Marek Jacek Stankiewicz *, *Aldona Glińska-Neweś* *

REFERENCE MODEL OF KNOWLEDGE MANAGEMENT AND ITS CULTURAL CONTEXT

Reference model of knowledge management presented in the paper has been created on the basis of multiple empirical research (Delphi method, questionnaires and interviews conducted with Polish outstanding enterprises as well as in transnational corporations). Implementation of the model must be regarded as deeply connected with the cultural context of an organization.

Keywords: competitive advantage, knowledge management, organizational culture

1. INTRODUCTION

Although knowledge management is a concept which is still relatively new and "fresh" among the theories of management sciences, there is no doubt that it must be regarded as the key factor of a company's success in a global and intensively competitive environment. The popularity of the concept of knowledge management results in a variety of offered definitions, elements and attempts to model the process, but the nature of the majority of knowledge management models proposed in literature is rather descriptive and fragmentary. They explain and clarify mainly the philosophy of knowledge creation as well as the general idea of effective and efficient management of such valuable and exceptional resource of an organization. Without calling in question the pioneer capacity and cognitive value of some approaches (Davenport et al. 1998; Probst et al. 2002; Sveiby 1997; Nonaka et al. 1995, Bukovitz et al. 2000) it must be emphasized that they have, above of all, a theoretical quality which makes the applicability of those models rather limited.

The main aim of the following article is to present a reference model of knowledge management created on the basis of a research project conducted at Nicolas Copernicus University during the period 2004 – 2006 (project no. 1 H02D 099 26 *Resources of knowledge as a key factor of international competitiveness of an enterprise. Context, ways of creation and development*

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* Department of Economics and Management, Mikolaj Kopernik University in Toruń

of knowledge management systems in companies operating in Poland, Ministry of Science and Higher Education). The proposed model is an attempt to make existing academic knowledge about "knowledge management" closer to the needs of management practice. It seems that the main advantage of the model described beneath is its operational nature.

The implementation of the reference model and its efficiency is determined by internal (organizational) and external (environmental) context. Among various important issues, the cultural context (created by both organizational and national culture) should be regarded as crucial. The reason for that is the nature of knowledge itself – very sensitive, personal, deeply connected with values, attitudes and behaviour of organizational members. Most authors emphasize the importance of organizational culture as a factor of knowledge management effectiveness and efficiency (Davenport et al. 1998; Probst et al. 2002; Sveiby 1997; Nonaka et al. 1995), however their considerations seem to be too general, and thus, unsatisfactory to be applied in the practice of knowledge management. Therefore, in addition to the presentation of the reference model of knowledge management, the article presents some results of a more detailed survey on elements of organizational culture which are essential for the model application. The survey was conducted in 2006 on a sample of 157 Polish companies.

2. REFERENCE MODEL OF KNOWLEDGE MANAGEMENT

The general approach which constitutes the background of a more detailed discussion stresses the multiple nature of knowledge and its context in an organization (see Figure 1).

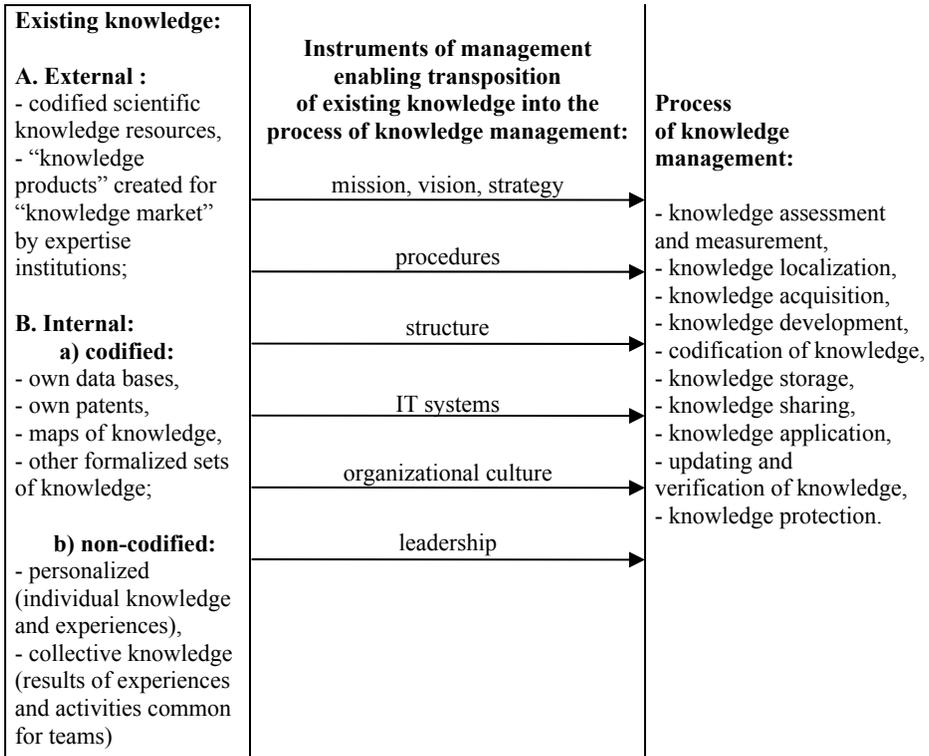| Existing knowledge:	Instruments of management enabling transposition of existing knowledge into the process of knowledge management:	Process of knowledge management:

A. External :
- codified scientific knowledge resources,
- "knowledge products" created for "knowledge market" by expertise institutions;
 	
B. Internal:
   a) codified:
- own data bases,
- own patents,
- maps of knowledge,
- other formalized sets of knowledge;
 	
   b) non-codified:
- personalized (individual knowledge and experiences),
- collective knowledge (results of experiences and activities common for teams)
	mission, vision, strategy
	
	procedures
	
	structure
	
	IT systems
	
	organizational culture
	
	leadership
		- knowledge assessment and measurement,
		- knowledge localization,
		- knowledge acquisition,
		- knowledge development,
		- codification of knowledge,
		- knowledge storage,
		- knowledge sharing,
		- knowledge application,
		- updating and verification of knowledge,
		- knowledge protection.

Figure 1. General model of knowledge management in an organization

Source: Adapted from Stankiewicz 2006, p. 342

The subject of knowledge management is the knowledge existing in the environment of an organization's performance and organization itself. External resources consist of "free" knowledge coming from achievements of science and common wealth of mankind as well as commercial products of specialized institutions (consulting firms, research and development agencies, etc.). Such knowledge is brought into an organization with its new employees – in their minds, or is purchased on the market (in the form of licences, expertise, training conducted in the organization, etc.). Some external knowledge resources are also gained through strategic alliances, mergers, or by means of some illegal or less ethical attempts. Internal knowledge in an organization can adopt various forms: *explicit knowledge* – codified in documents, data bases, reports, etc. and *tacit knowledge* which can be personalized (the knowledge originating from individual experience

and learning) or collective (the knowledge which is the result of common experiences and activities conducted by a group).

Knowledge described above should be managed through a constant process that is both intentional and conscious. However, knowledge management must be regarded as a particular type of management. Although it proceeds (or should proceed) alongside the management of other organizational resources (such as HRM or finance management), it cannot be classified as a separate function in an organization. Knowledge management should be a part of each function, since an organization must manage its knowledge in all fields – in the field of marketing, production, R&D, logistics, human resources, etc. Knowledge of all kinds and subjects should undergo the cycle of the following steps (Stankiewicz 2006):

1. assessment and measurement,
2. localization,
3. acquisition,
4. development,
5. codification,
6. storage,
7. transfer/sharing,
8. application,
9. updating and verification,
10. protection of knowledge.

The process of knowledge management has been structured in many different ways (Nickols 1999, Wiig 1993, Mcelroy 2003, Bukowitz et al. 2003). What distinguishes the model proposed in this paper from the existing ones is its detailed character which provides the opportunity to indicate the purpose of each step very precisely. In turn, every step consists of a number of operations which, if fully performed, would make knowledge management complete. Such specific operations are not conducted independently of a general performance of an organization; they must be reflected by, enclosed in, and connected with, meta-instruments of management, such as:

- mission, vision, strategy,
- procedures,
- organizational structure,
- IT systems,
- organizational culture,
- leadership.

Thus, the reference model of knowledge management can be regarded as a series of specific operations complementing a particular meta-instrument, which together execute management of knowledge in an organization through the accomplishment of subsequent steps of the process. The following paragraphs are aimed at presenting each step, operations involved in it and meta-instruments of management holding those operations. The proposition is based on the Delphi method used in our survey.

The assessment and measurement of knowledge (particularly of its level and forms) is one of the most sensitive and problematic steps of knowledge management cycle. Most tools and methods already established in management practice have been designed to measure the value of knowledge, which in turn, is usually associated with intellectual assets of a firm (Andriessen 2004, pp. 283-376). Although the need and rank of such efforts are undeniable, their utility is limited from the perspective of international competitiveness and its development in an organization. From that point of view, it seems more valuable to adopt some kind of "self-assessment" and sort of "stock-taking" of knowledge resources acquired by an organization. It must be defined *what* and *how much* the organization *knows* and *can* as for the needs of the creation of a competitive strategy in the global market. In particular the organization should identify:

- knowledge about *what* is crucial for its development,
- what the core competences of an organization are (Hamel 1994, p.11-33),
- what kind of competitive advantage and competitive strategy should be chosen by the organization.

Operations used in the aims mentioned above should constitute, first of all, a part of the procedures and leadership as meta-instruments of knowledge management.

The aim of the second step of knowledge management process is to localize (find) knowledge which is necessary for achieving organizational goals. The relation between those goals and knowledge needed for their accomplishment is mutual: knowledge already existing and available for use in an organization creates a background for goals formulation but, at the same time, those goals determine new knowledge to be acquired. Except for this dualism, knowledge required for organizational performance is to be localized, which means identification of sources (*who* and *what*) and possible forms of gaining that knowledge. Necessary knowledge can be available both inside an organization and outside of it – in the form of publications, licenses, offers of consulting or training as well as personalized

(particular people to employ). Table 1 presents a set of operations useful in the step of knowledge localization together with meta-instruments of management holding those operations.

Table 1

Operations of knowledge localization and its instruments

Operations of knowledge localization in a cycle of KM	Meta-instruments holding operations of knowledge management					
	Mission, vision, strategy	Procedures	Organizational structure	IT systems	Organizational culture	Leadership
1	2	3	4	5	6	7
1. Systematic monitoring of the environment	x	x	x		x	
2. Systematic study of publications (literature, journals, law acts, Internet)		x	x	x	x	
3. Co-operation with R&D institutions, academics, consulting firms	x					x
4. External audits		x				
5. Participation in conferences and symposia		x			x	x
6. Regular contacts with customers, suppliers, business partners	x	x	x	x	x	
7. Observation of competitors		x	x			
8. Systematic market research		x	x	x		
9. Personal relations with academics	x	x			x	x
10. Reviews of "head-hunting" offers			x			
11. Internal audits		x	x			
12. Systematic staff reviews and assessments		x		x		x
13. Analysis of processes realized in an organization		x		x		x
14. Analysis of employee proposals		x		x		x
15. Regular meetings of employees and management staff		x			x	x

Source: based on the results of own research project

Activities which are useful in a process of knowledge localization may be considered as tools for knowledge acquisition as well. However, the list of the possible operations of knowledge acquisition is longer and consists of activities which are undertaken as a consequence of knowledge localization. Table 2 shows the list of the most important operations additional to the stage of knowledge localization, and the meta-instruments which reflect them.

Table 2

Operations of knowledge acquisition and its instruments

Operations of knowledge acquisition in a cycle of KM	Meta-instruments holding operations of knowledge management					
	Mission, vision, strategy	Procedures	Organizational structure	IT systems	Organizational culture	Leadership
1	2	3	4	5	6	7
1. Training	x	x	x		x	x
2. Purchase of publications and data bases		x		x		
3. Purchase of licenses and *know-how*	x	x		x		
4. Strategic alliances	x		x			
5. Mergers and takeovers	x		x			
6. Benchmarking	x					x
7. New staff employment	x	x				
8. Establishing a special function for knowledge administration			x			
9. Reporting system of all external relations		x		x		

Source: based on the results of own research project

Knowledge acquired by an organization must be permanently developed, otherwise it is bound to lose its value of distinctive competence and the source of competitive advantage for the organization. As can be observed in the previous stages of the process, some operations may be regarded as helpful simultaneously in knowledge acquisition and knowledge development. Therefore, it is intended here to present and emphasize only selected activities connected with the process of organizational learning.

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That process is crucial as a source of strategically valuable new knowledge in an organization (Rokita 2003). Table 3 shows those selected operations and meta-instruments of management which carry them into the complex process of knowledge management.

Table 3

Operations of knowledge development and its instruments

Operations of knowledge development in a cycle of KM	Meta-instruments holding operations of knowledge management					
	Mission, vision, strategy	Procedures	Organizational structure	IT systems	Organizational culture	Leadership
1	2	3	4	5	6	7
1. Own R&D projects	x	x	x			
2. Analysis of experiences in both internal and external relations					x	
3. Team-work and problem solving		x	x		x	
4. Employees' participation in projects conducted by consulting firms in an organization		x	x			
5. Co-operation with academics and R&D institutions through common research projects	x	x	x			
6. Formulation of ambitious goals and tasks						x
7. Different forms of training and self-development			x		x	
8. Criterion of self-development in job appraisal system	x	x			x	x
9. Honoraria for authors of innovative proposals		x				
10. Coaching					x	x
11. Diversification	x		x			

Source: based on the results of own research project

Knowledge which is newly acquired or is an effect of employees' experiences in problem solving is usually very sensitive and intangible. This kind of knowledge, known as *tacit* knowledge, exists in minds and relations rather than documents or procedures. In order to make tacit knowledge more applicable, knowledge management must include the stage of codification. Although this stage does not have much influence on knowledge resources, it still plays a very important role in the process. Codified knowledge is more mobile, controlled and manageable in terms of decisions concerning the place, time and form of application. Codified knowledge may be also sold on the market in the form of a license or a data base. Codified knowledge also makes it easier to conduct further steps of knowledge management, such as knowledge storage, sharing or verification. On the other hand, codified knowledge can be easily copied, which makes it less solid as a source of competitive advantage. Nevertheless, the step of codification must appear in the process of knowledge management and must be reflected in meta-instruments of management (table 4).

Table 4

Operations of knowledge codification and its instruments

Operations of knowledge codification in a cycle of KM	Meta-instruments holding operations of knowledge management					
	Mission, vision, strategy	Procedures	Organizational structure	IT systems	Organizational culture	Leadership
1	2	3	4	5	6	7
1. Data bases creation	x	x	x	x		
2. Intranet, corporate portals				x		
3. Reporting of internal and external relations	x	x			x	
4. Knowledge mapping		x	x	x		
5. Documentation of all processes conducted in an organization		x	x			
6. Recording of meetings (audio and video)		x				

Source: based on the results of own research project

Table 4 shows some universal tools for knowledge codification. In each case some operations may be added according to, e.g. compulsory formal rules in a given region or sector.

Codified knowledge should be stored in accordance with the form of codification. Thus, operations of storage can be regarded as the consequence of the previous step. Table 5 shows appropriate activities and its meta-instruments of management.

Table 5

Operations of knowledge storage and its instruments

Operations of knowledge storage in a cycle of KM	Meta-instruments holding operations of knowledge management					
	Mission, vision, strategy	Procedures	Organizational structure	IT systems	Organizational culture	Leadership
1	2	3	4	5	6	7
1. Administration of data bases		x	x	x		
2. Administration of knowledge contained in Intranet and corporate portals		x	x	x		
3. Gathering, storage and segregation of documents	x	x	x	x	x	x
4. Administration of knowledge maps		x	x	x		
5. Creation and maintenance of specialized libraries		x	x	x		
6. Storage of video and audio records		x	x	x		
7. Key-employees (identification and keeping)	x				x	x

Source: based on the results of own research project

Operations mentioned in table 5 refer to codified, explicit knowledge. Tacit knowledge exists in employees' minds or in organizational culture and is hard to codify, however it must be the subject of knowledge management and knowledge storage too. The peculiarity of such knowledge requires different tools, connected mostly with human resources management which determine proper employees' attitudes, such as, for instance, loyalty.

Due to the multidisciplinary nature of goals and tasks realized in organizations, team work plays a particularly important role nowadays. Teams built on the basis of various professionals educated and experienced

in different fields are generally more productive than individuals working on their own. Although exceptionally resourceful persons can be more creative as for ideas than a team, the teams are more effective in analyzing and evaluating them. There is also a very important phenomenon of collective memory, particularly significant from the perspective of knowledge management in an organization. However, effective and efficient team work, and as a result, effectiveness and efficiency of an organization, are determined by effective knowledge sharing among team members. Knowledge sharing as a subsequent step in knowledge management cycle seems to be crucial due to the very sensitive and personal nature of knowledge. Table 6 presents operations recommended in our model for the step of knowledge diffusion.

Table 6

Operations of knowledge sharing and its meta-instruments

Operations of knowledge sharing in a cycle of KM	Meta-instruments holding operations of knowledge management					
	Mission, vision, strategy	Procedures	Organizational structure	IT systems	Organizational culture	Leadership
1	2	3	4	5	6	7
1. Introduction of modern types of organizational structure – matrix, process-oriented, task-oriented, etc.	x		x		x	x
2. Introduction of project management	x	x	x	x	x	x
3. Rotation of employees among business units		x			x	
4. Team problem solving		x	x		x	
5. Usage of inventing methods in problem solving		x			x	
6. Creation of climate supporting innovations and changes	x				x	x
7. Creation of climate of integrity and co-operation	x				x	x
8. Permission for mistakes justified by looking for profitable solution	x	x			x	x
9. Encouraging original and creative activities		x			x	x

10. Introduction of TQM and its tools	x	x	x		x	x
11. Training and other team forms of staff development		x	x			x
12. Coaching		x			x	x
13. Trips, informal meetings and sessions creating a climate of mutual trust and understanding		x			x	x
14. Common seminars of academics and practitioners		x	x		x	x
15. Non-formalized forums of discussions					x	
16. Compulsory reporting in internal media of meetings, visits to trade shows, conferences		x		x	x	
17. Easy access to Intranet, data bases, knowledge maps, etc.		x		x		
18.Strategic alliances and joint ventures	x		x			
19. Encouraging employees to formulate own opinions, critique, proposals		x			x	x
20. Supporting creative team work, i.e. through internal grants for innovative projects		x	x		x	x
21. Creation of "corporate patriotism" and identity	x				x	x

Source: based on the results of own research project

Knowledge sharing and diffusion are strongly connected with the next step of knowledge management process. Although knowledge application can be regarded as an ensuing part of knowledge sharing, and most operations of knowledge sharing have an impact on knowledge application, both stages are separated in the reference model, mainly, because of the dual nature of knowledge – personal and collective. Individuals possessing certain resources of knowledge should be encouraged to apply those resources into their work. Knowledge application must be conducted then in a planned and intentional manner in the case of both individual and collective knowledge.

The main purpose of knowledge application is the stimulation of knowledge usage for the right aim, in the right place, time and situation. Table 7. shows operations additional to knowledge sharing (which were presented in Table 6.) and meta-instruments of management reflecting those operations.

Table 7

Operations of knowledge application and its meta-instruments

Operations of knowledge application in a cycle of KM	Meta-instruments holding operations of knowledge management					
	Mission, vision, strategy	Procedures	Organizational structure	IT systems	Organizational culture	Leadership
1	2	3	4	5	6	7
1. Promotion of rationality as a basis for all activities conducted in an organization, particularly for decision making	x	x		x	x	x
2. Creation of "culture of success"	x				x	x
3. Rankings, titles and rewards for authors of original ideas		x			x	x
4. System of motivational tools for creativity (i.e. honoraria for innovations and propositions of rationalization)		x				x
5. Job appraisal and promotional system including knowledge application		x			x	
6. Creation of effective channels of codified knowledge flow with ensured access to it wherever it's needed		x	x	x		
7. Administrative and lawful support for employees reporting proposals of rationalization		x	x			

Source: based on the results of own research project

The updating and verification of knowledge can be regarded as a consequence of the previous steps of knowledge management cycle. Updating is the result of a continuous conduct of subsequent operations, while verification is connected with the assessment of knowledge application. However, some activities seem particularly useful in the stage of actualisation and verification solely. The most important of them are shown in Table 8.

Table 8

Operations of knowledge updating and verification and its meta-instruments

Operations of knowledge updating and verification in a cycle of KM	Meta-instruments holding operations of knowledge management					
	Mission, vision, strategy	Procedures	Organizational structure	IT systems	Organizational culture	Leadership
1	2	3	4	5	6	7
1. Regular reviews of knowledge resources in an organization		x	x	x		
2. Periodic assessments of employees' knowledge and different forms of self-assessment		x			x	x
3. Periodic training concerning new issues appropriate to the field of organizational performance		x	x			
4. Formal education (post-graduate studies, MBA studies, etc.)		x				
5. Promotion of the continuation of knowledge actualisation through systematic reading of professional literature and journals				x	x	x
6. Regular contacts with academics	x	x			x	x
7. Regular surveys on contractors' opinions		x				
8. Regular surveys on customer satisfaction	x	x		x	x	x
9. Regular surveys on employees' opinions	x	x				x
10.Analysis of world leaders behaviour in the sector of an organization performance	x	x				x
11. Regular analysis of offers of consulting and training firms		x				x
12. Analysis of the market of "knowledge products" (licenses, projects, new ideas)		x				
13. Application of modern methods of management (BSC, ABC, ABM, controlling, etc.) which allow continuous assessment of conducted tasks	x	x	x	x		x
14. Systems of internal and external audits		x	x			

Source: based on the results of own research project

Updating and verification of knowledge can be regarded as the closing stages of the spiral of activities focused on knowledge in an organization. These stages finish the cycle but, at the same time, they start a new "loop". Nevertheless, the effectiveness of the whole process would be limited without the last step mentioned in the reference model. Protection of the resource as strategically valued as knowledge seems crucial nowadays. Protection should cover all forms of knowledge – from codified explicit knowledge to tacit collective one. Activities connected with knowledge protection recommended in our model are presented in Table 9.

Table 9

Operations of knowledge protection and its meta-instruments

Operations of knowledge protection and verification in a cycle of KM	Meta-instruments holding operations of knowledge management					
	Mission, vision, strategy	Procedures	Organizational structure	IT systems	Organizational culture	Leadership
1	2	3	4	5	6	7
I. Protection of codified knowledge						
1. Access keys to data bases				x		
2. Internet separated from Intranet				x		
3. Other forms of "sealing-up" IT systems				x		
4. Selective access to data bases and other knowledge resources		x				
5. Differentiation of knowledge resources according to dimension of public vs. secret		x	x			
6. Training concerning knowledge protection		x				
7. Obligation of knowledge users for its protection		x				
8. Employment of professional security forms		x	x			
II. Protection of personalized knowledge						
1. Properly constructed contracts with employees		x				

2. Formal declarations of keeping organizational secrets		x				
3. Efforts leading to employees' satisfaction minimizing the risk of their leaving	x	x				x
4. Selective access to corporate secrets		x	x			
5. Encouraging loyalty		x				
6. Building the climate of loyalty, "corporate patriotism" and identification	x				x	x
III. Protection of knowledge enclosed in organizational competences						
1. Patents and licenses	x	x				
2. Reserved design	x	x				
3. Trademarks	x	x				
4. Other forms of protection of intellectual rights and know-how	x	x				

Source: based on the results of own research project

Although many operations are recommended for knowledge protection, their effectiveness is always uncertain. The reason for that is the nature of knowledge resources. First of all, the more knowledge is protected, the stronger the efforts of competitors are to gain this knowledge because of its strategic value. Furthermore, it is impossible to apply the means of protection towards all kinds of knowledge. Some of them, particularly those which are tacit and personalized, can be lost very easily in the case of lack of employees' loyalty, and no formal procedures can prevent such a situation. Therefore, organizational culture and climate are so important as a condition for knowledge management effectiveness.

Steps of knowledge management identified in the reference model are closely related to each other. Very often some stages realize the same or similar goals, or certain goals are achieved through a few stages. Nevertheless, the framework presented in this paper consists of ten separate steps to emphasize the need for conducting the process in a planned, intentional and complex manner for the sake of effective and efficient knowledge management. Similar cause underlie the issue of meta-instruments of management reflecting the operations of knowledge management cycle: many of the operations constituting each step are reflected very often in a few contemporary meta-instruments. This does not mean however, that those operations are doubled; they are rather reinforced

through the application of intermingling instruments of management, which leads to synergy and higher discipline of the performance. Among the meta-instruments of management, organizational culture plays a particular role which will be discussed in the following paragraphs.

3. ORGANIZATIONAL CULTURE AS THE META-INSTRUMENT OF KNOWLEDGE MANAGEMENT

Organizational culture itself may be regarded as a stream of knowledge in an organization. It consists of norms and values determining the behaviour of an organization members which "tell" employees what is right and what is wrong, what they should do and how (organizational culture is "the way we do things around here", Bower 1966, p. 46). That is why norms and values hold a significant portion of knowledge. Moreover, because of the nature of knowledge – very personal, deeply connected with emotions, status in a group, self confidence, etc., organizational culture seems to be more effective than other tools in shaping employees' behaviour, accurate from the perspective of knowledge management process.

As the meta-instrument of knowledge management, organizational culture, is a medium of purely "cultural" activities such as creation of loyalty and co-operation in an organization or "corporate patriotism". Those activities can be regarded as purely "cultural" because they refer to certain values. But other operations of knowledge management which are only indirectly related to values and norms in an organization are also reflected in organizational culture. It happens in the case of certain proposals connected with motivation and assessments such as parts of HRM, introduction of team work and team problem solving, transformations of organizational structure (into matrix or process structure) and many more. That proves once again the significant role played by culture in the cycle of knowledge management in an organization. Operations of knowledge management must be reflected in organizational culture because it brings acceptance of those activities in the social environment of an organization. Without such acceptance all efforts may be futile.

Operations and activities of subsequent stages of knowledge management identified in our reference model must be reflected in organizational culture to a various extent. Some operations do not have to be accepted according to the system of norms and values in an organization because other meta-instruments seem to be sufficient enough as their media. But the

effectiveness of others seem to be very limited without the approval of organizational culture.

Knowledge assessment and measurement is particularly dependent on the acceptance of organizational values due to the sensitive nature of knowledge itself. Because of difficulties connected with the issue of how to measure employees' knowledge, the tools used to do that must be accepted on the basis of organizational culture. Values and beliefs also define the priorities of knowledge elements to be measured.

Knowledge localization is a system of activities focused on identification of different sources of knowledge needed for an organization's performance. Such research can be restricted by organizational culture whose norms can favour some of the sources but diminish the value of others. For example, in organizations of large power, distance knowledge possessed by lower-ranked employees may be ignored. Therefore, organizational culture should approve of numerous and diverse sources of knowledge ranging from different methods of environment surveys, through contacts with academics, to meetings of managers with organizational staff. But organizational culture cannot be held responsible for the remaining technical operations reflected in the structure, procedures and IT systems. The same rule applies to the stage of knowledge acquisition. Sources identified in the previous step are now explored in order to gain knowledge, so again, the effectiveness of the process can be limited by different acceptance and value of particular sources. To prevent it, organizational culture should reflect numerous and different sources of knowledge acquisition.

The nature of some operations of knowledge development is particularly connected with organizational culture, so those operations must be necessarily reflected in organizational values. Not only must employees truly accept and believe in the value of learning from common experiences, but they also must feel the need for adaptation, permanent learning and self-development. Moreover, organizational culture should approve of some solutions applied in HRM, such as encouraging developmental attitudes and efforts leading to personal and collective knowledge development. Organizational culture should be also a meta-instrument of team work as a tool of knowledge development. Although team-based forms of task achievement may be introduced in an organization by adequate procedures and structural changes, the full effect of team work is determined by common values and norms, such as trust, loyalty or honesty. Provided organizational culture guarantees acceptance of the operations mentioned

above, knowledge development will be intentional and truly enacted by employees.

Knowledge codification is mostly connected with/reflected in IT systems, procedures and organizational structure. However, some operations should be conducted in accordance with the values of organizational culture. Above all, it occurs in the case of reporting issues, such as external contacts or meetings. The reporting of such events cannot be compulsory in the meaning of structural or procedural solutions. It must be regarded as important and useful in organizational culture if it is supposed to be an efficient tool of knowledge codification.

The next step in knowledge management model is the storage of knowledge. Codified knowledge can be maintained in an organization with the help of IT systems, procedures and organizational structure. But knowledge can be also personalized and tacit and such form of knowledge is more difficult to codify. Therefore, among other operations of that step, the identification of "key-employees" and efforts put into keeping them in an organization seem to be crucial. Additionally, those efforts must be reflected in organizational culture.

Knowledge diffusion in an organization is particularly connected with the system of values and norms. Since knowledge can be regarded as a source of individual power and very sensitive personal resource, its sharing is determined by the strength and quality of the relationship in a group of employees and by communicational behaviour. That is the reason why most operations connected with the stage of knowledge diffusion should be reflected in organizational culture (see Table 6). Those operations lead to strengthening the sense of membership and group identification together with stimulation of group creativity and mutual inspiration. In other words: knowledge sharing must be strongly supported by values of co-operation and innovation. Employees should share the sense of loyalty, "corporate patriotism" and common interest.

Some solutions recommended in the model of knowledge management for the stage of knowledge diffusion, such as introduction of a horizontal approach in organizational structure, TQM or project management are carried by other meta-instruments as well as by organizational culture. Nevertheless, without true acceptance of organizational values, those efforts will not be productive. Organizational culture seems to be the main instrument of informal ways of knowledge sharing. Informal meetings, discussion forums, common seminars, etc., must be approved according to common values. Organizational culture is also the most efficient meta-

instrument of operations encouraging people to open and honest communication. None of the remaining meta-instruments of management can be as efficient in creating a climate for admitting to mistakes or reporting fields of the lack of knowledge as organizational culture. Without such patterns of behaviour, knowledge diffusion would be incomplete.

As has been said before, knowledge sharing is very often unequivocal with knowledge application. Thus, organizational culture must be regarded as one of the crucial meta-instruments of management also in that stage (i.e. knowledge application). Among operations added to the step of knowledge application (in comparison to those of knowledge diffusion) it is the promotion of rationality and ambition (creation of "culture of success"), as a basis of knowledge usage, that must be reflected in organizational culture. Shared belief in the sense of rational behaviour is essential among employees, otherwise, their attitude is not likely to be honest. Organizational culture should also approve of motivational tools for fostering creativity.

The updating and verification of knowledge are rather procedural, so they must be reflected, above all, in IT systems, organizational structure and procedures. But organizational values (such as aspirations for development or ambitions) must create a basis for attitudes connected with a regular conduct of operations leading to knowledge actualisation and verification. Also self-assessment, which is necessary for the step of knowledge management in question, should be fostered by organizational culture.

In the step of knowledge protection, a particular role is played by organizational culture in the process of loyalty building in an organization. As was said before, none of the proposed operations of knowledge protection, connected with IT systems, procedures and organizational structure, can be efficient enough without the support of attitudes such as loyalty, integration with the firm and its aims, "corporate patriotism".

There is no doubt that knowledge management has its national/regional distinctiveness. Among other circumstances, such as economic factors or legal regulations, this specific character is affected by national culture which, in turn, creates a background of organizational cultures creation. One part of the research discussed in this article has concerned dimensions of Polish national culture which are considered as key factors of knowledge management efficiency, on the basis of which the following propositions can be formulated.

Polish culture (national and as a consequence – organizational one) is characterized by universalism and the dominance of analysis over synthesis (dimension identified by F. Trompenaars and Ch. Handy: Trompenaars et al.

1998). For this reason, explicit and codified knowledge and "hard" tools of knowledge management, such as those reflected in IT systems, are preferable in organizations. Less emphasis is put on "soft" tools, connected with people and their attitudes.

In Polish companies a strong pro-developmental aspiration is visible, the source of which can be found in the masculinity (Hofstede 2000) of Polish national culture. As a result, Polish organizations seem to show openness to their environment and changes constrained by it. Attitudes of openness and developmental aspiration undoubtedly stimulate the process of knowledge gaining and extension. At the same time, Polish culture is characterized by strong uncertainty avoidance (Hofstede 2000) which brings opposite effects: resistance to change and limited creativeness in knowledge creation and innovations.

The collectivism of Polish culture reinforces co-operation and effectiveness of team-work. Mutual trust and loyalty of employees can reinforce their commitment to activities connected with knowledge management, i.e., knowledge sharing.

As a result of high power distance there are barriers of communication in Polish organizations, particularly between hierarchy levels. They contribute to limited openness in communication areas of ignorance and mistakes, which hinders the transfer and development of knowledge in an organization.

The distinctiveness of Polish culture causes specific understanding of knowledge management and encourages the use of "technical" tools, such as data bases, reports, availability of Internet, etc. However, it seems that the distinctive character of organizational culture in Polish companies does not constitute a strong barrier to knowledge management implementation (in a way suggested in general statements of that concept). Although some solutions have not appeared in Polish organizations (because of low awareness), they may still be promoted and shaped, because they do not collide with Polish organizational culture. Among those solutions, some are especially important: the stimulation of tacit knowledge awareness, openness in communication, creating climate for changes and uncertainty tolerance. Tools required to achieve them, such as different procedures of tacit knowledge management, more frequent meetings of executives and employees, or the promotion of employees committed to innovative tasks are consistent with values shared by the members of Polish organizations; therefore, their implementation should not provoke any resistance. The activities mentioned above can also be considered as tools for the creation of

"knowledge culture" which should include high mutual trust, high level of openness to the environment and low need for power in an organization (Glińska-Neweś 2007).

4. CONCLUSIONS

Knowledge management may be regarded as a concept following previous trends in management (resource-based view of the firm, learning organization) and as such may be seen as simple systematization of performances already conducted in organizations. Although some operations of knowledge management were introduced as early as in ancient times, it has never been considered as a systematic and intentional process. The identification of knowledge management as a separate procedure is also connected with more general changes and intellectual trends in the contemporary world. New Economy, Knowledge-based Economy, postmodernism, the growing level of education and self-consciousness in societies, growing class of specialists and experts, etc., all together have brought that focus of scholars on the importance of knowledge. Multiple roots of knowledge management underlie its interdisciplinary nature which, in turn, proves the cultural nature of the issue. Therefore, considerations of knowledge management must always be placed in the context of organizational and national culture.

REFERENCES

Andriessen, D., *Making Sense of Intellectual Capital. Designing a Method for the Valuation of Intangibles.* Elsevier Butterworth-Heinemann, Amsterdam, Tokyo, 2004.

Bower, M., *The Will to Manage*. McGraw-Hill, New York, 1966.

Bukowitz, W., Williams, R., *The Knowledge Management Fieldbook.* Prentice Hall, London, 2000.

Davenport, T. H., Prusak, L., *Working Knowledge. How Organizations Manage What They Know*. Harvard Business School Press, 1998.

Glińska-Neweś, A., *Kulturowe uwarunkowania zarządzania wiedzą w przedsiębiorstwie* [*Cultural Context of Knowledge Management in an Enterprise*. Dom Organizatora TNOiK, Toruń, 2007.

Hamel, G., *The Concept of Core Competence,* in: Hamel, G., Heene, A., (ed.) *Competence-based Competitio.* John Wiley & Sons, Chichester, 1994.

Hofstede, G., *Kultury i organizacje* [*Cultures and Organizations*]. PWE, Warszawa, 2000.

McElroy, M.W., *The New Knowledge Management. Complexity, Learning and Sustainable Innovation.* Butterworth Heineman, 2003.

Nickols, F., *Cooperative Development of a Classification of Knowledge Management Functions,* in: *Knowledge Praxis,* http//www.media-access.com/classification.html, 1995.

Nonaka, I., Takeuchi, H., *The Knowledge Creating Company. How Japanese Companies Create the Dynamics of Innovation.* Oxford University Press, New York, Oxford, 1995.

Probst, G., Raub, S., Romhardt, K., *Zarządzanie wiedzą w organizacji* [*Knowledge Management in an Organization*]. Oficyna Ekonomiczna, Kraków, 2002.

Rokita, J., *Organizacja ucząca się* [*Learning Organization*]. Wydawnictwo Akademii Ekonomicznej im. K. Adamieckiego w Katowicach, Katowice, 2003.

Stankiewicz, M. J., *Próba modelowania procesów zarządzania konkurencyjnym potencjałem wiedzy w polskich przedsiębiorstwach* [*Attempt to Model the Processes of Management of Competitive Potential of Knowledge in Polish Companies*], in: Stankiewicz, M. J., (ed.) *Zarządzanie wiedzą jako kluczowy czynnik międzynarodowej konkurencyjności przedsiębiorstwa* [*Knowledge Management as a Key Factor of International Competitiveness of Enterprises*]. Dom Organizatora TNOiK, Toruń, 2006.

Sveiby, K. E., *The New Organizational Wealth: Managing and Measuring Knowledge-Based Assets.* Barrett-Koehler Publishers, San Francisco, 1997.

Trompenaars, F., Hampden-Turner, Ch., *Siedem kultur kapitalizmu* [*Seven Cultures of Capitalism*]. Dom Wydawniczy ABC, Warszawa, 1998.

Wiig, K., *Knowledge Management Foundations.* Schema Press, Arlington, 1993.