confirm that there is a clear territorial diversity in the data (table 7). As many as 70.2 percent of managers participating in the survey indicated that they had introduced innovation into management. As the investment attractiveness of the voivodeship where the entities under analysis are located declines, the percentage of innovative enterprises increases. Some innovation implementations may thus be an indication of the level of socio-economic development in particular regions. In voivodeships where the most prosperous companies (group A) are located, the percentage of companies introducing innovation into management was 64.4 percent, whereas in the least developed regions (group D, the so called eastern wall), it amounted to 77.3 percent.

Plans to implement innovative solutions in management within the next two years after the survey are worse. Only 52.8 percent of the managers declared such plans. In this case, territorial differences are much less visible. Only the entities operating in voivodeships in the group B stand out in this respect.

Table no. 7: Portions of SMEs in the service sector that introduced innovation to management in the period of two years before the survey and declared plans with regard to innovation in the period of the next two years (N=282)

Response	Introduction of management innovation within the two years before the survey	Plans of introducing management innovation for the two years following the survey
	%	
Total number of enterprises under analysis	70.2	52.8
Location in a voivodeship belonging to:		
Group A	64.4	54.8
Group B	65.8	48.7
Group C	74.1	55.2
Group D	77.3	53.3

Source: Author's research.

To determine the relationship between a company's innovative activity and its region of operation, the relationship between the group of a voivodeship and certain areas of management were examined. Analysis with the use of a non-parametric Kruskal-Wallis test confirmed relationships in the following areas of management (table 8):

- Supply management (I7.4),
- Price policy management (I7.5),
- Management of the policy of communication with the market (I7.7),
- Finance management (I7.11).

Table no. 8: Dependencies between a region's attractiveness and chosen areas of management (N=282)

	Supply / sales system management	Price policy management	Management of the policy of communication with the market	Financial management
Chi-square	9.987	7.813	11.324	12.246
df	3	3	3	3
Asymptotic significance	.019	.050	.010	.007

Source: Author's research.

The null hypothesis proposes that the distributions of the variable under analysis (e.g., in financial management) in the groups labeled with the variable "attractiveness of the voivodeship" are identical. The alternative hypothesis is these distributions would differ. The value of the K-W test for service companies is 12.246 and enters the critical region of the chi-square statistic for the level of significance of $p=0.05$. The null hypothesis must therefore be rejected in favor of the alternative hypothesis. The other areas of management would behave likewise.

Consequently, there is no justification for the rejection of hypothesis H3. This result means that the scale of implementation of management innovation by SMEs in the service sector differs by territory, mainly due to the varying levels of socio-economic development of different regions in Poland.

4. Discussion and conclusions

To summarize the research results presented above, the complexity of the problems involved in the use of innovation, including innovation in management, among SMEs in the service sector must be noted. As the preceding discussion of the issue suggests, the knowledge on innovation among SME managers is quite varied. A large proportion of managers are aware of the possibilities offered by innovative solutions. However, although they realize that any area of management may be subject to innovation, they are not always capable of properly introducing it.

Nonetheless, innovation among SMEs in the service sector in Poland should be appraised positively. Its level is comparable with the level characteristic of the whole population of enterprises. Improvements in the field of knowledge transfer with respect to innovation and its adoption should therefore be directed not only at the managers of SMEs in the service sector but rather at managers in all companies comprising the Polish economy, irrespective of size and industry. Considering the flexibility of SMEs, the research results presented by Keizer et al. (2002) have been confirmed. The present study on the SME sector confirmed that neither the education of the manager nor the number of employees with higher education are contributing factors in fostering innovation in enterprises.

Thus, a question arises as to what barriers might be hindering the development of innovation in the SME service sector in Poland. In fact, as with the whole economy, the main impediment to implementing innovative solutions in management is not lack of knowledge or awareness among managers but the lack of financial resources (Nowacki, 2010). The financial factor increases in importance, especially in the period of economic slowdown that Poland is currently experiencing as a result of the global economic crisis. Its effect is visible, for instance, in the limitation of funds allocated to innovative activities that are both costly and risky.

The analysis of the territorial differences in the scale of implementation of management innovation points to interesting conclusions. Although our research results confirmed territorial differences, it was quite surprising to find a stronger incentive to introduce innovation among entities operating in the less developed voivodeships. Several factors might have influenced these results. First, competition is stronger in markets with insufficient demand. Demand-side barriers and the corresponding risk forces entities to be more flexible and enterprising in pursuing new ways of improving their operations. Second, firms in less developed voivodeships have access to funds provided by the programs of the European Union (mainly from the European Regional Development Fund), including those aimed directly at shaping a company's competitiveness (The Sectoral Operational Programme Improvement of the Competitiveness of Enterprises) or at enhancing innovation (Innovative Economy. Operational Programme). Finally, there is better cooperation between business (including the small businesses that are interrelated with the SME sector) and science in these voivodeships.

Although innovative management activity in SMEs in the service sector has been generally positive, several issues relating to the processes of creating and implementing management innovation should be examined:

- the relatively high level of general knowledge on innovative solutions among service sector SMEs compared with the whole population of enterprises is not always applied to practical implementation, even when there are opportunities to do so;

- SMEs have limited access to knowledge on innovation because of the lack of cooperation among entities that are supposed to create and support the industrial application of innovations, such as scientific and expert centers formed to support innovation and entrepreneurship;
- financing innovation is difficult because of the generally limited access to financial resources among SMEs, the lack of access to external financing sources, and the reluctance of the central and local administration to create a system of allowances that would increase interest in innovation;
- negative attitudes towards innovative solutions as being costly, risky, and burdensome prevail among both the managerial staff and low-level employees from time to time;
- although a considerably varied range of innovative activities are undertaken, these activities are performed unsystematically or left unfinished, thus producing accidental outcomes rather than ones that align with a long-term strategy.

5. Recommendations

Although the level of innovativeness of SMEs in the Polish service sector is not in the worst possible condition, the diverse perception among their top managers concerning the importance of innovation for the development of an enterprise must be addressed. In our view, managers must change their attitude towards innovation. They must pay more attention to how they can continually improve in terms of innovation, and especially to how they can continue to learn industry best practices so as to achieve exceptional efficiency for their enterprise. In this case, a certain type of benchmarking becomes especially important – dynamic and flexible SMEs should have the opportunity to observe how large corporations with more substantial and organized resources operate so that they can draw on their experience, even if on a smaller scale and in a limited market.

Additionally, the research conclusions presented above prompt us to make some recommendations for the support of pro-innovation management systems in an enterprise to improve its competitiveness in the market. These recommendations may be divided into two areas of interest: the first area concerns managers of SMEs in the service sector who are interested in improving their own competitiveness through the implementation of innovative solutions in management; the second comprises suggestions for institutions and administrative bodies that are actively engaged with businesses and interested in supporting innovation and entrepreneurship.

The following suggestions may be put forward concerning SMEs in the service sector:

- the managerial staff should be encouraged to be more open to becoming more innovative and flexible in using its resources and to be more willing to cooperate with business-related institutions, the academic environment, and other enterprises for greater access to innovative solutions, which can be introduced on the condition that risk – an inseparable element of investing in innovation – is taken;
- the attitude of the managerial staff and low-level employees towards innovation should be managed in such a way that innovation would be perceived not as a threat to the

stability of the organizational system but a way of refining the company's structures, and thus of increasing the effectiveness of the managerial processes and the firm's profits to the benefit of both the organization and all employees involved;

- more effort should be expended towards finding sources for financing innovation, including aid funds provided by the European Union. SMEs should be proactive not only in identifying the financial requirements for implementing innovation but also in applying for available funds to meet those requirements.

As far as suggestions for institutions operating in the environment of the SME service sector are concerned, it is especially necessary to do the following:

- widely promote knowledge on management innovations, which should be done by institutions that are responsible for shaping innovation policy and have the appropriate capabilities, including academic centers conducting research in the field of development and introduction of innovation;

- create a system of support, including financial support (e.g., granting subsidies, loans, or tax reliefs) for SMEs (including service ones) interested in undertaking innovation activity in the field of management. Existing innovation support programs focus mainly on product or process innovations; marketing and organizational ones (i.e., those encompassing most management issues) are given less attention;

- increase the scale of cooperation between academic centers and entrepreneurs. Given the nature of academic centers and their activities, they should strive to support business activity insofar as business is part of the economic system that complements the state budget in financing science. Although economic entities provide little (and in the case of the SME service sector, even scant) contribution to financing science in Poland, attempts should be made, following the example of highly developed countries, to change this trend and to increase the amount of non-public funds allocated to research and development activity.

These two areas of recommendation are complementary. Following these suggestions may contribute to increased interest among companies to undertake innovative activity in the area of management. In turn, this undertaking might lead to improvements in their competitiveness and in the operation of the overall market economy, thus positively influencing economic growth.

6. Limitations and further research

The discussions in this paper prompt us to reflect on how to broaden research in the field of SME innovation in the Polish service sector. In fact, the results presented here provide information on only a small portion of a large and complex issue. Further studies would be interesting from the cognitive perspective, and they would undeniably be justified due to the possibility of gaining substantive knowledge. On the one hand, the number of entities included in the sample could be increased so that a wider variety of sectors and various areas of service activity could be analyzed. On the other hand, additional studies could investigate various types of innovation rather than innovation as a whole; e.g., a study should cover particular areas of management because innovative solutions and possibilities for their implementation may differ for different areas of management. The problem of

barriers to innovation and the incentives that shape innovative activity in management should also be probed. Finally, studies should address the issue of how to assess the effectiveness of introducing innovation in management, considering both methodology (i.e., ways of measurement) and the actual effects of the innovative activities demonstrated by the SME service sector.

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