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A MODEL OF KNOWLEDGE MANAGEMENT IN THE TERTIARY EDUCATION AS EXEMPLIFIED BY A NON-PUBLIC TERTIARY EDUCATION INSTITUTION

Summary. This article is an attempt at developing a model of knowledge management for a tertiary education institution. Three models shall be analysed here: the resource model, the Knowledge Spiral and the process model.

Among the necessary conditions for these models to function there are non-competitive cooperation, suitable motivation of employees to gain, process, share and apply knowledge.

Keywords: tertiary education institutions, knowledge management, model of knowledge management, quality, education quality.

MODEL ZARZĄDZANIA WIEDZĄ W SZKOLNICTWIE WYŻSZYM NA PRZYKŁADZIE UCZELNI NIEPUBLICZNEJ

Streszczenie. Niniejszy artykuł jest próbą opracowania modelu zarządzania wiedzą w instytucjach szkolnictwa wyższego. Przeanalizowano trzy modele: model zasobowy, model spirali wiedzy oraz model procesowy.

Wśród warunków koniecznych do funkcjonowania tych modeli są współdziałanie, odpowiednia motywacja pracowników do zdobywania, dzielenia się i wykorzystywania wiedzy.

Słowa kluczowe: szkolnictwo wyższe, zarządzanie wiedzą, model zarządzania wiedzą, jakość, jakość w edukacji.

1. Knowledge as a source of competitive advantage

Literature on the subject assumes that we are undergoing a global change towards the knowledge-oriented economy. World economies have shifted from industrial to knowledge-

based economies, with information or knowledge as a principal resource. Owing to this new approach, knowledge management is considered as a critical success factor for contemporary organisations.

Contemporary organisations realize the fact that knowledge management is a way to achieve competitive advantage. It has been confirmed by the research conducted in the United States involving the 40 largest consulting firms. 60% of them described knowledge management as a factor which is pivotal in determining success of an organisation [7]. The question arises as to how effective the application of knowledge can be as a source of such advantage. The answer revolves around the concept according to which knowledge is an intangible asset which makes it unique. 'A business value is created mainly with intangible assets' [7]. It is the intangibility of knowledge that makes it difficult to impart or recreate and gives it a quality of uniqueness. V. Hlupic also approves of this approach and says that knowledge management is looked upon as a driving force behind an increase in organisational and competitive effectiveness. The key principle, however, is primarily to understand the potential of knowledge management and what it may offer to an organisation within improvement in the effectiveness of management.

There appears a considerable discrepancy between practitioners and theoreticians of management as to the definition of knowledge management and the elements which constitute a process of knowledge management, such as data, information and knowledge.

Knowledge means all data, skills, context or information which ensure high quality of decision taken and solutions to problems, and, therefore, knowledge management is every process which enables capturing, distribution (popularization), creation and application of knowledge in a decision-taking process. According to another definition [5], knowledge is mainly understood as all information consolidated as a result of the accumulation of experiences and a process of learning. It covers all types of thinking, ranging from common to scientific concepts. The so-called utilitarian knowledge, being part of knowledge applied in the company's daily operations is what is important for specific companies.

As a result of the operations of various organisations new resources of knowledge meant for improving their operations are continuously created. The knowledge known outside an organisation, e.g. in other organisations, and obtained for the company's developmental purposes through purchasing, transfer, benchmarking or innovations also constitutes a new resource of knowledge in an organisation [5].

There are three levels of knowledge in an organisation:

- essential knowledge (core knowledge), whose range and level are indispensable for a company to be competitive on the market, even to a limited extent,
- advanced knowledge enables the creation of competitive advantage and has qualities which differentiate it from the knowledge of competitors,

- innovative knowledge enables a company to take actions according to its own rules and to distance itself from competitors.

Knowledge in the context of an organisation is defined as a resource of useful information which is organised intentionally, that is in such a way as to obtain permanent competitive advantage. It refers to all knowledge useful in achieving success by a given organisation, that is knowledge of the market, buyers, partners, the said institution, employees and other elements, such as patents, owned technologies, trade secrets, data bases, etc.

Such a definition of knowledge makes it different from the way knowledge is understood in academic circles. In an organisation such as a tertiary education institution two types of knowledge are crucial: scientific knowledge, which is created as a result of the application of rational scientific methods in a research process, accumulated, processed and passed on to students and/or recipients on the research market and/or recipients in the social environment, and organisational knowledge necessary for the management purposes and to maintain and/or increase its competitive advantage [3]. Competitive advantage of a tertiary education institution over other institutions may refer to a function of educating, conducting research or providing services for the surroundings. It is manifested in the choice of a tertiary education institution by candidates for studies, the choice of a research project contractor by a research sponsor or the choice of a technology creator by those seeking the results of practical knowledge and new technologies. It is also knowledge which allows a tertiary education institution to use opportunities faster than its competitors and to create such opportunities and use them afterwards. Also, it is self-knowledge – the knowledge of key competences (strengths), that is assets on which a tertiary education institution can build its strategy and advantage for the purpose of development and improvement. It may thus be the knowledge of the surroundings, general conditions of its operations (legal, cultural, social, political, economic, demographic and technological) or specific conditions of a given tertiary education institution concerning its operations, e.g. knowledge of the competitors, technological know-how and strategies of competitors, secondary schools educating candidates for studies and employers). Tertiary education institutions hardly ever possess such systemised knowledge, not to mention applying it for the purpose of management and creation of strategies [3].

Knowledge is an intangible asset which does not use up when shared. In the case of scientific knowledge created in a tertiary education institution the increased distribution of knowledge in the form of publications and manuals may improve an academic position and prestige of the authors of such publications, and, as a result, a position and prestige of an institution which offers employment to the authors. Such knowledge, thus, does not use up and does not lose in its value. In the case of organisational knowledge, though, its distribution outside an organisation decreases its usefulness in order for this institution to obtain advantage because it reduces its uniqueness. Also, in the changing internal and external conditions for the operations of an organization, when organisational knowledge becomes obsolete, it loses its

value. Therefore, a process of knowledge transfer/flow is so important, both in corporate organisations and tertiary education institutions. This article is an attempt at developing a model of knowledge management in a non-public tertiary education institution based on the recent research in this field and own experiences.

2. The process of creating explicit and tacit knowledge

According to the Japanese concept of knowledge management there is tacit (silent) knowledge and explicit (available) knowledge. Tacit knowledge is individual, context-specific, difficult to formalize and communicate and it requires specific learning skills. It comprises both cognitive and technical components. The cognitive components are linked with “mental models”, that is schemas, paradigms, perspectives and convictions which are used for creating images of the world, using the analogies in their minds. The technical components of tacit knowledge contain concrete knowledge of objects, skills and qualifications. The explicit knowledge represents the tip of an iceberg of a knowledge resource and it can be expressed in words and figures, that is why it is suitable for distribution by means of a formal and systemised language [6].

According to I. Nonaka and H. Takeuchi there are four ways of creating and converting tacit and explicit knowledge:

- from tacit knowledge to tacit knowledge – socialization; a process of knowledge socialisation takes place when new knowledge is obtained directly from others, through experience, internal knowledge is enriched then and it is not distributed outside,
- from tacit knowledge to explicit knowledge – externalization; the articulation of tacit knowledge into explicit knowledge, knowledge is used in practice, e.g. discussion, techniques of creative thinking, but its essence is not conveyed outside,
- from explicit knowledge to explicit knowledge – combination; a process in which formal knowledge is intentionally combined and systemized for own use, new and already existing components of codified knowledge are combined, e.g. in the form of data bases, documentation, etc.),
- from explicit knowledge to tacit knowledge – internalization; the introspection of explicit knowledge into tacit knowledge, employees acquire formal knowledge, which eventually becomes their individual tacit knowledge [4].

Every organization has a definite potential of knowledge at their disposal. Effective management requires the simultaneous creation of new knowledge and its complementation

outside the organization. Two major directions of knowledge creation may be distinguished here:

- as separate and independent operations – it refers to consulting firms, educational institutions,
- as a ‘by-product’ of routine operations – it refers to the so-called traditional enterprises, but their operations on the market, building a competitive position and development require continuous inflow of knowledge.

G.K. Lee and R.E. Cole differentiate between the creation of knowledge inside a company and with the participation of a broadly-defined ‘community’. The community-based model assumes, on the one hand, open and free access to a product, on the other hand, though, potential users have an opportunity to test, improve and share their observations with others. In an enterprise where a process of knowledge creation is closed, based exclusively on own resources, the participation of external factors is limited. In the community-based model knowledge and a product are created through taking action which involves a large community of users. This community constitutes a large project team. It is the opposite of a traditional model, where knowledge is created in small groups separated from the external surroundings of a company, though, relying on external sources of information.

M. Strojny distinguishes several ways of creating knowledge inside an organisation. These are:

- research and development departments (R&D),
- corporate universities,
- knowledge workers,
- methods of creative management, e.g. heuristics, creative thinking,
- communities of practitioners [1].

3. The definition of knowledge management

A. Jashpara suggests three major approaches to defining this term:

- from the point of view of information systems,
- from the point of view of human resource management,
- from a broad perspective of strategic management of an organization, taking into account the role of knowledge management in building competitive advantage [6].

The definitions of knowledge management which are currently in use confirm the classification offered by Jashpar. Some of them have been presented below.

According to Ernst&Young – it is a system designed in such a way as to help enterprises to gain, analyse and use knowledge in order to make faster, wiser and better decisions which lead to gaining competitive advantage.

According to PricewaterhouseCoopers, it is an ability to process information and other intellectual assets into a permanent value for clients and employees of an organization.

Holland&Davis defines knowledge management as a process of providing every employee with suitable knowledge in any place and time in such a way that they can maximize their contribution in the development of the company.

For the purpose of this study knowledge management in the tertiary education has been defined as a methodical use of knowledge resources and intellectual capital of a tertiary education institution in order to improve its business operations and to achieve its goals and competence for using specific information and intellectual assets and transforming them into a permanent value for students and academic staff members.

4. Models of knowledge management

There are three leading models of knowledge management in the development of theories of management. The Japanese model is presented in the form of the ‘knowledge spiral’. It is considered to be the most innovative and forward-looking, based on two categories of knowledge: tacit knowledge and formal knowledge.

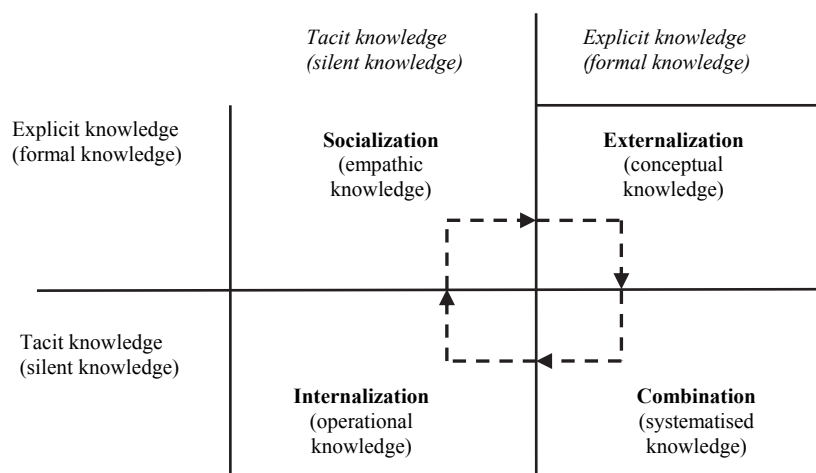


Fig. 1. Knowledge management based on the „knowledge spiral”

Rys. 1. Zarządzanie wiedzą na podstawie „spirali wiedzy”

Source: Nonaka I., Takeuchi H.: Kreowanie wiedzy w organizacji [The creation of knowledge in an organisation], Poltext, Warszawa 2000, p. 96.

The resource model is based on the concepts presented by D. Leonard-Barton known as the model of 'knowledge sources'. It points out that for effective knowledge management it is indispensable that the following five elements should exist and cooperate:

- key skills, including physical and technical systems, management systems, knowledge and skills of employees, norms and values,
- cooperative problem solving,
- implementation and integration of new tools and technologies,
- experimenting,
- knowledge import.

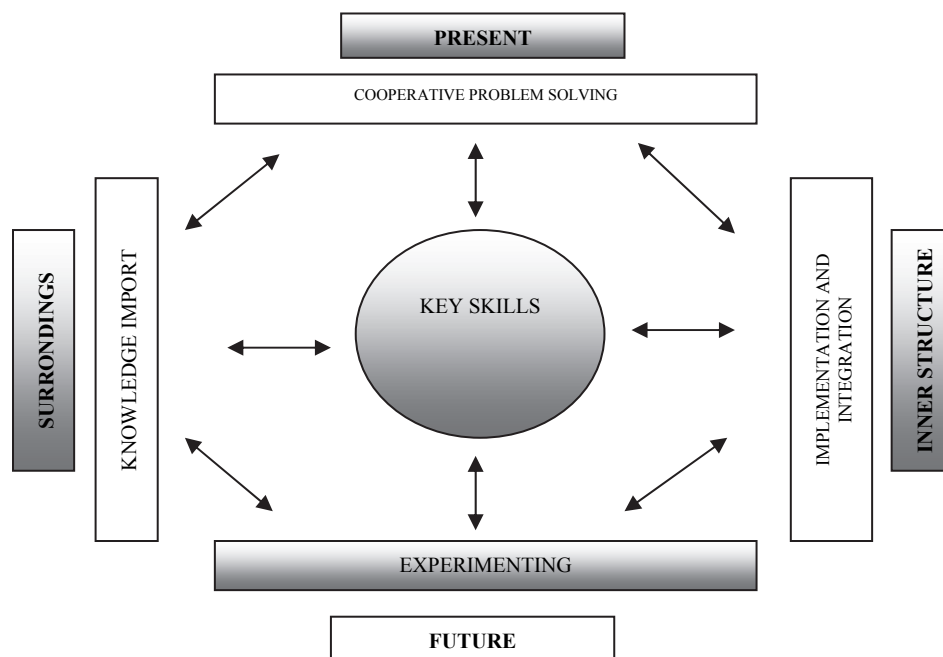


Fig. 2. Knowledge management through with the application of sources of management

Rys. 2. Zarządzanie wiedzą z zastosowaniem źródeł zarządzania

Source: Gierszewska G.: Zarządzanie wiedzą w przedsiębiorstwie [Knowledge management in a company], Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2011, p. 134.

The elements of this model are connected both with the inner structure of an organization (implementation and integration of knowledge) and the surroundings which they interact with (knowledge import). The main component are key skills which integrate all the other elements, which are in turn connected with the present and the future.

The process model is based on experiences and solutions applied in practice, mainly in large consulting firms. According to the definition by scientists from Cranfield School of Management in Great Britain 'knowledge management comprises all processes which enable the creation, distribution and application of knowledge in order for an organization to realize its aims'. In the process approach there are three major processes of knowledge management.

This idea is applied by T. H. Davenport and L. Prusak, who distinguish the following processes:

- the creation of knowledge – a process of actions and initiatives which aims at increasing the amount of knowledge in an organization. The result of this process is an ability of an organization to take independent initiative in the introduction of changes,
- the codification of knowledge – a process of securing, accumulating and sharing knowledge (documents) which aims at presenting knowledge in a way which makes this knowledge assimilable for all members of the organization. Due to this process, knowledge accumulated in an organization takes an easily-accessible form and it is easy to be found,
- the transfer of knowledge – it includes the transmission and absorption of knowledge. In the case of explicit knowledge it is transferred by phone or in an electronic way. A range of methods applied here is very wide. In the case of tacit knowledge, which is a result of experience and intellectual skills, it has two dimensions: professional (gestures, movements) and integrating (thinking, perception of the reality, visions of the future) [4].

When analysing these models of knowledge management three major phases of knowledge management can be distinguished here: acquisition of knowledge (creation of knowledge), sharing of knowledge and transforming knowledge into decisions.

The process of applying knowledge in decision-making processes in a tertiary education institution consists of a didactic process, processes of research, internal stakeholders (understood here as students), candidates for studies, graduates and external stakeholders, e.g. employers. The connections between them may be a cause for the improvement/development of the knowledge management model for tertiary education institutions.

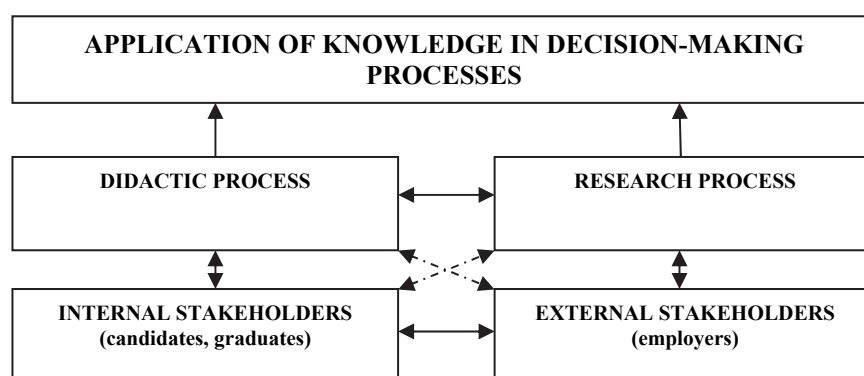


Fig. 3. The model of knowledge management in a tertiary education institution

Rys. 3. Model zarządzania wiedzą w szkole wyższej

Source: Own.

Education quality is applied in the processes shown in this model in the systems of management. Despite the fact that ‘knowledge management’ is not used as a term in the

actions describing the operations of a tertiary education institution, the term itself is applied in the practices of its operations, and simultaneously, in a decision-making process.

5. Selected elements of effective knowledge management

For the purpose of this study strategic document records of a selected tertiary education institution have been analysed. These are documents which refer to or engage the elements of knowledge management.

As far as a didactic process is concerned the following statements have been found:

- developing students' personalities, developing an ability to self-study and life-long learning as well as critical thinking,
- stimulating creativity, equipping students with knowledge and high-tech skills which allow the existence in the complex world.

Within a research process the following statements have been found:

- the creation of new knowledge through scientific research motivated by both cognitive curiosity and common good,
- the acquisition of findings of research conducted worldwide and their distribution for the use of the society,
- the popularization of science and raising awareness of its importance for the society,
- the development of contacts with the social and economic environment in order to create and commercialize innovations.

The elements of knowledge management with reference to students (internal stakeholders) and external stakeholders (employers, entities cooperating with a tertiary education institution) are as follows:

- designing quality indicators and indicators of effectiveness in order to take informed decisions as to the choice of a tertiary education institution, scientific cooperation, etc.,
- expertise offered to the authorities and public administration,
- support of the development of the civil society,
- the cultivation of culture and national heritage and the development of the Polish language and culture.

The above elements do not fully reflect the format of knowledge management in a tertiary education institution but they highlight their mutual connections and they perfectly fit in the education quality and functioning.

In the framework of effective knowledge management in a tertiary education institution) there are also:

- organizational culture,
- efficient public administration,
- professional conditions for self-studying of both students and staff members,
- professional didactic base [8].

To sum up, a considerable number of knowledge management processes fit in the system of ensuring the education quality in a tertiary education institution. The processes of knowledge management should not be treated as ‘separate beings’, but as actions which are meant for perfecting the operations of tertiary education institutions and, consequently, increasing their competitiveness. There is a large potential for research into the analysis of the current condition, functioning and improving processes of knowledge management with reference to improving the education quality and meeting the requirements of the tertiary education law.

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Omówienie

Znaczna liczba procesów zarządzania wiedzą w instytucjach szkolnictwa wyższego mieści się w systemie zapewnienia jakości kształcenia. Procesy zarządzania wiedzą nie powinny być traktowane jako odrębne byty, ale działania, które są przeznaczone dla doskonalenia działalności szkolnictwa wyższego, a tym samym zwiększenia ich konkurencyjności. Istnieje duży potencjał dla badań do analizy aktualnego stanu, funkcjonowania i poprawy procesów zarządzania wiedzą w odniesieniu do poprawy jakości kształcenia oraz spełnienia wymagań prawnych dla szkolnictwa wyższego.