

## Chosen aspects of knowledge management in enterprises

**A. Kania\*, M. Spilka**

Division of Nanocrystalline and Functional Materials and Sustainable Pro-ecological Technologies, Institute of Engineering Materials and Biomaterials, Silesian University of Technology, ul. Konarskiego 18a, 44-100 Gliwice, Poland

\* Corresponding author: E-mail address: aneta.kania@polsl.pl

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### Industrial management and organisation

#### ABSTRACT

**Purpose:** In this article the important role of knowledge management in enterprises was presented. The knowledge and workers skills are the wealth and success source of organizations on the market.

**Design/methodology/approach:** The paper shows definitions and types of knowledge, systems and models of knowledge management and directions of knowledge acquirement and development.

**Findings:** In this article the analysis of role and function of knowledge management in modern enterprise on the basis of workers opinion poll, documentation review and conducted an interview in organization was carried out.

**Research limitations/implications:** Knowledge management in contemporary enterprise is one of the key factors. It decides about its economic success. Because of that continuous learning, improvement and forming of system functioning in organization are the priority of enterprise.

**Practical implications:** implications Nowadays, organisations achieve competitive supremacy through skilful knowledge management. For knowledge it was the strategic attribute to fulfil three properties. It must be: unique, possible for continuous improvement and difficult to fast copying and imitating.

**Originality/value:** In this article it was shown that knowledge management was the important field in organisation management. It is worth taking steps forward to improve information flow, arrange workers for job completion, work conditions and organisation image and efficiency.

**Keywords:** Productivity and performance management; Knowledge; Knowledge management; Workers opinion poll

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### 1. Introduction

The knowledge management is relatively young scientific discipline of interdisciplinary character. It depends on joining and synergy of many various areas: enterprise management, personnel management, philosophy, economy, computer science, electronics, psychology, strategy, etc.

In the present enterprise the knowledge management is the one of deciding factors. It decides about the attractiveness of the organisation, and its success on the economic market. In relation with the above, continuous education, improvement and formation of a system functioning in organisation are defined as the priority of the enterprise.

The efficient system of information flow is the key matter of the knowledge management. Unproblematic opinions, experi-

ences interchange and rapid access to knowledge influence on the work effects in the form of correctly prepared projects or performed tasks. The maximum cooperation of workers is also very important. Thanks to proper trained personnel, easy communication favouring good efficiency of work exists. The knowledge obtained during trainings increases qualifications and skills of the participants.

## 2. Knowledge as the object of the management in the enterprise

Knowledge is a very difficult resource to seize, similarly difficult to define. In literature, there are so many interpretations of this notion. We can generally say that knowledge is a skill of possessed information and data usage in working and making various decisions.

To illustrate this question well, the pyramid of knowledge was created; it is also called a hierarchy of knowledge (Fig. 1).



Fig. 1. Triangle of immaterial organization resources [1]

On the bottom of the pyramid there are the signs situated. Combined as the rules of suitable syntax they create the data. After processing and interpreting in the specific context, they become information. On the top of the pyramid there is knowledge. We can define it as the totality of messages and skills used by individuals for problems solving.

Knowledge can be divided into two types: explicit knowledge and implicit knowledge (Table 1) [2].

Table 1.  
Explicit and implicit knowledge [2, 3]

Explicit knowledge	Implicit knowledge
Codified knowledge	Tacit knowledge
Information put down into theories, formulas, procedures, handbooks, drawings, plans	Experience, skills and attitude
Transferral through education	Sharing through demonstration
Knowing knowledge	Shall and will
Obtainable through training	Obtainable by copying and by imitating in socialisation processes
Explicit knowledge is hardly powerful	Implicit knowledge can be viewed as power

First of them is very difficult or impossible to codify. It is personal, without structure and difficult knowledge to formulate dependent on a context. Problems connected with their documentary and supply decides about high value of the people who possess it.

Less valuable is explicit knowledge. It is not connected with knowledge level and experience, but it is interpreted and contained in many databases. Codification and notation of this knowledge make its transfer possible in systematic and formal way. The discussed characterisation of knowledge was presented in Table 1.

Similarly like varied and multidimensional ones are the definitions of knowledge, so their classifications are presented. Composition of the most popular classification of knowledge is shown in Table 2 [3].

Table 2.  
Classification of knowledge [4]

Criterion of classification	Types of knowledge
Object of knowledge	Knowledge "what?"
	Knowledge "why?"
	Knowledge "how?"
	Knowledge "who?"
Character of knowledge	Empirical implicit knowledge
	Routine implicit knowledge
	Conceptual explicit knowledge
	Systematized explicit knowledge
Way of obtainment	Knowledge obtained from science reality recognition
	Knowledge obtained from intellectual perception and valuation processes
	Knowledge obtained from conscious existing algorithms usage
	Knowledge obtained from creative solution of new problems
Form of knowledge	Codified knowledge
	Individual personalized knowledge
	Collectively personalized knowledge

## 3. The knowledge management

The knowledge management came into being in the 90th of the 20th century. One of definition shows that knowledge management is an important subsystem of management in enterprise and a valuable element of the strategy. It is the basic tool of the future management. It gives a chance to assure effective knowledge usage. Being the collection of knowledge, experience and intuition, it becomes a tool of the effective quality improvement.

Otherwise, the knowledge management is a collection of the organisational processes which aim is the assurance of synergy in the relationship of data and the possibility of information processing technology with innovative possibilities of workers.

The knowledge management is a comparatively new field of science. It is based on existing and presented earlier theories

which have already been implemented in the economic practice. The well-known have many various aspects of the knowledge management (Fig. 2) [5-7].

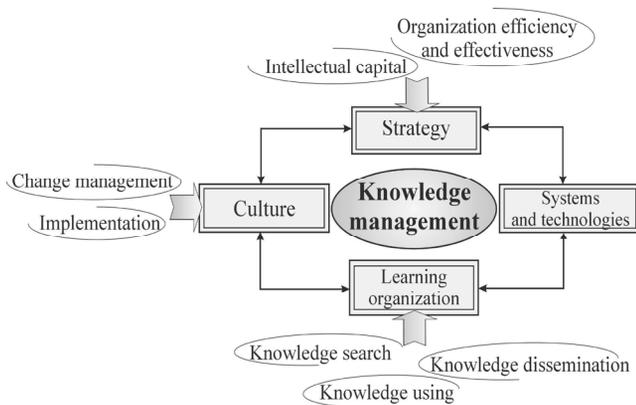


Fig. 2. Aspects of knowledge management [5]

Progress in this field requires acceptance of integrated, interdisciplinary and strategic point of view.

The modern knowledge management focuses on the growth of workers commitment in the relation to organisation, achieved through suitable motivation.

### 3.1. Models of the knowledge management

The knowledge management in the enterprise encloses the totality of processes making creating, disseminating and using knowledge possible to marked aims realization. This process admits the form of interactive model about influences among its individual elements. In practice, the knowledge management admits various forms. It is dependent on the character of the enterprise activity, specific branch or received strategy. In literature there are many models described in dependence on individual opinions of researchers [8].

As the leading directions of development in the knowledge management we consider universally three models: Japanese model, resource model and process model.

Model created by two Japanese: Nonaka and Takeuchi belongs to the first group. The basis of this management conception is a distinction of two categories of knowledge: explicit knowledge and implicit knowledge, and the most important one is implicit knowledge. The authors of the model agree that new organizational knowledge is created by interactions among individuals possessing knowledge about different content and type. In this process there is transformed implicit knowledge in explicit knowledge and inversely.

The second category of these knowledge management models is the resource model. The resource approach of this model depends on treatment of knowledge as the main, strategic resource of the enterprise. According to this the source of knowledge can be the enterprise or its surroundings. Five elements of the effective knowledge management are the base of this model (Fig. 3) [9]:

- key competences,
- collective problems solutions,
- implementation and integration of new tools and technologies,
- experimentation for the development of problems in the future,
- effective importation of knowledge from surroundings.

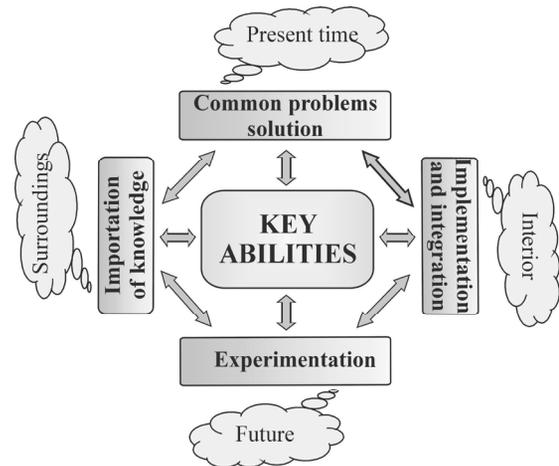


Fig. 3. Schema of resource model [9]

The process model which is based on solutions and practical experiences represents the third group. It is applied in the large consulting organisations. The knowledge management, in this case, refers to three main stages: knowledge widening, knowledge division and transformation of knowledge into decisions. According to this model, processes making possible creation, making available of knowledge and using it for organization good are very important.

### 3.2. The knowledge management systems

The enterprises create completely new or used modified models of the knowledge management in order to increase quality and efficiency of productive processes and offered services. The systems elaborated and implemented in them which answer the obtainment of knowledge and its proper using depend on being within organisation management system. We can distinguish centralized and decentralized management systems (Table 3) [10].

Knowledge as the resource enabling the decision making should be accumulated on the highest level during the communication inquires into varied losses connected with knowledge transmission. In the case of the centralized management system these losses are considerable and grow with the quantity of intermediate levels between sender and receiver. They reduce the efficiency of the management process in a large degree. With regard to this discussed system it is not characterized as highly efficient. The system of accumulation and transmission of knowledge in the centralized and decentralized system was presented in Figures 4 and 5.

Table 3.  
Dependences occurring among management system and type of knowledge [10]

Content	Centralized management system	Decentralized management system
Explicit knowledge	Decisive type of necessary knowledge for decision process	Complementary type of necessary knowledge for decision process
Implicit knowledge	Complementary type of necessary knowledge for decision process	Decisive type of necessary knowledge for decision process

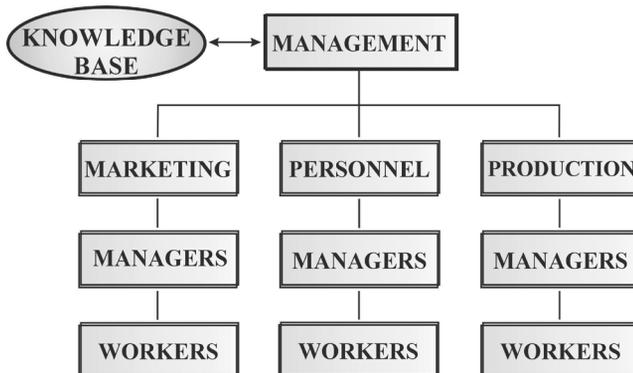


Fig. 4. Schema of a centre of knowledge base in centralized system [10]

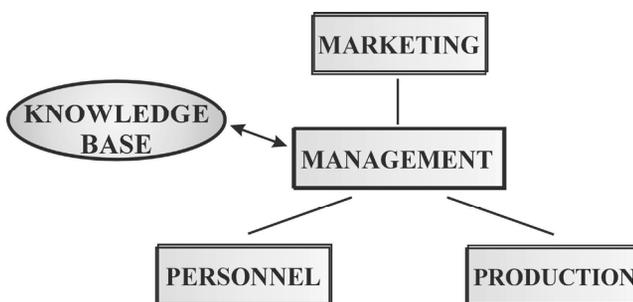


Fig. 5. Schema of a centre of knowledge base in decentralized system [10]

For better transfer of knowledge the more appropriate is a flat system, of a small number of hierarchy levels in which workers have direct access to knowledge. The explicit knowledge accumulated in the decision boards or instructions is less dependent on the management system than the implicit knowledge. Knowledge accumulated in the databases is generally available for all workers possessing the authorities of the access.

The decentralized system facilitates communication through the requirement of the effective exchange of knowledge among workers. Mutual pursuance to organisation aims achievement is realized in this way (Fig. 5). However, in the centralized system certain barriers limiting the direct, effective cooperation exist.

### 3.3. Knowledge achievement and development

Knowledge achievement is the process of its obtainment from external sources, functioning outside the enterprise area. However knowledge development relates to usage and extension of the internal enterprise knowledge possessed by workers.

At present, knowledge achievement takes place on the knowledge markets which circulation objects are immaterial goods [11]:

- external experts knowledge – it is obtained by the employment of the experts who possess skills in request by the organisation;
- knowledge of different enterprises – it is alternative for the employment of the experts; it consists in obtainment of the access to the necessary knowledge resources by various forms of co-operation: occasional exchange of information, occasional co-operation, strategic alliances, strategic connections, minority participations, majority participations, fusions, interception;
- knowledge of the various market participants – it is knowledge obtained by proper contacts with the participants of the market. They can be divided into certain groups of businesses: customers, deliverers, enterprise shareholders, workers and organisations representing them, financial markets, politicians, mass media and persons forming the public opinion and generally the society;
- products connected with knowledge – knowledge is obtained not from people directly, but through e.g. purchase of proper software, obtainment of intellectual ownership, achievement of plans, projects, exemplars or punishable imitation.

## 4. Analysis of the knowledge management in a given enterprise

Enterprise X is an organisation of commercial–service–consulting profile. It began its activity in municipal branch in 1998.

The enterprise assembles and supplies equipment to municipal institutions and airports all over Poland. It takes up guarantee service, sale of spare parts, trainings and helps in service of this equipment.

The organization employs about 50 persons: 30 workers occupy with service and 20 workers - administration and tradesmen.

In the premises a server connection exists. Thanks to this every worker makes files accessible. They are not catalogued according to specified rules, but at one's own sweet will, because of that the usage is very difficult.

The next problems are up-dates of already existing files. Formal knowledge and its accessibility in the analysed organisation are not systematized. The lack of specific databases from which every one being interested in them could use is an issue.

The implicit knowledge plays an important role. It was obtained from experiences acquired during the work in this

enterprise, because of that it is essential that workers would stay in the organization on their work positions and with their knowledge for a long time.

A small rotation occurring in this company and creating a „family” firm influence favourably on accumulation of a type of knowledge e.g. know-what, know-how, know-why, know-who. This means that every worker knows, in what way everyday duties are carried out, as individual elements are valuable, to what larger attention is drawn, including who cooperates in specific problems and for what purpose the enterprise functions.

#### 4.1. Ways of knowledge development in the enterprise

In the analyzed organisation, on the basis of the interview carried out, perceived that workers trainings were the main source of formal knowledge development. In the service section, they are carried out, from time to time, during implementation of a new product on the market, or existing products modernisation.

In the trade section two types of knowledge - knowledge about products that is sold machines and knowledge competition are distinguished. Knowledge about machines and news is developed on the similar principle, as in the service section - workers are delegated to trainings to the manufacturers of machines, where essential information is conveyed to them. However, knowledge about the competition is mainly obtained from informal conversations with customers, on trade markets or demonstrations of machines, from periodicals and Internet.

In the administrative section, new formal knowledge is achieved on proper conferences or the trainings also, in which managers usually participate. Then, on organized inside the organization trainings, they conveyed the obtained knowledge to the next workers, connected with this range of information.

Informal knowledge is developed in this enterprise on the everyday work basis, like during organized, from time to time, workers meetings too.

#### 4.2. Analysis of performed questionnaire concerning knowledge, its development and flow

The questionnaire questioning the knowledge management process in this enterprise consisted of 17 questions and problems concerned:

- workers connections with superiors and the other workers,
- knowledge, information and recommendations flow,
- applied databases,
- trainings and knowledge widening.

According to calculated representative test 10 workers took part in the investigation: five from service section, including 2 masters of service and 3 white-collar workers, including 3 administration workers, 1 tradesman and one person on the managerial position.

From the analysis of questioned people’s answers it results that certain elements of the knowledge management in a selected

organisation function without larger objections, some of them require corrections and improvements.

First group of questions concerned superiors, recommendations and information, which come from them and relations among them (Figs. 6, 7).

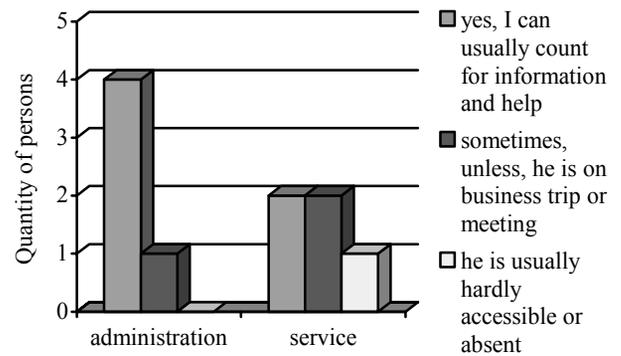


Fig. 6. Support and help receiving from superiors in the administrative and service section

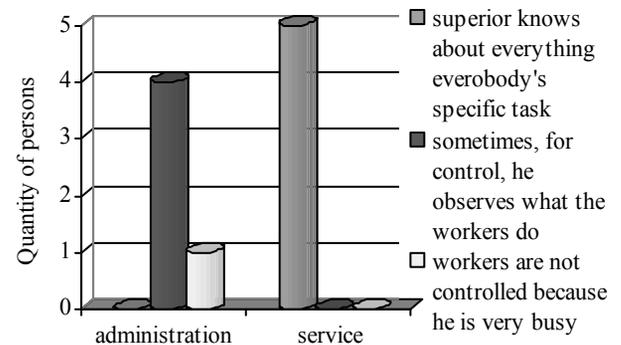


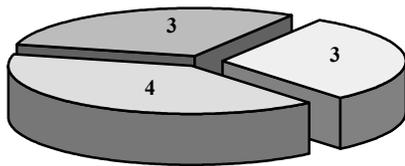
Fig. 7. Superior’s consciousness evaluation about actual subordinates works

After answers analysis it was verified that good relations among leadership and his subordinates are found. The workers can usually count on their superior’s help, what influences on relations among them favourably. The chairman engaged in the organisation life too. He is permanently informed in what the individual sections do. He knows all workers, even from the lowest level.

The organisational structure and workers knowledge about the range of activities done by individual persons is operated very well. The situation along with recommendations passed from the superiors is worse. Though, from administrative section workers they keep writing and they are quite clear but the recommendations are not always precise and they change them during realization (Fig. 8).

Workers are not also satisfied because of lack of information on the current activity matter of the organisation and its results.

Important information flows mainly cursorily to persons from the administration section, during accidental conversations with the superiors. To service section workers the information flows from the others (Fig. 9). This shows the necessity of completing education of managerial personnel in the aspect of the knowledge management and the information transfer.



- understandable and specific
- surmise required
- difficult to understand

Fig. 8. Evaluation of orders quality received by workers

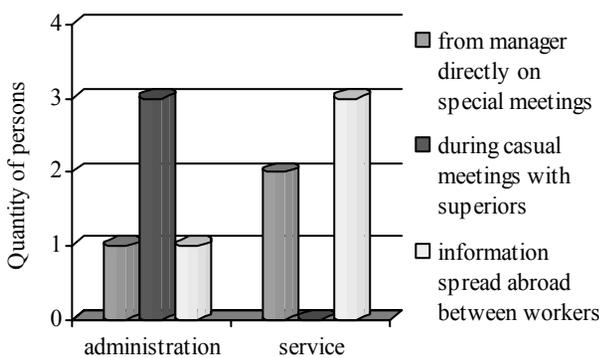


Fig. 9. Ways of workers being informed about important matters and events in the enterprise

On the basis of the next questions relating to relations among workers verified, that the workers both from administration and service section help themselves with pleasure. The contact among workers of two sections was also estimated very well. They cooperate with one another correctly despite the distance they share.

The knowledge passing the matter is rather different. The large competition and the lack of consciousness about the essence of this process cause the blockades in the division with others detailed messages. It requires certain modernisations introduced through workers informing and increase of their organisational culture.

Then, the databases accessible for workers were analyzed existing in the organisations (Fig. 10).

It turned out that documents relating to machines and their service exist, however the enterprise does not possess the information about customers, sold machines etc. or it is usually not actual (Fig. 11).

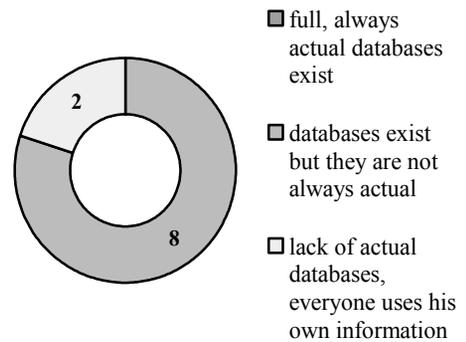


Fig. 10. Evaluation of databases existing in the organisation

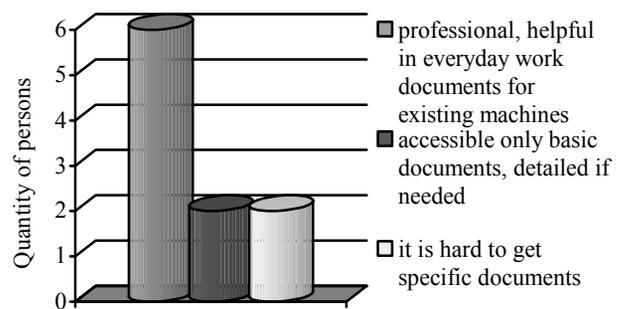


Fig. 11. Evaluation of technical documentation accessibility of machines

The implementation of the accurate and actual databases to which workers will have access through proper explorers is necessary. It is important that workers do not waste any time for doing something what was done by someone else. This action will also eliminate the loss of the valuable messages which worker possesses.

Next questions concerned the team work and intentions of workers to share possessed knowledge.

Taking the specific character of the enterprise activity into consideration, the cooperation among workers of the two sections is necessary. Because of that, the conviction is found among workers that in case of a problem or a need everyone helps the others with pleasure. Nobody considers that he would be busy and interested in his work only. This shows well functioning team work. However, the situation is not satisfying having analysed the answers relating to intentions to shared specific messages. The large competition especially exists among workers of service section. In the administration sections the answers shared almost fifty-fifty (Fig. 12).

The last group of the questions concerned the acquired knowledge by participation in trainings (Fig. 13).

The questioned workers evaluate well frequency of trainings and admit that it is sufficient. However, they have doubts about the way it is carried out (Fig. 14). The opinions among administration workers are found that trainings left a lot to be done in the subject of knowledge. For the service workers they are often not understandable because of the lack of suitable interpreters during foreign languages trainings.

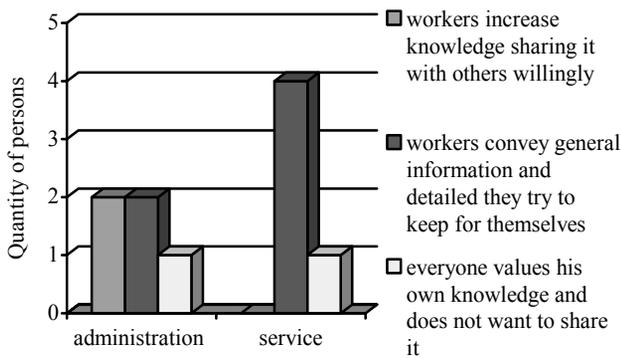


Fig. 12. Evaluation of sharing knowledge intentions among workers of two sections

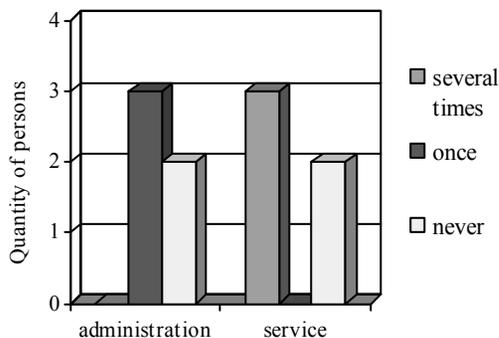


Fig. 13. Quantity of trainings performed by workers

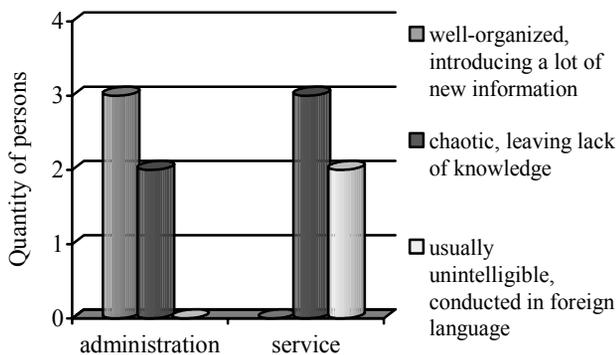


Fig. 14. Evaluation of trainings quality carried out

This situation must change because the development of knowledge in the organization cannot exist without proper trainings carried out. They are the main source of knowledge in the analyzed enterprise.

### 4.3. Improvement possibilities of the knowledge management in the enterprise

From the questionnaire being carried out in the organisation, connected with short interview, it results that very large development of the enterprise has occurred since several years. In the beginning it was based mainly on introduction of new products on the market and encouraging the customers to get acquainted with them. In the present, when the organisation already found the proper place on the market, and personnel composes a large team, decided to strengthen it „from the centre”. This was mainly in progress enlarging the number of the workers trainings, creation of the clear and precise organizational structure and the proper databases usage. The test of the knowledge management system implementation in the organisation was not a simple task. It required implementation of several corrections:

- trainings in the range of management, the knowledge management and information provider - they should acquire skills in the range of knowledge passing, workers motivating to share knowledge and also to learn [12],
- improvement of the organisational culture – in the organisational culture, cooperation culture and sharing knowledge among workers should be formed,
- enlargement of the trainings intelligibility – it is important that they are well-organized, pass on a lot of specific information, and they are for all participants intelligible (realized in the Polish language),
- implementation of the reporting system – it would consist in preparing by the proper sections of reports from present activity or plans on the future; these information should sink into the chairman of this enterprise and involved sections, so they have the consciousness how the organization prospers.
- creation of the proper and full databases.

## 5. Conclusions

The knowledge management is a very wide, interdisciplinary problem treating the intellectual capital as the basic attribute of the organisation competitiveness. In the present, investments in the best technologies or specialist devices are not sufficient [13-15]. The enterprise will not achieve benefits on the market without knowledge and information usage. Knowledge decides about the success and the knowledge management is the necessary action for correct enterprises functioning. Without the knowledge management the position of the organisation in surroundings is seriously menaced, especially it will not be as high as it could result from the possessed resources of knowledge and experience.

The knowledge management is the system solution which makes the radical increase of usage efficiency of possessed implicit and explicit knowledge possible causing that it will be the knowledge of the whole organisation.

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