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KNOWLEDGE MANAGEMENT AS A TOOL FOR IMPROVING THE GROWTH POTENTIAL OF ENTERPRISES

Process of opinion mining of consumers has been described. Method for the opinion analysis on a concrete example for empiric verification of its effectiveness has been offered. Difference between "sentiment analysis" and "opinion mining" has been defined. It has been proposed to use the LDA (latent Dirichlet allocation) model for a comprehensive approach to this analysis.

Keywords: consumer opinions, consumer sentiment, latent Dirichlet allocation model, automation of analysis of opinions.

Микула Б. Управление знаниями как средство улучшения потенциала роста предприятий. Представлена концепция управления знаниями. Определены экономические и неэкономические цели управления знаниями. Проведена типология (классификация) стратегий управления знаниями. Предложено авторское видение комплексного подхода к концепции управления знаниями.

Ключевые слова: знания, система управления знаниями, концепция, организация (предприятие), потенциал, ресурсы знаний, стратегия управления знаниями.

Introduction. Looking at the history of the development of business activity in the industrial era, we can claim that enterprises never operated in the conditions perfect for them, which would guarantee satisfactory financial results and development. Striving for development and beating the competition, they applied tools for improving the organization of labour, implemented new instruments for motivating employees, built long-term strategies of operations based on detailed SWOT analyses, implemented quality management systems, based information processing on computer systems, etc. Today, in the conditions of knowledge based economy, enterprises aim to reduce operating costs, implement lean production and lean management, apply more and more perfect decision support systems, optimum use of possessed assets. Firms which are aware of contemporary conditions of competing manage non-material resources. Knowledge management (KM) is coming to the fore. Special significance of knowledge consists in the fact that among factors of production it is of primal character and determines the scope of the use of the organization's remaining assets.

This paper introduces a coherent KM concept which can be effectively applied in businesses aiming at the improvement of their growth potential.

The real essence of knowledge management. In the literature of the subject there are tens of definitions which try to depict the essence of KM. They are a narrower (applied to computer systems) or a broader (applied to the set of strategies, methods, functions and tasks) approach to KM.

Starting from the essence of management, it is assumed that KM consists in the realization of cyclical and continuous functions of management which are focused on the organization's knowledge resources, processes involving knowledge and the conditions of their realization to achieve the organization's goals *(figure 1)*. The cyclical functions include planning, organizing and controlling. The functions are implemented within undertakings referring to knowledge, processes involving it, and the conditions of their course in a cyclical, consecutive way. Continuous functions, which are implemented within each cyclical function, include: work with people, acquisition and use of financial and other resources, use of non-material resources, decision making, coordinating. The basic processes involving knowledge, which can be also defined as KM operational functions (tasks), include: identification, transfer, creation, combination, accumulation, selection, recording, storage,

assessment, application of knowledge. In order to enable the processes to run smoothly, it is necessary to select and use adequate KM instruments (tools and methods) and shape organizational, social and technical conditions.
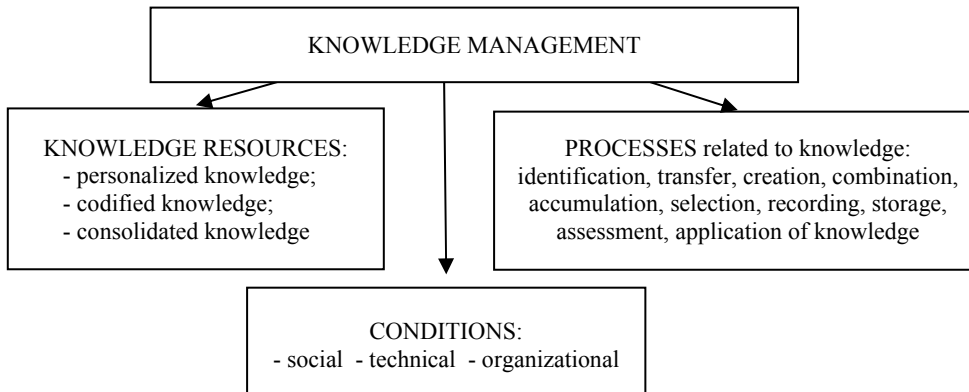

Figure 1. The basic areas of operations in KM
(own study)

Knowledge management goals. One of the most general goals of KM application in the organization is to facilitate regarding knowledge a resource by managers and inspire them to search for practical application of this resource [1].

Probably the most extended set of KM goals was presented by R. Maier. They are [2]: achieving transparency of knowledge, introduction of documenting knowledge, changing the organizational culture, enhancement of communication and cooperation, transformation of tacit knowledge into explicit knowledge (externalization), upgrading educational processes, training and creating networks of newly-recruited employees, refinement of employee development processes, improvement of knowledge retention (organizational memory), upgrading access to existing knowledge, improvement of knowledge distribution, enhancement of innovation management, cost reduction, sales of knowledge.

R. Maier also gave business goals which KM faces, among which he mentioned [3]: cost reduction, improving productivity, increasing the speed of innovative processes, developing new areas of business activity or objects, risk reduction in business, enhancing employee motivation and satisfaction, improving the organization's development, upgrading product quality, enhancing customer satisfaction and/or service quality, improvement of planning, increase in efficiency, optimization of operation time and keeping deadlines.

KM goals can be divided into economic and non-economic goals *(figure 2)*. The obtained economic results are usually the secondary effect of the accomplishment of non-economic goals.
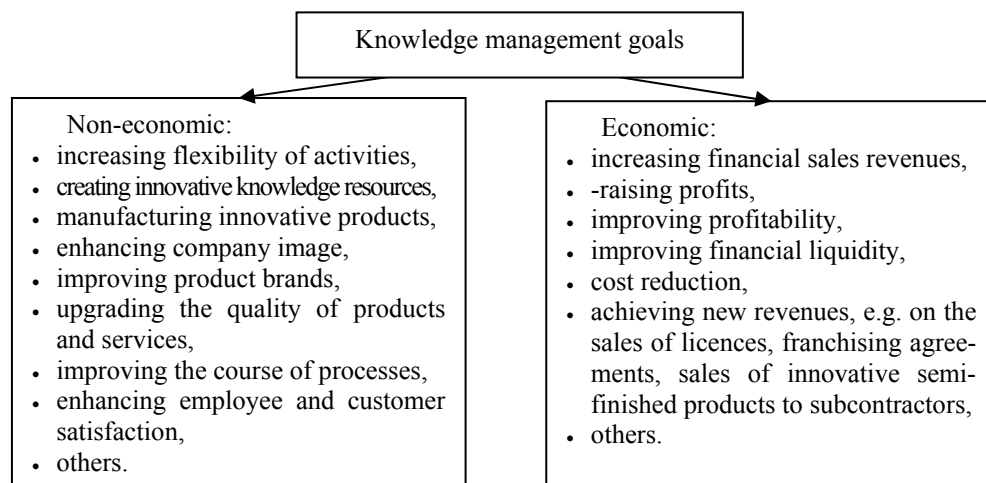
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┌─────────────────────────────────────┐
│     Knowledge management goals       │
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Non-economic:	Economic:
• increasing flexibility of activities, • creating innovative knowledge resources, • manufacturing innovative products, • enhancing company image, • improving product brands, • upgrading the quality of products and services, • improving the course of processes, • enhancing employee and customer satisfaction, • others.	• increasing financial sales revenues, • -raising profits, • improving profitability, • improving financial liquidity, • cost reduction, • achieving new revenues, e.g. on the sales of licences, franchising agreements, sales of innovative semi-finished products to subcontractors, • others.

Figure 2. Examples of KM goals
(own study)

Knowledge management system. For the purposes of KM, a knowledge management system (KMS) is created in the organization. Similarly as in the case of KM, also KMS is variously defined in the literature of the subject. For example, it is boiled down to the tools of computer technique improving the course of processes involving knowledge [4]. Of course, there are broader definitions of KMS. For example, in the set of KMS universal elements J. Beliczyński, Cz. Mesjasz and A. Stabryła include [5]: knowledge sets (data/knowledge bases and banks), relationship networks, methods of knowledge transfer, IT systems, e.g. MRP/ERP class systems, IT networks (Internet, extranet, intranet), semantic systems (the language of the organization and the language of KMS), organizational culture.

In this paper, two approaches to KMS are adopted: a narrow and a broad one. In the narrow approach it is a systemic platform created by IT and communication technologies based on the computer technique. In the broad approach, KMS is a group of rules, methods, measures, sets of knowledge (including information), people and networks of their interrelations, which enables to adopt and implement KM strategies and tasks to achieve goals of the organization [6].

Strategic knowledge management. Within KM, we can distinguish activities implemented on the strategic, tactical and operational level. A special role falls to strategic knowledge management (SKM) because it gives direction to undertakings with regard to the organization's knowledge resources on the operational level. On the other hand, the role of the tactical level is to transfer the vision of knowledge, the knowledge strategy and the KM strategy into specific operational activities implemented at the workplaces.

SKM is an information and decision-making process supported by the realization of cyclical and continuous knowledge management functions, which is aimed to make the basic decisions as for the directions of development

and the ways of using knowledge resources, considering the changes in the knowledge resources of the environment, forecasts on their development and directions of applications, as well as own knowledge resources, capabilities of developing and using them. The decisions taken within SKM primarily concern [7]:

- development of the organization's knowledge resources, ability to use them and knowledge-related competitive moves;
- defining new directions and the scope of using the organization's knowledge resources;
- development of organizational systems (including IT), enabling efficient realization of functions, tasks and processes related to knowledge;
- the shaping of knowledge resources of business environment (including partners, competitors).

The basic SKM tasks include [8]:

- consolidation of the focus on knowledge in the organization's mission and vision;
- the strategic analysis of the enterprise's internal environment, including monitoring, analyzing, assessing and reporting of its personalized, codified and consolidated knowledge resources, as well as the network of intra-organizational relationships among its components, the level of self-organization, organizational climate;
- the strategic analysis of the external environment (near and far), on the basis of constantly acquired information, with special consideration to knowledge of the environment (partner firms, competitors and non-competing organizations, including B+R institutes, consulting firms, universities) and the networks of relationships in the environment, assessing acquired information and reporting;
- creating the vision of knowledge;
- formulating the strategy of knowledge;
- establishing knowledge and relationship gaps;
- establishing barriers to filling knowledge and relationship gaps;
- the choice of the basic and supportive KM strategies necessary to fill knowledge gap and the ways of shaping desired relationships;
- defining the prevailing approach determining the structure and the operation of KMS (social or technical one), support for the KM strategy by shaping relationships with the environment, redesigning KM operational tasks, organizational structure, roles, processes and information and communication infrastructure;
- defining the level of the enterprise's openness to the environment in respect of making own knowledge resources available (protecting them) – defining the strategy of shaping the environment knowledge and enterprise knowledge resources with regard to which they will be used;
- planning methods and tools and selecting people for the implement-tation of the KM strategy, specifying necessary funds and organizational conditions;

• creating the model of climate and organizational culture focused on knowledge;

• assessment of the level of the accomplishment of the goals set and the correctness of undertaken actions in comparison with knowledge resources;

• economic and non-economic assessment of knowledge, intellectual capital and conducted KM activities.

Enterprise knowledge strategy and knowledge management strategies. Under KM, we can distinguish general enterprise level strategies (knowledge strategies) and functional level strategies (knowledge management strategies). The general strategy – of the enterprise level – is the knowledge strategy. It is detailing the strategy of an enterprise's competing by the issues concerning knowledge. Examples of knowledge strategy are strategies distinguished by the American Productivity and Quality Centre [9]:

• enterprise-wide strategy;
• transfer of knowledge and best practice strategy;
• customer-focused knowledge strategy;
• personal responsibility for knowledge strategy;
• intellectual asset management strategy;
• innovation and knowledge creation strategy.

Knowledge strategy gives direction to the entirety of the enterprise functioning concepts with regard to the ways of acquiring, creating and using knowledge. On the other hand, KM strategies are detailed strategies. They determine specific approaches with reference to the issues like building KMS, the way of filling knowledge gaps and the the approach to knowledge resources lying in the environment. Therefore, we can distinguish the following KM strategies *(figure 3)*:

• building KMS – codification and personalization, which were distinguished by M. T. Hansen, N. Nohria and T. Tierney [10];

• strategies of filling knowledge gaps – internal creation strategy, strategy of creation via cooperation, absorption strategy, internal extension strategy [11];

• strategies of shaping knowledge of the environment – knowledge protection strategy, strategy of making knowledge available [12], knowledge dissemination strategy.
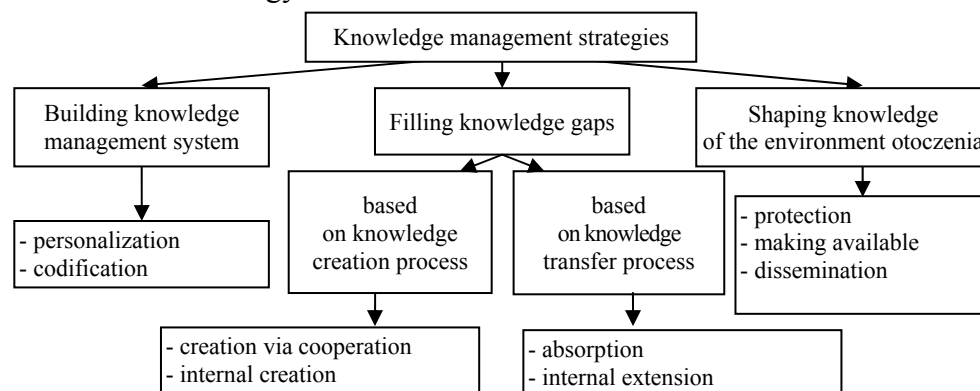

Figure 3. The typology of knowledge management strategies (own study)

Tasks of knowledge management on the operational level. KM focuses on knowledge resources of the organization, as well as its environment, mainly through the implementation of processes involving knowledge, so-called KM operational tasks. When implementing the KM concept in a firm, it is necessary to define those tasks precisely, to avoid in the future the omission of important activities within implemented undertakings, for example recording knowledge. In the presented KM concept, ten basic processes involving knowledge are proposed:

• identification of knowledge – the process of searching for and locating knowledge resources, e.g. establishing who knows what in the organization (explicit personalized knowledge), who can perform an activity (tacit personalized knowledge), in which file stored in the computer memory required codified knowledge can be found;

• transfer of knowledge – a process during which a flow of personalized, codified or consolidated knowledge takes place, e.g. the flow of personalized knowledge during a conversation between people, handing over documentation in the paper form or sending electronic files attached to an e-mail, acquiring the latest product of the competition, in which innovative technical knowledge is embedded;

• accumulation of knowledge – systematic collection of knowledge in the codified form (e.g. books, articles, documents) or in the consolidated form (embedded in the artefacts of human activity, e.g. electronic devices);

• selection – a division into groups of accumulated or acquired sets of knowledge from the point of view of their usefulness or another criterion, e.g. innovativeness, expensiveness;

• creation – the process of creating new knowledge, for example with the use of heuristic methods;

• combination – consolidating the existing knowledge resources – can lead to achieving a new quality of knowledge. The process supports knowledge creation;

• recording – an activity mainly consisting in recording knowledge in the codified form (e.g. written, drawn), but personalized knowledge is remembered by people, and consolidated knowledge is embedded in the artefacts of human activity;

• storage – storing media of knowledge (e.g. printed, electronic, audiovisual, products). Personalized knowledge is stored in people's minds;

• assessment – studying usefulness of knowledge or evaluation of knowledge with the use of another criterion, e.g. value;

• application of knowledge – the use of knowledge. Knowledge is applied mainly during: creating the vision and concept of the organization's activities, products and services, technology and its use, solving everyday problems, realizing ongoing tasks.

When working with knowledge resources, transfer of knowledge takes on special importance. It is one of more complex processes which occurs between people, as well as between people and machines and only between

machines (excluding man, which arises from the ability of the automation of processes involving knowledge, e.g. identification of knowledge, recording knowledge). The transfer of knowledge can take the form of:

• acquiring knowledge – gaining knowledge from various sources, e.g. from other people, from data bases, textbooks, websites;

• making knowledge available – a process which is opposite to acquiring knowledge, namely passing knowledge directed to specific people;

• spreading knowledge – a developed form of sharing knowledge aiming to create from specific knowledge a generally accessible resource;

• sharing knowledge – mutual passing of knowledge by people (also machines can take part) in the communication process.

It is not necessary to argue that KM should steer the course of the indicated processes so that they proceeded in an efficient and economical way. Their correct implementation is the basis for achieving strategic goals of the organization, as well as achieving desired effects of every venture and activity realized by the enterprise.

Creating a consistent line of solutions. To let KM bring desired effects in the form of the enhancement of enterprise growth potential, it is necessary to adopt a "consistent line of solutions". It means that first of all the following must be agreed in the logical shape: the way of understanding knowledge, kinds of knowledge and the sequence of solutions: vision of knowledge – knowledge strategy – strategies of building KMS – strategies of filling gaps of knowledge – instruments (tools and methods) of KM. We cannot forget that the backbone of every organization are people, therefore, their proper selection, training, dedication and "rooting" of organizational culture focused on KM in their minds is necessary. The general model of the described KM concept is presented in *(figure 4)*.
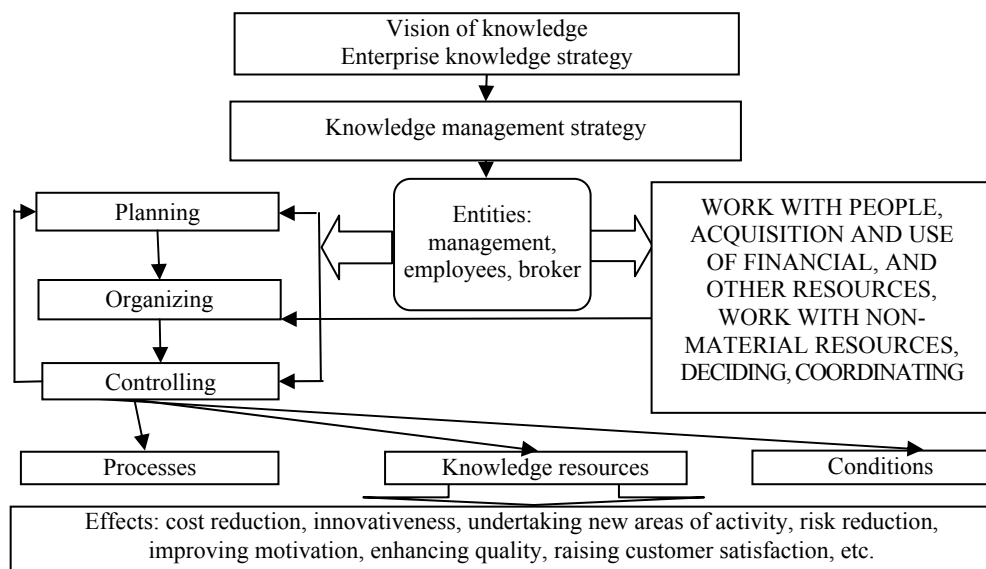

Figure 4. The comprehensive approach to the KM concept
(own study)

Conclusion. The KM theory is a coherent concept. It includes a lot of different views and various proposals concerning the solutions to problems occurring in an enterprise. However, it makes the KM concept a very interesting tool within which not everything has been perfected yet, thus, there is a large margin for the creation of innovative solutions. It should be a special motivator for managers and specialists implementing KM in an enterprise.

The implementation of KMS requires changes in the technical infrastructure and the organizational culture [13]. But this is not everything. All such changes must be precisely thought out and planned considering organizational aspects (e.g. the organization of the course of the processes, building the organizational structure, the choice of applied team forms of the organization of labour, heuristic methods used, the ways of holding meetings), technical aspects (e.g. the choice of computer hardware, the choice of communication means, the choice of software), economic aspects (e.g. the volumes of financial outlays and fast return on investment), social aspects (e.g. the choice of managing styles, shaping organizational climate, shaping organizational culture) and legal aspects (e.g. legal aspects of using foreign knowledge, the sales of knowledge created in the enterprise, protection of non-material values created by the enterprise). The superior aspect required to be considered in the process of change is the aspect of purpose – concerning the enterprise's vision and mission, and long-term strategic goals. Omitting any of the indicated aspects in the process of KMS implementation can cause to the failure in the application of the KM concept and disorganization of the enterprise functioning.

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Мікула Б. Управління знаннями як засіб покращання потенціалу зростання підприємств.

Постановка проблеми. В умовах розвитку економіки, заснованої на знаннях, підприємства прагнуть зменшити свої операційні витрати, запровадити ресурсоощадне виробництво та управління, застосовувати все більш досконалі системи прийняття рішень, оптимізувати використання активів. За такої ситуації управління знаннями виходить на перший план.

Саме тому метою представленого дослідження є презентація концепції управління знаннями (знаннєвого менеджменту).

Результати дослідження. Обґрунтовано, що сутність управління знаннями полягає в реалізації циклічних і безперервних функцій управління, що сфокусовані на ресурсах знань (персоналізованих, кодифікованих та консолідованих) організації, процесах, пов'язаних зі знаннями (ідентифікація, трансфер, накопичення, відбір і т.п.) та умовах їх реалізації (соціальних, технічних, організаційних) для досягнення цілей організації (підприємства).

Визначено цілі управління знаннями: економічні (підвищення рентабельності, фінансової ліквідності, прибутку, зниження витрат і т.п.) та неекономічні (покращання іміджу компанії, якості продукції та послуг, підвищення рівня задоволеності клієнтів і т.п.).

Охарактеризовано два підходи до системи управління знаннями: вузький, відповідно до якого системна платформа створюється за допомогою ІТ та комунікаційних технологій; широкий, що є сукупністю правил, методів, набору знань, людей та їх взаємовідносин, які дозволяють ухвалювати та реалізовувати стратегії управління знаннями, та завдань, спрямованих на досягнення цілей організації. Проведено типологію (класифікацію) стратегій управління знаннями.

Висновки. Запропоновано авторське бачення комплексного підходу до концепції управління знаннями. Правильно організоване управління знаннями сприятиме зростанню потенціалу підприємства.

Ключові слова: знання, система управління знаннями, концепція, організація (підприємство), потенціал, ресурси знань, стратегія управління знаннями.