

EVALUATION OF KNOWLEDGE MANAGEMENT IN SMALL AND MEDIUM-SIZED ENTERPRISES

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Abstract: This paper presents the results of the study which analysed knowledge management in small and medium-sized enterprises in the Częstochowa powiat. A Model of Stages in Employee Knowledge Growth was developed as an evaluation tool. The activities and behaviours of employees concerning management of knowledge resources were also characterized in the context of current knowledge-based processes.

Keywords: knowledge management, Model of Stages in Employee Knowledge Growth, SME

Introduction

Technological innovation in recent years, globalization of economic activities, and social and economic transitions have transformed the classical approach to competitiveness and methods of managing enterprises in under conditions of the innovative knowledge-based economy [1]. This economy should be dominated by high flexibility of operations, focus on extending knowledge, developing employees' skills, investments in continuous improvement and orientation towards knowledge management. Knowledge management has become a key problem in the context of management of contemporary enterprises. The need arises for performance of small and medium-sized enterprises to be analysed in the aspect of knowledge management in order to diagnose the status of knowledge. Knowledge resources are considered as the most essential from the standpoint of operation of enterprises because, if properly managed, knowledge provides the basis for development of competitive and innovative business processes and business solutions [2]. Knowledge represents a specific resource that differs significantly from factors of production. Managing these resources require a specific approach to the strategy, structure and organizational culture, and choosing appropriate knowledge management tool or acquisition of new employee competencies. Each employee, using their knowledge, experience and skills, generate value through creative thinking, analysis, synthesis and formulation of views. Further, using the tools, structures, systems and procedures that support knowledge development and knowledge flow, the employee makes decisions and takes activities to make the knowledge available for achievement of the enterprise's goals. The aim of this paper is to assess the status of knowledge management in small and medium-sized enterprises and evaluate the level of knowledge and employees' activity in this field.

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Model of Stages in Employee Knowledge Growth

A synthetic measure of developmental dynamics of the condition of small and medium-sized enterprises in the field of knowledge management was developed for the purposes of this study. The measure was construed based on partial measures of individual aspects of performance in the enterprises studied.

The study developed the descriptive Model of Stages in Employee Knowledge Growth which reflects the stages of smooth transition, development and the current state of the enterprise, from total chaos and ignorance towards comprehensive knowledge. The model is based on the Bohn's knowledge growth model [3] as a method of process capability and knowledge of the employees and the enterprise. This method helps obtain a broad and comprehensive picture of general situation in the enterprise, which was the assumption at the initial stage of the study.

The model uses the description of the stages which characterize the status of knowledge management in an enterprise over a specific time period. This status might vary as the resources of knowledge about customers, markets, products or services increase. The description of individual stages in the Model of Stages in Employee Knowledge Growth and the proposed method of evaluation represent the system of reference that helps identify the position, evaluate and measure the performance of the enterprise in terms of knowledge management compared to competitors and the sector.

The use of the concept of knowledge management model requires a precise identification and understanding current relationships between input data (main processes) and output data (outcomes). The model was designed to diagnose the status of an enterprise in terms of managing knowledge resources and to point to the opportunities for changes and, if possible, the directions towards improvement in knowledge management processes. Transformation of an enterprise, through implementation of changes and evolution, into the consecutive stages in the Model of Stages in Employee Knowledge Growth towards full orientation towards knowledge is a gradual process that involves changes in enterprise management system. This is expected to help achieve potential benefits in the form of improved communication both inside and outside the enterprise, cooperation between individual employees, divisions and task forces, more efficient learning processes, creation of innovative solutions and enhanced enterprise's performance.

Evaluation of knowledge management in small and medium-sized enterprises

The model developed in the study helped carry out an anonymous survey among small and medium-sized enterprises in the area of the Częstochowa city and Częstochowa powiat. A group of enterprises selected for the study comprised of 164 entities, while the actual survey was carried out in 142 enterprises that filled out questionnaires appropriately and expressed their readiness to cooperate during an interview.

The assessment of knowledge management in the enterprises studied consisted in analysis that focused on an estimative assignment of points made by the respondents, who were managers in small and medium-sized enterprises based on knowledge, experience and intuition. During the interview, the respondents assigned weights to individual problems, activities, behaviours and processes according to the degree of performance of these tasks.

Table 1. Results of the overall assessment of knowledge management in enterprises

Stage	Stage name	Number of points in individual ranges	Number of enterprises
0	Chaotic knowledge	0-90	0
1	Low awareness of knowledge	91-185	11
2	Moderate knowledge	186-275	32
3	Medium state of knowledge management	276-365	53
4	Efficient knowledge management	366-460	41
5	Full, comprehensive and integrated knowledge	461-550	5

Source: author's own elaboration

Based on the analysis of the assessment obtained from the respondents and specific point ranges, all the small and medium-sized enterprises were divided and qualified for the stages within the Model of Stages in Employee Knowledge Growth, which was presented in the Table 1.

The majority (over a third) of the enterprises were evaluated at the level of the Stage No. 3 that represented the medium stage of knowledge management, with employees acquiring and using knowledge only for current operations, without the processes of knowledge transfer. These enterprises exhibited the awareness of the need for managing employee knowledge resources. However, it is not reflected in noticeable effects of operations. Knowledge in the enterprises is neither exchanged nor disseminated. There is also lack of integration of external knowledge with specific internal knowledge. Knowledge management performance at the level of Stage No. 4 was represented by 41 enterprises studied. These enterprises utilize modern information technologies in management of knowledge resources while the employees identify best practices, experiences and acquire, collect, use and develop their own knowledge. Codified knowledge in these enterprises occurs in the form of paper documents, software and databases. The enterprises exhibit an effective approach to knowledge management. The moderate status of knowledge was found in 32 of the enterprises studied. Employees in these enterprises are unwilling to share their knowledge with others and they do not appreciate their role in managing enterprises. These enterprises implement first knowledge-based

mechanisms while their potential is not utilized. There were no entities in the group of enterprises studied that belonged to the Stage No. 0 defined as "chaos in knowledge", which means that the enterprises show at least basic awareness of this problem in all enterprises, while 11 enterprises were qualified as the Stage No. 1 (low awareness of knowledge). These enterprises concentrate on tacit knowledge while the knowledge is collected mainly in the written form, without the use of information technology. These enterprises do not exhibit the need for developing knowledge and its extensive use and no mechanisms of knowledge extraction. While performing the tasks assigned, employees cannot find specific knowledge in right time, they do not conclude on the projects, repeat their failures and the activities in the field of knowledge are mainly random. The lack of systematic approach to knowledge management is observed in these enterprises. Of the entire group of the enterprises studied, only 5 were found to use full, comprehensive and integrated knowledge over the period of the study. This knowledge was characterized by high awareness and utilization of knowledge, full involvement of all the employees in the enterprise in knowledge management and efficient performance of all the processes connected with knowledge. The employees in these enterprises are willing to share their knowledge and experiences, not only with other employees but also with partners, customers and suppliers. These enterprises often employ experts in knowledge management, such as knowledge brokers and they implement integrated systems of knowledge management to support their activities. Knowledge management in these enterprises has become a part of their mission and a natural component of labour.

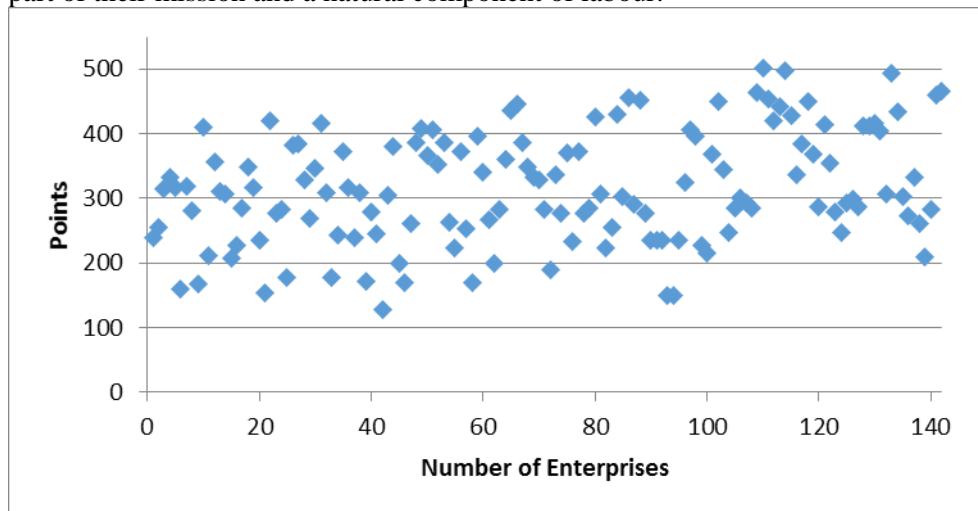


Figure 1. Distribution of individual enterprises with respect to the point score
Source: author's own elaboration

Graphic representation of the distribution of 142 micro-, small and medium-sized enterprises compared to the number of points received for the degree of performing individual activities was presented in Fig. 1.

In order to provide a clear picture of the results obtained in terms of evaluation of knowledge management in small and medium-sized enterprises, Fig. 2 presents graphical percentage-based comparison of the enterprises studied as classified under individual stages in the Model of Stages in Employee Knowledge Growth.

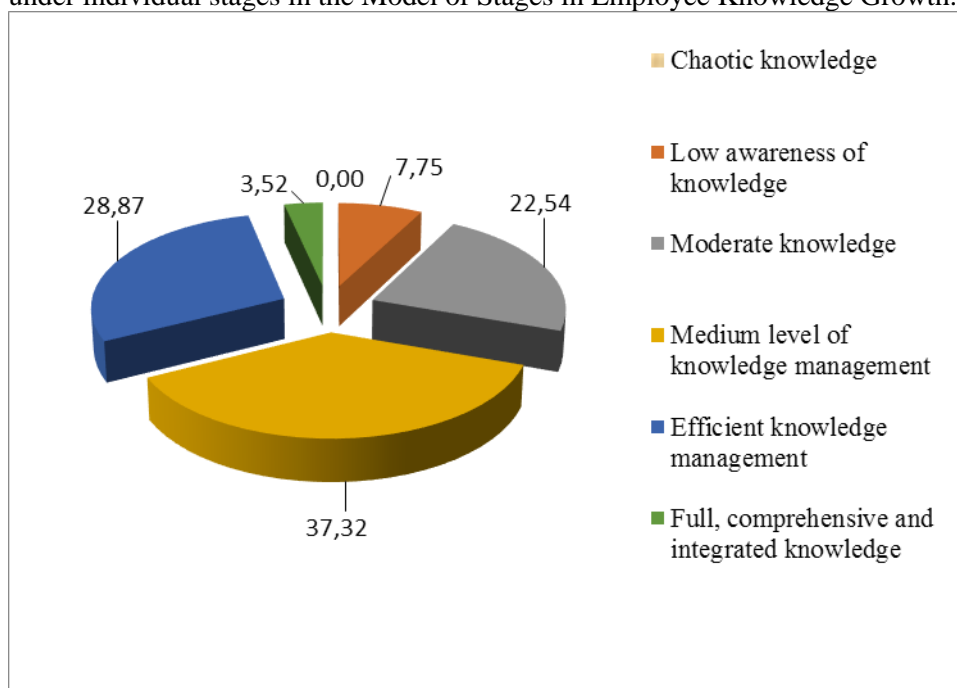


Figure 2. Percentage share of enterprises qualified under the stages in the Model of Stages in Employee Knowledge Growth

Source: author's own elaboration

Medium state of knowledge management was found in 37.3% of the enterprises. Furthermore, 28.9% of the entities showed high effectiveness of knowledge management, whereas 22.5% were characterized by a moderate level of knowledge. Low knowledge awareness was observed in 7.7% of the enterprises. Full, comprehensive and integrated knowledge was achieved in only 3.5% of the small and medium-sized enterprises studied. Previous results showed that none of the enterprises were classified at the lowest stage in the Model of Stages in Employee Knowledge Growth.

Evaluation of the level of knowledge management based on the same criteria was also presented in Table 2 (with respect to the number of employees).

Table 2. Evaluation of knowledge management with division into micro-, small and medium-sized enterprises

Stage	Stage name	Number of points in individual ranges	Number of micro-enterprises	Number of small enterprises	Number of medium-sized enterprises
0	Chaotic knowledge	0-90	0	0	0
1	Low awareness of knowledge	91-185	11	0	0
2	Moderate knowledge	186-275	30	2	0
3	Medium level of knowledge management	276-365	47	4	2
4	Efficient knowledge management	366-460	30	3	8
5	Full, comprehensive and integrated knowledge	461-550	4	0	1

Source: author's own elaboration

The highest number of micro- and small enterprises were qualified under the Stage 3 (medium level of knowledge), which is characterized by diffusion of knowledge necessary for achievement of basic activities in the enterprise and awareness of the need for managing employee knowledge resources that was not reflected by noticeable effects of the activities. This concerned 47 of the micro-enterprises and 4 small enterprises. Large part of micro-enterprises were categorized as the Stages 2 and 4 (30 entities each), which meant moderate state of knowledge and effectiveness of knowledge management. All the small enterprises studied were focused around the Stages 2, 3 and 4 with similar number. The group of medium enterprises were concentrated at three final stages in the Model of Stages in Employee Knowledge Growth. Effectiveness of knowledge management, with employees that identify best practices and experiences and acquire, collect, use, transfer and develop knowledge, was found in 8 of the enterprises studied. Only 1 enterprise in this group met the criteria of the Stage 5, with knowledge management being a natural part of the operations.

Summary

The Model of Stages in Employee Knowledge Growth was designed to indicate, to the entrepreneurs interested in implementation of the efficient knowledge

management, the areas, processes and aspects connected with this problem and provide them with tools and opportunities for evaluation of actual status and awareness in terms of knowledge management in the enterprise. The degree to which an enterprise utilizes knowledge management effectively, using the processes of localization, acquisition, collecting, development, sharing, distribution and storage of knowledge, is an indicator of the enterprise's maturity in this field. Measurement of the maturity of solutions in the area of knowledge management represents a point of reference for improvement in its status. However, in order for the knowledge acquired by an employee to be fully available, one should develop a specific environment, organizational culture and procedures to mobilize and motivate sharing the knowledge at all stages in management of the enterprise.

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OCENA STANU ZARZĄDZANIA WIEDZĄ W MAŁYCH I ŚREDNICH PRZEDSIĘBIORSTWACH

Streszczenie: W artykule przedstawiono wyniki badań w zakresie oceny stanu zarządzania wiedzą w polskich małych i średnich przedsiębiorstwach z powiatu częstochowskiego. Opracowano Model Etapów Wzrostu Wiedzy Pracowników stanowiący narzędzie oceny. Scharakteryzowano działania i zachowania pracowników w zakresie zarządzania zasobem wiedzy przedsiębiorstwa w kontekście istniejących procesów związanych z wiedzą.

Słowa kluczowe: zarządzanie wiedzą, model etapów wzrostu wiedzy pracowników, małe i średnie przedsiębiorstwa

評估知識管理在中小規模企業

摘要: 本文提出了分析知識管理在小型和中型的企業在琴斯托霍瓦 powiat 研究的結果。在員工知識生長階段的模型被開發作為評價工具。關於知識資源管理員工的活動和行為也進行了表徵在當前知識型進程的背景下。

關鍵詞: 知識管理, 員工的知識增長, 中小企業的階段模型。