THE KNOWLEDGE MANAGEMENT FOR INNOVATION PROCESSES FOR SME SECTOR COMPANIES

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Abstract:
The complexity and variability of the modern economy means that the information becomes a key resource, essential for the proper functioning of any enterprise, and in the broader sense of the country and the national economy. Currently, practical all areas of modern economics are grappling with the problem of information management, in both theory and practice. It is especially visible in attempts to support knowledge management in the areas which are considered core from the point of view of increasing competitiveness of the company on the market. Knowledge management in the field of company's innovative potential or in the area of the intellectual capital may serve as an example. This situation forces search for new solutions of knowledge management in the field of research and evaluation of the innovative potential of companies.

The author formulated the two following research hypotheses:

H1: Properly designed IT system improves the efficiency of knowledge management in the area of analysis and evaluation of innovative potential of the company.

H2: Information provided via the described tools allow you to evaluate the innovative potential of the enterprise.

The main purpose of this article is to present an Internet platform for innovation audit, as a tool which supports knowledge management. An additional goal of this article is to present the preliminary results of research carried out by means of the described tools.

Keywords: Knowledge Management, IT Based KM System, Innovation Potential.

1. KNOWLEDGE MANAGEMENT BASED ON IT SYSTEMS. THE SHORT LITERATURE REVIEW OF THE PROBLEM CONCEPT

Knowledge management is defined as all activities aiming at identifying, gathering, processing and making available of explicit/tacit knowledge in order to increase the efficiency and effectiveness of the company's operations [Roa, 2004, p.23]. The model describes the elements of knowledge management system was presented by J. Liebowitz. All currently functioning knowledge management systems using this model (or models with minor modifications) [Liebowitz 1999].
Recently, knowledge management applies to all crucial areas of business activity, and essentially includes the following areas [Watson, 2003, p.31, Awad, Ghaziri 2007]:

1. Information and access to information management (support of the management process for knowledge codified in the structured or not structured databases – that is management of public knowledge).

2. Management of the organizational process knowledge.

3. Management of the company's employees' knowledge (tacit knowledge).

4. Management of the company's knowledge integration from the internal and external systems.

5. Intellectual capital management (supporting the process of generating value from intellectual assets available in the company).

The debate concerning the issues of knowledge management equally focuses on the methods and techniques of gathering knowledge and on technical measures utilized in this process¹.

Importance and significance of the modern knowledge management supporting tools is particularly emphasized in the so-called Japanese knowledge management model (SECI), created by I. Nonaka and H. Takeuchi [Nonaka, Takeuchi, 1995, p. 69]. In recent years, a number of models illustrating development and operation principles of the knowledge management system in a company have been created. Published models present interactions of the knowledge management system with the business processes taking place in a company.

In the model proposed by G. Probst, S Rauba and K. Romhardt the following stages of knowledge management have been distinguished [Probst, Rauba, Romhardt, 2002, p. 119]:

– knowledge locating,

– knowledge acquisition,

– knowledge development,

– knowledge sharing and knowledge distribution,
– knowledge usage,
– knowledge preservation.

Analysis of this model indicates the necessity of connecting the knowledge management system with the information system of the company. It is especially visible in the areas of knowledge distribution, processing and storing. Connections between the knowledge management system in a company and the IT systems are presented schematically on picture No. 1.

**Picture 1. Significance of IT systems in knowledge management**

![Diagram of knowledge management system](image)

Source: Own elaboration.

The schema illustrates the cycle of the process of the creation, storage, distribution and the implementation of the knowledge (with the regard of the using IT tools). On the schema indicated also functional areas of enterprises which take the active participation in processes of the creation and using of the knowledge. Generated knowledge thanks to methods of controlling bears on processes of organizational in the enterprise. Effective organizational processes influence profitably the culture of the enterprise and in the further consequence the effective resource management.

For a long time, formalized knowledge management was in fact only reserved for large companies. Meanwhile, increase in market competition and the dynamic changes in
companies' external environment in recent years have made also small and medium enterprises attach great importance to the issues of knowledge management. It is especially visible in attempts to support knowledge management in the areas which are considered core from the point of view of increasing competitiveness of the company on the market [Chan 2009]. Knowledge management in the field of company's innovative potential or in the area of the intellectual capital may serve as an example.

Analysis of the literature and practical solutions to the described scope, shows that from the perspective of knowledge management, benchmarking is an excellent source of information. The main advantage of this method is the ability to measure and compare the size of both quantitative and qualitative. These features allow benchmarking to better understand the processes occurring inside the companies as an effective creation of knowledge about these processes. The knowledge created in the process of benchmarking can be used in practice to improve the competitiveness of enterprises (usually by improving the quality of products and services and reorganization of business structures). And in the long term, thanks to the possibility of identifying best practices, knowledge created in the process of benchmarking can contribute to a precise strategy of enterprises.

2. SUPPORTING KNOWLEDGE MANAGEMENT IN THE AREA OF INNOVATION POTENTIAL FOR SME COMPANIES. THE ADOPTED METHODOLOGY AND RESEARCH LIMITATION.

In the process of deliberate knowledge creation, in the area of company's innovative potential, dedicated information systems begin to play a more important role. IT tools allow efficient gathering of data related to the evaluation of the innovative processes, and they provide an advanced tool which allows detailed and in-depth analysis of different aspects of stages of the innovative process from the point of view of the company. In addition, thanks to gathered data, such systems enable a number of benchmarking comparisons to be conducted, which may become the basis for formulating the strategy concerning development directions
for innovativeness. Knowledge management in the area of innovative potential is not only a problem of lack of effective support tools. It is also the problem of obtaining adequate data to describe accurately the main determinants of innovation.

At the same time, it can be indicated that the large companies have already noticed this problem long time ago and systematically modify their IT infrastructure in order to obtain as high analytical knowledge management effectiveness in the above designated areas as possible [Prahalda, Krishnan, 2008, p. 31].

Meanwhile, companies of the SME sector do not have at their disposal any dedicated tools which directly support the knowledge management in the area of the company's innovative potential. Knowledge management in the companies of the SME sector is usually based on the commonly available IT solutions which very often do not provide sufficient efficiency.

Situation described above forces search for new solutions of knowledge management in the field of research and evaluation of the innovative potential of companies. Dedicated IT systems which facilitate gathering and analyzing of data describing the innovative potential of companies may be a partial solution to the aforementioned problems [Falbo, Arantes, Natali, 2004, Zanjani, Rouzbehani, Dabbagh, 2008].

An audit of the company's innovative potential based on modern IT solutions may be an example of such a dedicated IT system. It may be a perfect tool for creating knowledge about the company's innovativeness and it may stimulate construction and improvement in the strategy in the field of innovativeness development.

At the beginning of 2009, at the Faculty of Management and Economics of Services at the University of Szczecin attempts were made to create an IT system for supporting knowledge management in the field of analysis and evaluation of a company's innovative potential.
The author of the publication formulated the following research hypothesis:

*A properly designed IT system improves the efficiency of knowledge management in the area of analysis and evaluation of innovative potential of the company.*

The main research goal was to design and implement knowledge management tools to assist in the analysis and evaluation of innovative potential of the company. Execution of research required to carry out the following activities:

1. Analysis of the innovation process implemented in the enterprise.
2. Preparation of specification and design for knowledge management system.
3. Make the implementation of the system.
4. A research of the innovative potential of enterprises using created knowledge management system.
5. The evaluation of the results.

The basic research goal has been achieved based on the logical induction method basing on the analysis of the innovative abilities measurement of the small and medium businesses sector companies, the detailed analysis of the innovative process implemented in a company. The research includes all the key internal determinants influencing the company’s ability to implement the efficient innovative activity. In pursuing the study used a benchmarking method, which helped to make comparative analyzes. The research was conducted according to the model presented in picture No. 2.

The system which was being created was expected to be dedicated for small and medium enterprises. In assumption, the designed system, created in the form of an audit platform, was expected to be an easy to use, flexible and effective tool, which would support entrepreneurs in the process of gathering and analyzing data concerning crucial areas of the company's innovative policy. Additionally, the created system was supposed to allow benchmarking
comparisons to be conducted of the obtained results, with the other data registered in the system.

**Picture 2. Research model**

Source: Own elaboration.

The structure of an innovation audit corresponds with an analysis of subsequent phases of the innovative project's implementation process, starting from the analysis of the situation and environment of the subject, through competent searching for new ideas, accurate estimation of future results, obtaining sources of financing, to an effective and efficient implementation of initiatives along with necessary control of their products and results.

Course of the innovation process in an organization, based on the adopted strategy of innovativeness, requires continuous, reliable analysis, whose results will provide reliable source for making effective business decisions. It may include identification of organization's problems, development of ideas, creation of programs and projects in a area of innovations, conducting research and development and improving particular phases of the courses of process in an organization and products, and evaluation of acceptance of new solutions by clients and other stakeholders.

Based on the concept of resource innovation in enterprises\(^2\), the author made an attempt to identify the main determinants of the innovation potential of SMEs in Poland - factors

\(^2\) For example: M. Zastępowski, Uwarunkowania budowy potencjału innowacyjnego polskich małych i średnich przedsiębiorstw, Wydawnictwo Naukowe Uniwersytetu Mikołaja Kopernika, Toruń 2010 or M. Pichlak,
affecting the feasibility of innovative activity. In the literature there are many definitions of resource companies - in the context of the implementation of innovative activity. Based on the analysis of literature and research results of other authors, the paper proposes an original concept of internal resources that make up the innovative potential of enterprises. The concept of creative resources that affect innovation activity. This concept is based on the functional decomposition innovation processes used in practice. Simplified diagram of the innovation process with an indication of the role of the internal components of the innovation potential is presented in picture No 3.

**Picture 3** Simplified diagram of the innovation process with an indication of the role of the internal components of the innovation potential

Innovation audit process is conducted using the research survey. The questions are divided into eight categories – which corresponds to the stages of the innovative process in the company and the concept of creative resources:

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Uwarunkowania Innowacyjności Organizacji, Studium Teoretyczne i Wyniki Badań Empirycznych, Difin, Warszawa 2012
1. analysis of the situation inside and outside the company (cat1),
2. problem of seeking ideas for innovation (cat2),
3. the issue of planning projects in the field of innovation (cat3),
4. financing of innovative projects (cat4),
5. culture of innovation and human resources development strategy (cat5),
6. internal communication within the company and its organization (cat6),
7. the issue of diffusion of innovation and commercialization (cat7),
8. the issue of implementation of innovative projects (cat8).

Such research methodology is consistent with the path of implementation of the innovative process, universally described in the subject literature [Vahs, Burmester, 2003, p. 144].

Picture 4 Used analytical data model describing the innovative activities of surveyed enterprises

In the process of preparing a research tool was extremely important to prepare the data model. The system adopted a multi-dimensional data model dedicated to OLAP analytics. Such solution makes possible the advanced data analysis. Information generated cross sections can be a direct source of knowledge for the process of applying for the study area. An example of an OLAP data cube is presented in picture No. 4 As dimensions (descriptive data)
were proposed: the size of companies, industries and type of innovation. As the numerical data used in the assessment of creative resources.

Technical design of this system, its rules and the basic functionality has already been the subject of other publications. In this publication, deliberately limited to the description of the model of the data and its benefits in the context of knowledge management research.

THE PRELIMINARY RESULTS OF EMPIRICAL RESEARCH.

Research on innovation of SMEs are a key project being carried out by the Faculty of Economics and Management Services US. Previously described tool provides a series of data to analyze innovation processes taking place in the enterprise. In the remainder of the publication will be presented some results of the analysis of the innovation potential of SME companies in the West Pomeranian region. The selection of firms to the research was not a purposeful selection. The information on the audit platform was sent to 3000 firms of the SME sector. The author analysed all firm which made the independent (voluntary) registration in described system.

At the moment, (as for 01.11.2012) 418 companies were registered in the system (innovation audit of the registered companies was made). Registered companies performed 796 audits. Companies registered the in system performed more than two thousands comparisons with other companies (groups of companies) registered in the system.

Registered data allowed users of the system (enterprises) to make precise evaluations of company's innovative process potential, to analyze company's position in comparison to selected segments of companies, and, at the same time, to evaluate competitive position, in the field of innovation or eventually to evaluate the dynamics of changes of the innovative potential over time. This data provides valuable knowledge to companies concerning formulation of a strategy of activity with regard to creating a company's innovative potential.

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The presented audit platform is available on the website www.ai.wzieu.pl

and competitive position. Statistics of the number of registered users and statistics of the conducted surveys in the period from May 1st 2009 to November 1st 2012 have been presented in detail on picture No. 5.

Data registered in the system made it possible for employees of the Faculty of Management and Economics of Services to conduct a number of researches and analysis related to assessment of company's innovative potential at the regional level. The results allow to confirm the first of the hypotheses.

**Picture 5.** Statistics of users registration in the system and statistics of the conducted innovation audits

The size structure of enterprises registered in the system is as follows: micro 65%, small 31%, average 4%, and business activity structure is: 65% services, 35% production. This structure confirms the need for management expertise in the innovative potential especially in micro and small enterprises. This is probably due to the fact that micro and small enterprises often do not have the tools to efficiently acquire and manage knowledge in the described area. Also draws attention to the fact that companies operating a service, often used the platform. This is because on the one hand the structure of the West Pomeranian region's

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5 The report on pilot survey of the innovative potential of companies in the West Pomeranian Province which was conducted using the described audit platform can be found on the site www.ai.wzieu.pl: P. Niedzielski, W. Downar, M. Skweres Kuchta, Innovative Audit (Audyt Innowacyjności), Report on pilot survey, Szczececin 2010. In addition, data obtained via the platform have been utilized in a number of scientific publications, see. T. Norek The impact of the Innovative Potential of Polish SME Companies on their Innovative Activity Realization Models, GSTF Business Review Vol. 1 No. 4
economy, on the other hand, one can assume that it is the services sector companies seeking information about the possibility of more intensive management of knowledge in the field of innovation potential.

The second hypothesis is: *Information provided via the described tools allow you to evaluate the innovative potential of the enterprise.* In order to prove the author presents the results of research and the benefits of scientific research findings.

In Table No. 1 presents the aggregated values for the innovative potential of the enterprises surveyed in the analyzed areas (darker color highlights below average in the distribution). The table also presents the dynamics of changes in value (year 2011 compared to 2009 - data from the year 2012 have been deliberately omitted because it does not represent the whole year) and calculated the significance of individual characteristics (weight). The analysis of obtained results allows to state that the examined companies demonstrate the lowest internal innovative potential with regard to:

1. innovative culture (general evaluation of this category for the whole sample is 2.23, the importance of this area was rated by respondents on 5)
2. internal communication within the company and its organization (general evaluation of this category for the whole sample is 2.37, The importance of this area was rated by respondents on 3.0)
3. issue of planning projects in the field of innovation (general evaluation of this category for the whole sample is 2.43, The importance of this area was rated by respondents on 3.0).
4. financing of innovative projects (general evaluation of this category for the whole sample is 2.9, The importance of this area was rated by respondents on 5.0)
5. These areas can be considered simultaneously as the most important barriers to development of innovativeness of Polish enterprises.
6. Such low result in these categories may be caused by the lack of experience of examined companies related to innovation, historical lack of innovation culture in Polish SME companies and the continuously lasting transition of Polish economy (from centrally planned to free-market).

Table 1. Aggregate values for the innovation capacity of enterprises surveyed

<table>
<thead>
<tr>
<th>Type of business/Stages of the innovation process</th>
<th>Aggregate Values</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>The dynamics of changes 2011/2010</th>
<th>Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Culture of innovation and human resources development strategy</td>
<td>1,97</td>
<td>2,23</td>
<td>2,23</td>
<td>2,22</td>
<td>0,00%</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Internal communication within the company and its organization</td>
<td>2,33</td>
<td>2,37</td>
<td>2,37</td>
<td>2,38</td>
<td>0,00%</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Diffusion of innovation and commercialization</td>
<td>3,50</td>
<td>3,40</td>
<td>3,47</td>
<td>3,45</td>
<td>-1,96%</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>The issue of implementation of innovative</td>
<td>3,27</td>
<td>3,13</td>
<td>3,27</td>
<td>3,27</td>
<td>-4,26%</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Financing of innovative projects</td>
<td>3,30</td>
<td>3,13</td>
<td>2,90</td>
<td>2,91</td>
<td>7,45%</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>The issue of planning projects in the field of innovation</td>
<td>2,50</td>
<td>2,43</td>
<td>2,43</td>
<td>2,41</td>
<td>0,00%</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Problem of seeking ideas for innovation</td>
<td>2,97</td>
<td>3,20</td>
<td>3,20</td>
<td>3,21</td>
<td>-3,23%</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Analysis of the situation and environment</td>
<td>3,30</td>
<td>3,23</td>
<td>3,67</td>
<td>3,65</td>
<td>-13,40%</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Innovative potential</td>
<td>2,89</td>
<td>2,88</td>
<td>2,94</td>
<td>2,93</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
</tbody>
</table>

Source: own elaboration

It should be noted that, in spite of a low innovative potential in most of the researched categories, the analyzed companies evaluated their own capacity with regard to transferring the results of innovative activities onto the market very highly (general evaluation of this category for the whole sample is 3.47).

A positive aspect is the fact that the examined companies, over the three analyzed years, increased the innovative potential in most of the evaluated categories, the general change of innovative potential of the examined companies amounted to 1,73%. The examined companies in the analyzed period (2009-2011) increased the innovative potential the most with regard to innovative culture (change by 13,56% between the first and the third research) and with regard to the analysis of the situation and environment (change by 11,11% between the first and the third research). On the other hand, the biggest decrease in the potential of the examined companies occurred in the category financing (change by -12.12% between the first
and the third research) and in the category *The issue of planning projects in the field of innovation* (change by -2.67% between the first and the third research) - which may also be explained by a reduced availability of financial funds for innovative activities.

A higher innovative potential can be seen in production companies rather than in service companies among the examined companies. Analyzing the size of companies, it may be concluded that medium companies have a much larger innovative potential. The analysis of results indicates that the lowest internal innovative potential can be seen in micro and small service companies. Medium production companies have the highest innovative potential.

The author also examined the strength of the correlation between the determinants of innovation capacity. This allowed to assess the mutual influence of each variable on each other. The author conducted a correlation analysis for all eight areas studied - correlation analysis was performed using SPSS software (Pearson correlation test). The analysis showed that the largest (strongest) effect on other variables exert the following areas:

1. innovative culture,
2. financing of innovative projects.

A taxonomic cluster analysis conducted by means of SPSS package (supporting statistical analysis) which demonstrated the existence of three main groups of examined companies:

1. not innovative companies,
2. companies developing in terms of innovative potential,
3. leaders of innovative potential.

For the creation of the innovative activity models for the examined companies the Author has applied the agglomerative clustering method based on the closest neighbourhood, the group average method and the Ward method. The author took into consideration the number, significance and intensity of the features describing the innovative potential of the examined companies and deliberately applied three methods of taxonomic clustering (in order to
achieve comparability of the results). Such constructional assumption for the created models is correct from the econometric point of view and provides the data required for the creation of the innovative activity models of companies and for the inference. The presented taxonomy results and the based on them descriptive models of innovative activity of the examined companies consider the data for the full last research period, which is the year 2011 - data from the year 2012 have been deliberately omitted because it does not represent the whole year. The presented descriptive models give general characteristics of the innovative activity of the examined companies. In Table No. 2 presents the overall results of clusters analysis.

<table>
<thead>
<tr>
<th>Type of business/ Stages of the innovation process.</th>
<th>Non innovatives companies</th>
<th>Developing companies</th>
<th>Liders of innovative potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Culture of innovation and human resources development strategy</td>
<td>1,3</td>
<td>3,8</td>
<td>4,3</td>
</tr>
<tr>
<td>Internal communication within the company and its organization</td>
<td>1,8</td>
<td>3</td>
<td>4,3</td>
</tr>
<tr>
<td>Diffusion of innovation and commercialization</td>
<td>2,4</td>
<td>3,8</td>
<td>4</td>
</tr>
<tr>
<td>The issue of implementation of innovative</td>
<td>2,5</td>
<td>3,3</td>
<td>4,2</td>
</tr>
<tr>
<td>Financing of innovative projects</td>
<td>2,8</td>
<td>3,3</td>
<td>4,1</td>
</tr>
<tr>
<td>The issue of planning projects in the field of innovation</td>
<td>1,8</td>
<td>3,4</td>
<td>4,3</td>
</tr>
<tr>
<td>Problem of seeking ideas for innovation</td>
<td>2,4</td>
<td>3,7</td>
<td>4</td>
</tr>
<tr>
<td>Analysis of the situation and environment</td>
<td>2,8</td>
<td>3,4</td>
<td>4</td>
</tr>
<tr>
<td>Aggregate innovative potential</td>
<td>2,2</td>
<td>3,5</td>
<td>4,2</td>
</tr>
<tr>
<td>Numbers of companies in the group</td>
<td>256 (61%)</td>
<td>91 (22%)</td>
<td>37 (9%)</td>
</tr>
</tbody>
</table>

Source: own elaboration

The first group (61%, namely 256 of the examined companies) are companies with potential definitely below the average potential as compared to the examined companies. This group may be identified as not innovative. This groups includes, first of all, micro and small service companies and micro production companies. Companies in this group have low innovation culture, they practically do not conduct organized and formalized innovative activities with regard to analyzing the situation and environment, searching for ideas for innovative activities or implementing innovative projects.
The companies of this group reveal very low tendency to take a risk. Profits of this group of companies to a very small extent result from the innovative activity and the innovations introduced by the companies are usually seeming and imitative (or there is a complete absence of innovative products or services in the offer of the companies from the group).

The companies from this group hardly assign any financial means (either own or external in the form of e.g.: bank loans or available subsidies for the development of innovativeness) for the implementation of their innovative activity, very seldom they cooperate with other market participants (companies, research centres or the institutions from business environment).

The companies from this group are not able to make a precise evaluation of own innovative potential and the results of own innovative activity and they do not lie their future in the introduction of innovations to the market, they declare the limitation of their activity exclusively to the basic scope of activity - which indicates closure to the innovativeness.

The second group (22%, namely 91 of the examined companies) is a group of companies that demonstrate innovative potential on the border of the average value of particular distributions with an increasing trend. This group includes mostly small and medium companies conducting mainly production activities. This group may be identified as a group of companies developing in terms of internal innovative potential. Companies from this group demonstrate the largest potential with regard to evaluating and planning innovative projects, analyzing the situation and environment and searching for ideas with regard to innovation.

Unfortunately, the companies from the group frequently have problems with financing innovative undertakings, which may be explained with a noticeable in the group problems with market facilitation of the innovations (which is a common feature with the companies described as non-innovative).
The companies from this group often reveal unsatisfactory experience in scope of the implementation of innovative undertakings (lack of the ability to cooperate with other market participants) and the lack of the ability to analyse and evaluate own innovative activities.

The companies of this group gradually increase their innovative culture, they try to formalize their innovative activity (with human resources development, formalizing the management of knowledge in the company and constructing company structures responsible for the implementation of innovative projects) and actively try to procure means (especially external) for financing the implementation of innovative projects. The companies from this group are characterized by the openness to ideas and relatively high ability to take a risk related to the implementation of the innovative activity (which is a common feature with the group of the innovativeness leaders).

The companies from this group almost unambiguously lie their future in conducting innovative activity as well as undertaking actions aiming at the improvement of their innovative potential, but they seldom have precisely determined directions of own innovative activity development.

The third group (9%, namely 37 of the examined companies) are companies with high potential as compared to the analyzed group and characterized by high innovation culture. Companies from this group often introduce innovations on a trade scale. This group may be called the leaders of innovative potential in the Polish SME sector. This group includes mainly medium companies conducting production activities. These companies demonstrate a higher innovative potential in all categories than the remaining examined companies.

The companies from this group gain large profits (market facilitation) on the sale of innovative goods and services, reveal high innovative awareness and culture and attach importance to the organized and planned management of innovations (searching for ideas in scope of innovations, implementation of innovative ideas or the ability to measure and
evaluate the efficiency of own innovative activity) and to the development of human resources related to the implementation of the innovative processes.

The companies from this group have funds in their budgets assigned for conducting innovative activity and reveal extensive activity in procuring external means enabling financing the implementation of innovative projects. The companies from this group reveal extensive ability to undertake innovative projects and they widely cooperate in scope of the innovativeness with other market participants and research institutes. The companies from this group explicitly lie their future in the introduction of innovative goods and services to the market and have precisely defined directions of developing own innovative activity.

This indicates the presence of large polarization between a leader of innovation and developing companies in relation to not innovative companies. Additionally, this situation may cause perpetuation of innovative models of implementation activity - which is highly unfavorable in the case of not innovative companies.

The results allow to confirm the second of the hypotheses.

CONCLUSION AND RECOMMENDATIONS FOR FURTHER RESEARCH

The conclusions of the study can be broadly divided into two areas. The first plane is described proposals for a tool to support knowledge management. Current capabilities and future direction of the development of the system. The second plane are requests for the data obtained and, in particular, their values in the process of scientific research.

A large interest in the platform stimulates employees of the Faculty of Management and Economics of Services to continue research and development works related to the system. Some of the planned changes and implementations of the system's subsequent modules are
own ideas of the department's employees, some are a response to comments and suggestions reported by current users of the platform.

At the present time, works related to developing a graphic presentation module of the gathered data are in progress – the system will present predefined indicators describing innovative potential of a region in a tabular form and in a form of graphs. Users of the system will also be allowed to create their own sets of indicators and subject them to observations. Another planned step related to extension of the described audit platform is the system of monitoring and notifying users automatically of changes in the area of crucial indicators. This module will – according to the user's definition – monitor defined groups of indicators and in case of changes (threshold value of change which the system will react to will also be defined by user) it will notify the user of the platform. In the future, authors also plan implementation of a module presenting gathered data on maps, – this will enable effective and transparent analysis and evaluation of a company's innovative potential in a geographic perspective. First researches completed by the presented system indicate that this is a very effective tool, which have a significant impact on supporting knowledge management in the field of gathering and processing information concerning crucial areas, which create innovative potential, and conduct precise evaluations of the company operations. An additional positive aspect of the created system is that it supports scientific research in the field of companies' innovation. The author examined the opinion of firms using described system. The author examined following features: the operating comfort of the system, the utility of the delivered information, the efficiency of the system. Till 82% users evaluated the system (general mark) as very good, and 11% users evaluated the system as good. Such result permits to describe the system as perfect tool.

Data provided by the described system enables research in the innovative potential of enterprises. The big advantage is the ability to analyze the dynamics of the processes
(comparison period to period) and compare it with each group of selected companies (benchmarking). It seems that the direction of development will be valuable to increase the amount of data recorded by the system (the development of measurement tools). This will allow a wider range of conduct analyzes and in-depth analyzes. In the author's opinion it is also necessary to compare the results of research with the results of other authors (or the results to be published on the basis of publicly available data, eg EUROSTAT).

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