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**THE ROLE OF PERSONNEL APPRAISAL
IN THE KNOWLEDGE BASED ORGANIZATION**

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Introduction

It is easy to notice that the times we live in are a next huge step in the history of mankind. At first sight we can see a great technological progress, the development of information technologies, achievements in physics, biotechnology and medicine. However, not everyone distinguishes the basis of these numerous successes. And this basis seems to be banal, it is knowledge! Even more remarkable is the description of contemporary times made by the guru of management- P.F. Drucker. He assures, that we are at the beginning of the greatest change in the history of mankind. He affirms that: “New society will be the society of knowledge. Knowledge will be the principle resource and the knowledge employees will be the predominant groups among the labor resources” (Drucker, 2001). The meaning of this prognosis is closely related to the enterprise. The quotation of I. Nonaka, „A reliable source of the competitive advantage is knowledge. When markets change, new technologies explode, competitors multiply and products stale within one night, the successful companies are those, which consistently create knowledge, disseminate it through the whole company and rapidly turn knowledge into new technologies and products”. These activities are defined as that of the enterprise, “created by knowledge”, the only business of which is systematic innovation. (Nonaka, 1991).

Such definition of management activities is that of the knowledge management. This conception was developing for years in the West, as well as in Japan and the USA. But from the 1990s we can speak about a fundamental interest of the Europeans in this conception. This conception is developing and widens its importance both in the academic environment and in the practice of business. Such interest is caused by the fact that scientists, followed by the state decision-makers and companies’ managers, start to detect a huge potential in knowledge, which contributes to the acquisition of the competitive advantage by companies as well as by national economies. Based on a great respect for knowledge, a new economical conception was created, i.e. Knowledge- Based Economy (KBE). It was supposed to be an alternative of the classical

conception of economy, understood in the traditional way, according to which economy was based upon the application of the most significant inputs, such as labor, land and capital.

Knowledge, by A.K. Koźmiński, is an intangible tool, difficult to copy, composed of useful information, which no one else possesses and no one else is able to apply. Knowledge is a result of the intellectual potential. However, the creation of the conditions facilitating the development and success of the companies, the competitive advantage of which is based on knowledge, is the task of multiple institutions, i.e. state and local authorities, enterprises (particularly of financial sector), intellectual and academic communities, (Koźmiński: 2001). Such perception of the problem is the quintessence of Knowledge- Based Economy.

In Poland the problematics of KBE started its development in late 90th of the 20th century. By A. Kukliński, globally, in 2001 only 10 countries were implementing the principles of KBE. However, in the first decade of the 21st century, we can expect a rapid enlargement of this group, even up to 50 countries. This phenomenon will result in the domination of KBE, and the foundation of so-called European Centre and its independent peripheral entities- the author predicts (Kukliński, 2001: 19).

A. Kukliński spoke about the necessity of the urgent investigation of the enterprises practicing knowledge management. The importance of such investigation and its tempo ought to be significant, as any delay will lead to a disastrous effect in economy, which will turn into the economy of II-nd III-rd category unless it turns into KBE (Kukliński, 2001: 17).

The similar opinion was expressed by B. Wawrzyniak, affirming, that in spite of a growing interest of scientific communities in the activity of the enterprises, the lack of empirical analysis is still obvious. (Wawrzyniak: 2003: 24). S. Kwiatkowski, shares this viewpoint, noticing that such investigation should be regarded as not just an opportunity, but as a need.” (Kukliński, 2001: 262-263).

Such attitude of illustrious researchers towards knowledge management could not but remain without the voice of support. One of such voices is the present work. The desire to

develop the conception of knowledge management, exploration of this phenomenon in the conditions of Poland and making a contribution to the improvement of the economy, which provides a higher living standard, was the first and the most important challenge for the author of the empirical research.

The author of the present research, due to his particular interest in the problematic of human resources management and as a result of the observation procedures, analysis of literature sources and finally, as a result of the recently implemented analytical research concerning the knowledge management, concentrated upon the issue of human resources management and its role in the development of knowledge management in the enterprise. The most important goal of the present research was to define the dependency between the means of the personnel appraisal applied at the enterprise, and the level of knowledge management achieved by the enterprise.

The empirical research methods, engaged in the present research presupposed the implementation of the project, using the investigation focus group, which would provide the most accurate precision rates. The research was supposed to be carried out among the enterprise, which acknowledge the importance of human capital and knowledge, and have been developing the knowledge management procedures for years. The research included the implementation of a survey at thirty- three organizations, the name of which contained the definition of “research and development unit”. The envisaged scope of knowledge management research was based on the terminological definition of knowledge management proposed by D.J. Skryme, W.R. Bukovitz and R.L. Williams. The research tool was constructed in the way, which enables to identify the levels of knowledge management achieved by certain organizations.

To define the levels of knowledge management the four-level composition of R. Maier was applied:

- 1 – basic level,
- 2 – integration systems of knowledge management,
- 3 – intellectual systems of knowledge management,

- 4–platform systems of knowledge management.

The further stage of research was based upon the analysis of personnel appraisal tools applied in the research and development units. The fundamental research hypothesis in the present research is the following: the level of knowledge management achieved by a research and development unit depends on the applied personnel appraisal tool.

It is presupposed that the dependent variable is the level of knowledge management and the independent variable is the applied tool of personnel appraisal.

The research consists of six chapters with a definite subdivision into introductory part based on the review of literary sources related to the issue of knowledge management (including personnel appraisal), and comprising the results of the world-wide research activities. The second part contains the exploitation of the empirical materials of the knowledge management research carried out by the author.

The first chapter titled „The knowledge role in economy” represents the two levels of the problematic of knowledge - macroeconomic level and microeconomic level. On the macroeconomic level knowledge management was analyzed from the point of view of economy (Knowledge-based economy). Through the prism of globalization the macroeconomic level shows the importance of the new concept of knowledge management enabling an enterprise and even the whole national economy to achieve competitive advantage. The emphasis was made upon the tendency of changing attitude towards so-called „labor factor”, regarded not as a value but as a key to the market and economic success, a factor, which should be cared and developed, as it is the most important source of the national wealth.

The macroeconomic level shows the perspective of the enterprise and its attitude towards the new strategic resource, i.e. knowledge, particularly the knowledge of the employees of this enterprise. The macroeconomic level demonstrates evident changes in the attitude of the administration of the enterprises towards the methods of available resources management and the management of the values attributed to these resources. Here the research expands over the

estimation of non-material (intellectual) values as a key tool, which considerably influences on the change in the attitude of market participants towards the phenomenon of intellectual capital and its real value. In the present research the place of intellectual capital in the structure of the enterprise values was specified; intellectual organizations were characterized.

In the next part of the chapter the author presented the results of the knowledge management investigation at the selected enterprises functioning globally. It was demonstrated here how the process of knowledge management can take place in the organization, how knowledge management initiatives should be introduced, how the organizational potential of knowledge management system is estimated, which strategies of knowledge management can be applied and what the application criteria can be. The range of the application of informational technologies facilitating the knowledge management at the enterprises was specified as well.

The second chapter „Human Resources Management versus Knowledge Management” starts with a terminological discussion specifying and arranging the literary definitions related to human resources management at the enterprise. The definitions of human resources management, personnel management, personnel policy, architecture of human resources, etc. were presented. The basic models of human resources management, developed in the past century, were demonstrated, i.e.: Harvard model and Michigan model and their later followers. Further the chapter depicts the change of the role of human resources management units in the context of new knowledge management programs adopted in the organizations. The interdependence between human resources management and knowledge management was pointed out. The attention was drawn to the main challenges of these management units, as well as to the elements facilitating good results in the activities of human resources management units related to the introduction of new initiatives of knowledge management. The chapter also represents models (developed by I. Nonaka and H. Takeuchi („middle-top-bottom” model)), emphasizing the involving of enterprise administration into the process of knowledge management programs adoption. The chapter ends with the demonstration of the architecture of

human resources management in the knowledge-based organization, describing, in a special way, such following elements of personnel policy as: scouting, motivating and development of knowledge personnel. Special emphasis is put on the innovative approach to the human resources architecture of D.P. Lepak and S.A. Snell and their four models of human resources management, such as: human capital development model, human capital acquisition model, human capital contracting model and the alliance creation within human capital.

The last chapter of the literary part of the present research is devoted to the personnel appraisal. In the chapter titled “The role and a place of personnel appraisal in a process of Human Resources Management” the author describes the usefulness of personnel appraisal procedures and personnel development measurement procedures; he also outlines numerous advantages of personnel appraisal procedures and multiple ties between personnel appraisal and other elements of human resources management, emphasizing the role of such ties in the implementation of personnel policy at the enterprise.

The second part of the present research starts with the chapter four, which outlines the applied methods of research. The research goal, the research hypothesis and the research procedure were presented here. A passage about the general characteristics of the subjects of research makes up an integral part of this chapter. The structure of the research and development sphere in Poland was outlined, the transformation period of the research subjects, the aims of their functioning were defined, and partial data, speaking for the effectiveness of these subjects were presented.

The last chapter (chapter six) is a presentation of results of the present research. In this part the analysis of the research material is directed at the identification of knowledge management levels achieved by the investigated research and development units. Simultaneously the analysis of the groups of enterprises with different knowledge management levels was carried out, and this analysis was targeted at the identification of common features of personnel appraisal tools. The structure of certain personnel appraisal tools was presented; and the attention was drawn to

the frequent similarity of personnel appraisal tools applied by the enterprises with the same knowledge management level. The set of personnel appraisal criteria was outlined, particularly the criteria, which are the most important from the point of view of knowledge management (facilitating knowledge management processes).

The research is ended with the conclusions, resulting from the analysis of the research material, main observations, and the verification of research hypotheses. The basic instructions concerning the constructing of personnel appraisal in the knowledge management organizations were defined. The definition of such instructions is the second most important (together with cognitive goals) research goal (practical goal).

At the very end of the research one can find a questionnaire used by the author in the present research.

Chapter I

THE KNOWLEDGE ROLE IN ECONOMY

1.1 Knowledge Based Economy - macro perspective

Dynamics, high tempo of life, regular mobility, frequent valorization, erasure of boundaries – these and similar slogans are used to describe the turning point of XXth i XXIst centuries. P. Drucker (Drucker, 1995) defines this period as turbulent, which is the illustration of continuous changes-social and economic alternations or geopolitical conversions. At the same time this is the era of the discovery of informational and genetic technologies, the era of capitalism and, paradoxically, the era of prosperity and poverty. The numerous processes, which caused these events, led to huge disturbances. And these disturbances revealed themselves in the alternation of the viewpoint concerning the rules and principles of behaviour, events, conduct, actions and recognized values –from national to international. This is the way the new phenomenon was characterized by G. Gierszewska and B. Wawrzyniak. This phenomenon is globalization (Gierszewska, Wawrzyniak, 2001: 19). Many definitions of this phenomenon can be found in literary sources, however the generally accepted, common interpretation of this term does not exist. Sometimes totally different concepts or things are called globalization (Grupa Lizbońska, 1996: 201-202). From the proposed definition of globalization one may conclude that it denotes a very complex and multidimensional process which takes place on various surfaces. The result of the changes caused by globalization is global transformations which affected states, enterprises and, finally, individuals.

At the Convention of the Institute of Directors in 2002 it was claimed that mankind has been facing globalization as a phenomenon of life already since the dawn of civilization (Robinson, 2002: 25). A. Zorska affirms that globalization is a higher, more complex stage in the process of the internationalization of world economy. In spite of the fact that globalization is considered to be a new phenomenon by the majority of people, in fact it commenced already in the XIVth century, due to an expansion of trade campaigns. Only in the second half of the XIXth century the activities of enterprises aiming at the conquering of new markets became sufficiently vigorous and intense, one can speak about globalization in contemporary interpretation. With reference to research works by P. Dicken and J.G. Williamson the period of 1870-1914 is considered by Zorska to be the first stage of globalization (Zorska, 2000: 14).

Usually globalization reveals itself in the processes related to the internationalization and multi-nationalization of economy and society. Internationalization touches upon actions aiming at the securing of free flow of inputs between countries. Such countries function as the regulators of these processes. Multi-nationalization in its way, consists in the transferring and reallocation of inputs from one business entity to the other. This process takes place in transnational corporations or strong and influential national economic systems within which such corporations function (Grupa Lizbońska, 1996: 44-48).

The most remarkable manifestation of globalization, known almost to all citizens of the Earth, is competition. This phenomenon means economic rivalry between countries and enterprises on a global scale. The activities of states, institutions, international organizations (ex.: GATT, International Monetary Fund, World Bank, FAO, UNESCO, UNIDO, WTO, ITO, UE, EFTA, CIS, NAFTA, PAECA, MERCAOSUR, AFTA, EAEC, OECCA), aiming at the development of commerce through its liberalization, enabling a free flow of goods and services

within this group of states, led to the appearance of new conceptions of the organization of the world as a global village with its equal inhabitants- citizens of the Earth (Grupa Lizbońska, 1996: 161-165). The activities related to the incorporation of national economies into a single world economy or, on a more local scale, into European economy, through the acceptance of legal and commercial solutions enabling a free flow of resources- material and human consequently led to the appearance of a new movement, namely anti-globalize. The basic concern of anti-globalists is the protection of national and cultural identity, promotion of national industry, frequently superseded by transnational corporations which are in fact the greatest threat to such national and cultural identity. In the course of time the activists of this movement started to use another definition describing their activity. The concept of „anti- globalize” was changed into the concept „alter- globalize”, which denotes a softer attitude to the activities they are engaged in. Together with the change of conception the methods of struggle became more mature and less radical.

Society should not avoid the process of globalization– affirms W. Farish, one of the members of the Convention of the Institute of Directors,- there will be no progress without changes; and the key aim of world’s decision-makers should be the dissemination of the benefits of globalization among the poor (Robinson, 2002: 25).

„The flywheel” of globalization turns so fast that in spite of the resistance we still face the process which cumulates its strength. The effect of such accumulation in so called „New Economy” or „New Business” which gives a chance to many states and nations to catch up with highly-developed countries and to secure a stable economic and social development, guaranteeing the improvement of living standards (Gierszewska, Wawrzyniak, 2001: 17). This concept is well-developed in the countries of OECD where economic growth is considered to be dependent on

efficient accumulation, acquisition, dissemination and application of knowledge. By M. Kabaj material inputs have a more and more limited influence upon the efficiency of economic activities in these countries. Human capital, in its way, becomes more and more important. According to the opinion of G.S. Becker, Noble Prize winner in Economy, „human capital is also a national wealth, like enterprises, buildings, machines and other fixed assets” (Ludwiczynski, Stobińska, 2001: 121). Technical, economic, organizational knowledge acquire special importance, as such knowledge enables to create new technologies and products and to efficiently manage a contemporary enterprise. Such efficiency does not depend on convenient allocation of scarce resources, but on the volume of human knowledge and its actuality, as well as on the education level of society, ability to innovative thinking and adoption of new solutions in manufacturing, distribution and servicing processes (Kukliński, 2001: 118, 167).

Human resources, they way they are regarded now, have become a potential source of competitive advantage not only for enterprises but for the whole countries. In order to achieve such advantage, countries develop their potential in the sphere of research and development and extensively apply the inventions of information communication technologies (Engl. ICT) (Kukliński, 2001: 48). In these countries knowledge plays a key role in the international competition. This is the opinion of L. Edvinsson, who wrote that „knowledge has become a chief source of welfare not only on the level of organizations but on the national level” (Kwiatkowski, Sedlak, 2003: 21). Further the author emphasizes that „only knowledge will give us an opportunity to increase national welfare” (Kwiatkowski, Sedlak, 2003: 22). To make words weightier, L. Edvinsson quotes the text of the OECD Report of 2001, from which we find out that only those countries which implement actions based on knowledge, will be the winners in the creation of future national welfare (Kwiatkowski, Sedlak, 2003: 23). J. Woroniecki affirms

that without being applied in production and servicing, knowledge itself will not contribute to the economic growth (Kukliński, 2001: 49). It is indisputable that knowledge is a constructive power of development; one of its most important (if not the most important) factor; various informational technologies are only an instrument of development.

I. Nonaka and H. Takeuchi point out that in spite of a great attention of business and society drawn on knowledge, no one has ever traced the mechanisms and processes responsible for of the creation of knowledge (Nonaka, Takeuchi, 2000: 24). Besides, these authors represent the Japanese approach to the creation of knowledge, discussing about the identification of knowledge types, namely tacit and explicit.

Not every investment and not every form of education and professional training support contribute to the economic growth, productivity increase and growth of welfare as a whole. The guarantee of the effectiveness of the investments is the creation of their sufficient structure, which means that education and training should be synchronized with the demands of economy. The most serious drawback and the problem of such system is the non-conformity of education and training to the demands of rapidly changing economy (Kukliński, 2000: 168). The forecasting of the demand for the certain abilities or competency which will be needed in the future becomes very important. And therefore the process of learning these abilities or competency should start in the appropriate moment of time.

The development of knowledge-based economy is a necessity for the consolidating Europe. J. Kotyński uses a working definition of KBE adopted in the report composed by OECD and World Bank in 2000. According to the authors of this report „KBE is economy in which knowledge is created, adopted, disseminated and applied more effectively by enterprises, organizations, individuals and communities, contributing to a faster economic and social development”

(Kukliński, 2001: 33). Pursuant to this definition the following sectors can be regarded as those belonging to knowledge-based economy: information and communication technologies and other spheres requiring highly skilled personnel, such as automobile industry, chemical industry, machine-building, educational, financial and medical services (Kukliński, 2001: 139).

The management of economic processes and human resources on all levels is an important component of KBE. These levels are national, regional, the level of the enterprises, all requiring effective actions and facilitation of innovations and development (Kukliński, 2001: 42). The development of knowledge-based economy depends on endogenic and social factors. By A. Kukliński the demiurge of this economy is a society possessing appropriate resources, abilities; and an aptitude to a long-term thinking and acting. Such society must be competitive, innovational, continuously learning, acquiring knowledge on a global scale, with a socially conditioned, dynamic development. (Kukliński, 2001: 203-204). The role of education is also emphasized by L. Thurow. He writes that „...in the arriving era there will be a necessity to invest into knowledge and qualification, which will form a bundle of industrial branches based on human intellectual potential, and these industries will enable people to acquire better salaries and a higher living standard” (Thurow, 1999: 95). Huge expenses on intellectual capital and information technology are undoubtedly a core of knowledge-based economy-wrote L. Edvinson and M. Malone (Edvinsson, Malone, 2001: 17).

Efficient use of human resources is one of main features of KBE. „Human resources are the most important source of national welfare. Capital and natural resources are just passive inputs. People accumulate capital, use natural resources, create social and economic organizations and promote development” (Kukliński, 2001: 165). One more proof of the key role of human capital in the creation of

national welfare is the statement from the report of the World Bank, that the source of two thirds of this welfare is human and social capital (Kukliński, 2001: 244).

1.2 Knowledge Based Organization - micro perspective

Innovative approach towards the issue of the construction of welfare or, generally speaking, at the accumulation of material values on the macroeconomic level could not but remain unnoticed and left out by the main participants of economic life, namely by the enterprise or the market organization. As M. Porter writes, the administration of enterprises, due to the global competition, is forced to change the way of thinking and applied methods of management. (Porter, 2001: 376). These changes are necessary in the situation when the material property of the company ceased to secure a steady competitive advantage (Perez, Ordonez de Pablos, 2003: 82).

By W. Grudzewski and I. Hejduk, the main source of competitive advantage of each enterprise is dependent upon the rapidity of the creation of new products, upon the considerable financial accumulation, upon the applying global marketing approach and dynamic methods of management, characterized by innovativity, adaptability, flexibility and rapid acting (Grudzewski, Hejduk, 2000: 71).

However, in the contemporary reality dominated by the globalization of market, intensification of competition and a high rate of technological changes, the possibility of the acquisition of a stable competitive advantage is discovered in the intellectual capital of the enterprise. This advantage depends more and more from the knowledge of the enterprise's employees. Therefore, new market leaders will create new products and services not owing to available physical and financial resources, but to the potential of human resources (Perez, Ordonez de Pablos, 2003: 82). The recognition of people and of their knowledge as a strategic resource led to

the appearance of a new management conception, namely, knowledge management (Gierszewska, Wawrzyniak, 2001: 60).

By accepting this conception, organizations which functioned according to classical management conceptions, turn into knowledge-based organizations.

Knowledge management is first of all the reflection of a high value of intellectual property of the enterprise. This value is more and more recognized by economists and businessmen all over the world, because knowledge embodied in the form of patents, application specimens, trademarks, know-how, etc. secures a stable competitive advantage. Intellectual property as assets cannot be ignored, wasted, but it should be cared, developed and applied (Coates, 2001).

A new approach to management led to a new viewpoint upon value, which was a key concept of traditional economy, but ceased to play such an important role.

R. Karlgaard – editor of „Forbes ASAP” – in his message of 1993 wrote that balance-sheet value regarded as an indicator is actually dead, it is just an artifact of industrial era. Thus, there is no reason to be surprised about the decrease of the importance of this indicator, as in the contemporary era of information the most important value to every enterprise is human knowledge and intellectual resources (Edvinsson, Malone, 2001: 9-10; Kwiatkowski, 2000; Śliwa, 2001).

Although it may seem that the conception of the intellectual capital is a new theory, in practice it has been functioning in its hidden form for many years- in the difference between balance-sheet value and market value of the enterprise. There are numerous examples of a sudden decrease of market value of some enterprises left by some important specialists. These examples illustrate the importance of human resources for the organization; they also demonstrate an important fact that intellectual capital is not actually a property of any enterprise. It is really so because unlike other resources of the organization, „people are not usual and

simple parameters of action; they are self-reliant, independent, autonomous creatures, which actively or passively participate in management process” (Luoart, 1995: 9). A. Poczowski has a similar opinion, he protests against regarding people as resources, affirming that „...people are not a resource but they possess a resource, i.e. a set of embodied features and qualities, which enable to play various roles in the organization. The following components of resources of an individual are the most important: knowledge, abilities, health, attitude, values and motivation.... It should be borne in mind that the owners of human resources are individual employees and they determine the degree of application of these resources at work” (Poczowski, 2003: 36). An individual’s decision about the employment at an enterprise is generally (except for specific cases) a manifestation of his own will, therefore a part of the enterprise’s value – sometimes even its largest part- is in fact out of enterprise’s control. If so, one can have a doubt about the possibility of knowledge management as a whole, as well as the conception of regarding people as enterprise’s assets.

E. Flamholtz deepens this doubt, writing that „...it is not people themselves who are a human resource of the enterprise, but expenses which are capitalized in them” (Dobija, 2003: 124). D. Dobija, getting back to the statement above, explains that expenses spend for human resources are enterprise’s assets, not the alleged right to have employees as a property (Dobija, 2003: 124). The recognition of human resources as assets would mean that the enterprise is an owner of the labor force, the way it was in the Middle ages or in the period of slavery. Alongside with this apprehension there is also a strong pressure upon the recognition of the value of „human factor” in the activities and balances of enterprises. The way of presenting these assets becomes somewhat problematic. It happens so because human resources cannot be handled in the same way as other assets (material). To prove this statement, one can refer to the opinion of D. Dobija, who, analyzing the

proper measurement and accountability of the intellectual capital, writes: „knowledge- based economy requires the elaboration of new conceptions of accountability, concerning regulations and activity of the individual”. New accountancy should consider the changing role of human resources in the creation of the enterprise’s value and contribute to a more precise evaluation of human resources management practices. The system of measurement and informing about human resources is therefore necessary and plays an important part in the new economy” (Dobija, 2003: 126).

There is still much work to do to find a proper way of measurement and accountability of intellectual capital, the way, which will be convincing to accountants, auditors, and to investors. Namely the lack of proved methods and a relative character of all applied (or proposed) factors successfully discourage enterprises to take regular attempts to monitor intellectual capital. This fact is proved by the investigation carried out by Main School of Commerce, which show that measuring the intellectual capital is not a priority at Polish enterprises, besides, such measurement is considered the least important (Płoszajski, 2001: 46). The investigation of 2001 conducted by P. Płoszajski was a part of an annual research project implemented by the Department of Theory of Management of the above-named school. The main investigation tool was a questionnaire, however, within the framework of this project 30 detailed interviews were conducted with the representatives of the administration of enterprises adopting initiatives related to knowledge management. The questionnaire was submitted to 500 largest Polish enterprises, according to the ranking of „Rzeczpospolita”. 64 organizations replied to this questionnaire. The percentage of the investigated enterprises was as follows: 26% manufacturing enterprises 18% of electric-power industry enterprises, 11% transport, 11% trade enterprises, 10%- organizations rendering financial services and 24%- other enterprises.

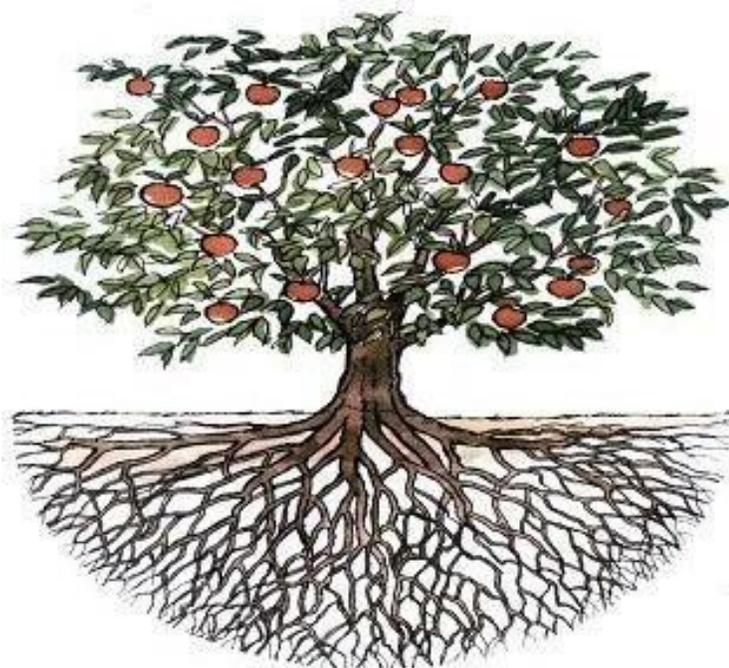
The afore-cited dilemmas, however, do not decelerate the interest in the problem of the intellectual capital. Probably due to various motives of this interest or different environment in which such interest appears, intellectual capital is defined differently. S. Kwiatkowski and Ch. Stowe laconically but precisely define the notion of intellectual capital (Kwiatkowski, Stowe, 2001: 33). Thus intellectual capital is a brain- power exchange into something, which has a certain value. J. Kozłowski specifies components of intellectual capital. It can be divided into tacit components (including convictions and values) and explicit (Saint-Onge, 1996: 33). In other scientific works intellectual capital is defined as a power of human intellect, trademarks and commercial labels, assets calculated as historical values, the individual's ability to learn and his adaptability, technological leadership, continuous training of personnel, etc. Intellectual capital is also composed of the relations between the enterprise, customers and business-partners, as well as of adopted innovations, enterprise's infrastructure, knowledge and abilities of all its employees.

J. Roos, G. Roos, L. Edvinsson, N. Dragonetti regard intellectual capital as a scope of knowledge of all organization members, an extent of all processes and resources, which are not indicated in the standard balance-sheet of the organization. These intangible resources are following: patents, commercial labels and trademarks, which together with the management of relations with customers compose all the dimensions of the creation of value (Roos, Roos, Edvinsson, Dragonetti, 1977; Hudson, 1976; Edvinsson, Malone, 2001 and others). T.A. Stewart defined intellectual capital differently- as a combined knowledge in the form of patents, processes, management abilities, technologies, and information about consumers, providers and, finally, experience (Dobija, 2003: 121).

Intellectual capital can be presented in the form of a metaphor of a tree, namely its roots- as hidden, but very important and dynamic factors, below the

visible part of each enterprise, below its buildings and products (Compare Picture 1) (Edvinsson, Malon, 2001: 16). From the investigation carried out by Swedish enterprise Skandia we may conclude that these factors usually have two forms: human capital (intellectual part of the enterprise) and structural capital (the part of the enterprise unable to think). This conception has much in common with G. Hamel i C.K. Prahalad' s conception of key competencies.

Pic. 1. The metaphor of the intellectual capital



Source: L. Edvinsson, M. Malone, *Kapitał intelektualny*, Wydawnictwo Naukowe PWN, Warsaw 2001.

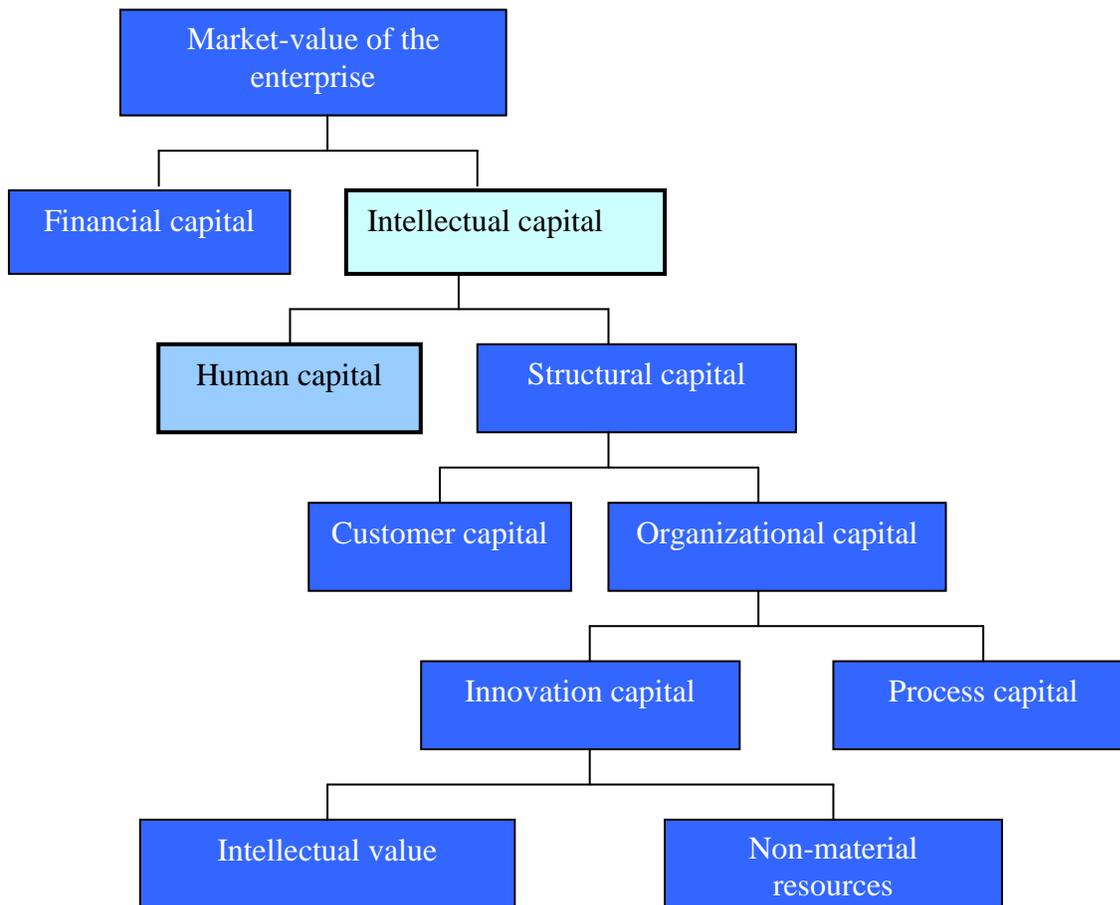
In the investigations of Scandia one can find an analysis of the general market value of the enterprise, and its individual components, such as financial capital and intellectual capital (Compare Picture 2). Intellectual capital is subdivided into structural capital (everything that remains in the possession of the enterprise after the leaving of its employees: trademark, commercial label,

procedural documentation, computer equipment, software, databases, organizational structure and everything which facilitates the productivity of employees) and human capital (combined knowledge, skills, innovation approach and employees' ability to act efficiently, as well as organizational culture and philosophy of business) (Edvinsson, Malon, 2001: 17).

G. Gierszewska points out that „human capital is superimposed with the competence of managers and employees, their knowledge and skills, motivation, behavior and attitude towards work. Human capital is created by continuous investing” (Ludwiczynski, Stobińska, 2001: 21). The value of human capital, the role of which is emphasized by the knowledge management conception, originates directly from competence, behavior and intellectual craft of the employees working at the enterprise (Roos, Roos, Edvinsson, Dragonetti, 1977: 35). Competencies create value, owing to knowledge applied by the employees, to their skills, talents and so-called know-how. This value, which determines the competitive advantage, lies in the centre of interests of leading enterprises. And these enterprises strive to obtain this advantage by way of the identification and development of their key competences.

A. Rakowska and A. Sitko-Lutek emphasize that these competences are composed of the competence assemblages of all company's employees, however, the group of managerial competences is of primary importance (Rakowska, Sitko-Lutek, 2000: 9). Competences defined by A. Gick and M. Tarczyńska as knowledge skills, behavior and attitude, characterize the most efficient employees (Rakowska, Sitko-Lutek, 2000: 18) and become the main part of human capital. Knowledge determines the educational level of the individual, particularly his technical and academic knowledge in a certain sphere. Knowledge forms a theoretical part of competence, skills are its practical equivalent.

Pic. 2. The scheme of the enterprise value by Skandia



Source: J. Roos, G. Roos, L. Edvinsson, N. Dragonetti, *Intellectual Capital*, Macmillan Business, London 1997 p. 29.

Knowledge and skills are not enough, as there is also a need for people, able and willing to apply their skills and abilities in constructing of enterprise's advantage. These people would motivate the whole enterprise to achieve its goals. The attitude, unlike competence, is a „mild” component of the intellectual capital, as it chiefly depends on personal features of employees; therefore the influence of the enterprise upon the formation of the attitude is considerably limited. The attitude is related to the values generated as a result of employees' behavior at

work. Intellectual craft determines the individual's ability to transfer knowledge from one context to the other, the ability to detect common factors in different portions of information and to combine them together, as well as the ability to develop knowledge and enterprise's products through innovations and adapting.

Competences compose a base for the creation of so-called intellectual organizations (self-developing \ learning). The necessity to build self-learning organization was acknowledged G. Gierszewska: „the enterprise's success is created by people, and their competences, knowledge skills, experience and attitude determine the efficiency and effectiveness of the enterprise. The enterprise has to react quickly to the changes in the environment, develop competitiveness and accept the challenges of the future. That means that it is necessary to create the “learning” organization (Ludwiczynski, Stobińska, 2001: 22). W. Grudzewski and I. Hejduk define such organization as new concept based upon the identification of key competences, which are necessary to coordinate the activities of the new enterprise. Such organization „detects the link between the methods of achieving goals, understanding of these goals, learning, the methods of problem solving and communication between the employees and between other economic subjects” (Grudzewski, Hejduk, 2000: 76). Such organization is able to adapt to the rapidly changing environmental conditions ensures high effectiveness and economic growth.

The opportunity to apply this kind of capital is not limited to commercial organizations, it exists also for non-profit organizations and institutions: military, church, governmental (Edvinsson, Malone, 2001: 24). The notion of the intellectual capital is defined in different ways, however, there is no doubt that its importance in the contemporary world is huge (Edvinsson, Malone, 2001: 12). Therefore, the approach towards human capital has to be changed: human capital will not be regarded as a value but as an investment providing a solid and high profit.

(Ludwicyński, Stobińska, 2001: 58). Human resources management, according to E. Masłyk-Musiał, should take into account purely economic approach, directed at animalization of effectiveness and simultaneous mineralization of costs (Masłyk-Musiał, 2003: 206). J. Naisbitt and P. Aburdene emphasize the integrity of relations between people and profits. In the new society, they say, human capital just replaces „dollar capital” (Naisbitt, Aburdene, 1985: 4). Such replacement, in the opinion of B. Wawrzyniak, already now is very important for the management of the organization. In the nearest future it will be hard to overestimate this importance, as it follows from the fact that human capital became a strategic resource of the organization (Wawrzyniak, 1999: 180). As employees make up a valuable intellectual capital of the enterprise, departments engaged in human resources management should accordingly arrange the elements of human resources management: beginning from recruiting and selection through motivation to training and development.

A.F. Smith, T. Kelly write: „...we believe that future economic and strategic advantage will belong to organizations which are able to involve, develop and keep a differentiated group of the best and the most talented employees in the most effective way... human capital will be primarily and above all the key component element of the organizations of the future” (Smith, Kelly, 1998: 228, 239). The effectiveness of the motivation and encouraging of these employees to take actions has a long-term impact upon the organization—wrote E. Masłyk-Musiał (Masłyk-Musiał, 2003: 206).

The growth of the interest in human capital is caused by the fact that the success of contemporary organizations lies in their ability to create innovations in the sphere of products and services. The application of innovations, by W. Grudzewski and I. Hejduk, is regarded as the most effective way to acquire, maintain and develop the positions of the company at the market. It happens

because „innovations open new opportunities of generating welfare, as they create the purchasing capacity, is the most important development factor in any society” (Grudzewski, Hejduk, 2000: 138). „The creation of innovations, by K. Stobińska, requires mobilization to the coordinated cooperation of various, overlapping and complementary competences” (Ludwicyński, Stobińska, 2001: 40).

The perception of human resources as a potential source of the acquisition of the competitive advantage, attaches the strategic character to the actions of human resources management (Ludwicyński, Stobińska, 2001: 40). G. Gierszewska wrote that „strategic management of human resources means the readiness to introduce changes, which are the key condition of surviving and development of the enterprise” (Ludwicyński, Stobińska, 2001: 20). Strategic management of human resources is „a response to the challenges of contemporary competition, and conceptions and creativity are regarded as a source of success”. Although strategic management of human resources exists already for twenty years, the fact that people are a strategic resource of the enterprise is a basis of deference between strategic management of human resources and usual management of human resources (Ludwicyński, Stobińska, 2001: 52). According to A. Ludwicyński, „...people regarded as a strategic resource of the organization, create and accomplish its strategy, adopt and change values and norms in the organizational culture. At the same time they have to accept existing values of the organizations, where they work or intend to be employed” (Ludwicyński, Stobińska, 2001: 77).

The manifestation of this approach to human resources management is a necessity to take into account the general strategy of the enterprise while projecting the strategy of human resources management, because, like every functional strategy, it has to be in line with the strategy of the enterprise and has to consider relations between strategy and structure (or the determination of the place of

concrete employees in the organization), organizational culture, involvement and development of employees (Ludwicyński, Stobińska, 2001: 20).

1.3 Knowledge Management in the enterprise – research view

Globalization and informatiozation with its growing knowledge resource are the main indicators of so- new economy. The complexity of changes in the new economy, in the enterprises, where old and new solutions in the sphere of management are still effective, causes numerous mutations and phenomena. One of these new phenomena is the attaching of a higher or even the highest importance to “human factor” and in particular to human knowledge.

Such a great importance of human capital has to force the administration of the enterprise to take appropriate actions directed at the elaboration of effective methods of management of this “soft” capital (Roos, Roos, Edvinsson, Dragonetti, 1977: 5). However, there is a constant debate between the researchers and practitioners about whether it is or it is not possible to manage knowledge resources, or whether it is just a temporary phenomenon and an artificially created noise around a new slogan? Such an attitude to knowledge management was demonstrated by 20% of managers of the enterprises investigated by the Department of the Theory of Management of Main School of Commerce (Płoszajski, 2001: 8). These managers regarded knowledge management as a fashionable slogan invented by consulting companies. About 23% of respondents met this term for the first time, but over 90% of the administrative personnel admitted that the conception of knowledge management is a condition of the acquisition and retaining of the competitive advantage.

According to D. Taylor, the president of „Certus” (the forum of IT-professionals, successful representatives of insurance companies: ROYAL &

Alliance, Cornhill or Lloyd's), „knowledge management is a senseless term, invented as a temporary fashionable slogan, created to make consultants transfer financial resources of their clients into their own bank accounts” (Insurance Technology, 2001: 15). Nobody knows exactly what knowledge management means; therefore it may mean whatever consultants may think up. M. Butler has a similar opinion, as he believes that knowledge management was an excessively used concept (Insurance Technology, 2001: 15). D. Taylor writes that „if you define knowledge management as human knowledge and skills, then you have to apply a program of a cultural change, which would stir up findings and ideas. If you define it as the information within your computer systems and you do not want to create bundles of paper printouts around you, you have to invest into Intranet or a new computer system. But first of all, do not use this term any more. The term “knowledge management” is a sort of verbal trash, delusion, which causes only mess. If you do not believe me, he continues, try to ask five people about the definition of this term- you will get five different answers!” (Insurance Technology, 2001: 18).

Besides skeptics, there are representatives of the other approach. Many authors consider that knowledge management is not a new term, and its roots go hundreds of years back (Hansen, Nohria, Tierney, 1999: 106). For centuries the owners of family businesses transferred commercial wisdom to their children, which in future would be at the head of family business. The craft masters transferred their skills to their apprentices and factory workers exchanged opinions, ideas and know-how of their work. This kind of good practice acquired a systematic character and the highest degree of utility. M. Sarvary, who thinks that knowledge management is nothing new, expresses the same opinion. Accumulated experience together with the information gathered from external sources creates one of the most essential resources of the enterprise. What is new about knowledge management- says M.

Sarvary – is the fact that we are aware of the existence of this process. (Sarvary, 1999: 96).

Even if knowledge management is just a new trend in management disciplines, then, as reality shows, the interest in this new conception which provides a chance to survive in these difficult time of „New Economy”, continuously grows both in scientific communities (Sarvary, 1999: 95) and in economic sphere (KPMG Consulting, 2000; Zarządzanie na Świecie, 2002: 43-46). Therefore one can acknowledge that knowledge management really exists and brings calculable profit (Santosus, Surmacz, 2001).

So what is knowledge management and what is hidden behind this term? E. Turban

and J.E. Aronson consider that there is no universal definition and consensus about what knowledge management really means. (Henrie, Hedgepeth, 2003: 1). Literary sources are full of definitions and attempts to specify the term “knowledge management”. By P. Drucker, knowledge management primarily concerns people, and its goal is to achieve a certain type of employees’ cooperation, which will enable to neutralize drawbacks and to use advantages and talent of these employees in the most efficient way.

J.F. Coates affirms that knowledge management is the most innovative, the most creative, and the most important management conception, which appeared 25 years ago (Coates, 2001). It does not imply the reduction of company’s size, reduction of staff, reorganization or other stressful actions, typical for contemporary enterprises.

The words of Lewis Platt, former General Manager of Hewlett - Packard (HP) are a good illustration of what knowledge management is: „if HP knew what it knows now, it would be three times more profitable” (Coates, 2001). These words demonstrate how important is to realize human approach, motivation, applied tools and technologies facilitating the company’s activity. Employees within the

organization and people related to these employees- sellers, suppliers, legislators, and customers, etc.- all together they know what the organization should know. What lacks is a mechanism, which enables to draw knowledge form these “knowledge depositaries”.

M. Santosus and J. Surmacz believe that knowledge management is a process, which enables organizations to generate value from their intellectual assets based on knowledge (Santosus, Surmacz, 2001). The generation of value from these assets includes sharing these assets with employees, even with other companies in order to elaborate the best practices. The definition accepted by these researchers speaks nothing about technology, which is regarded by them as a backup.

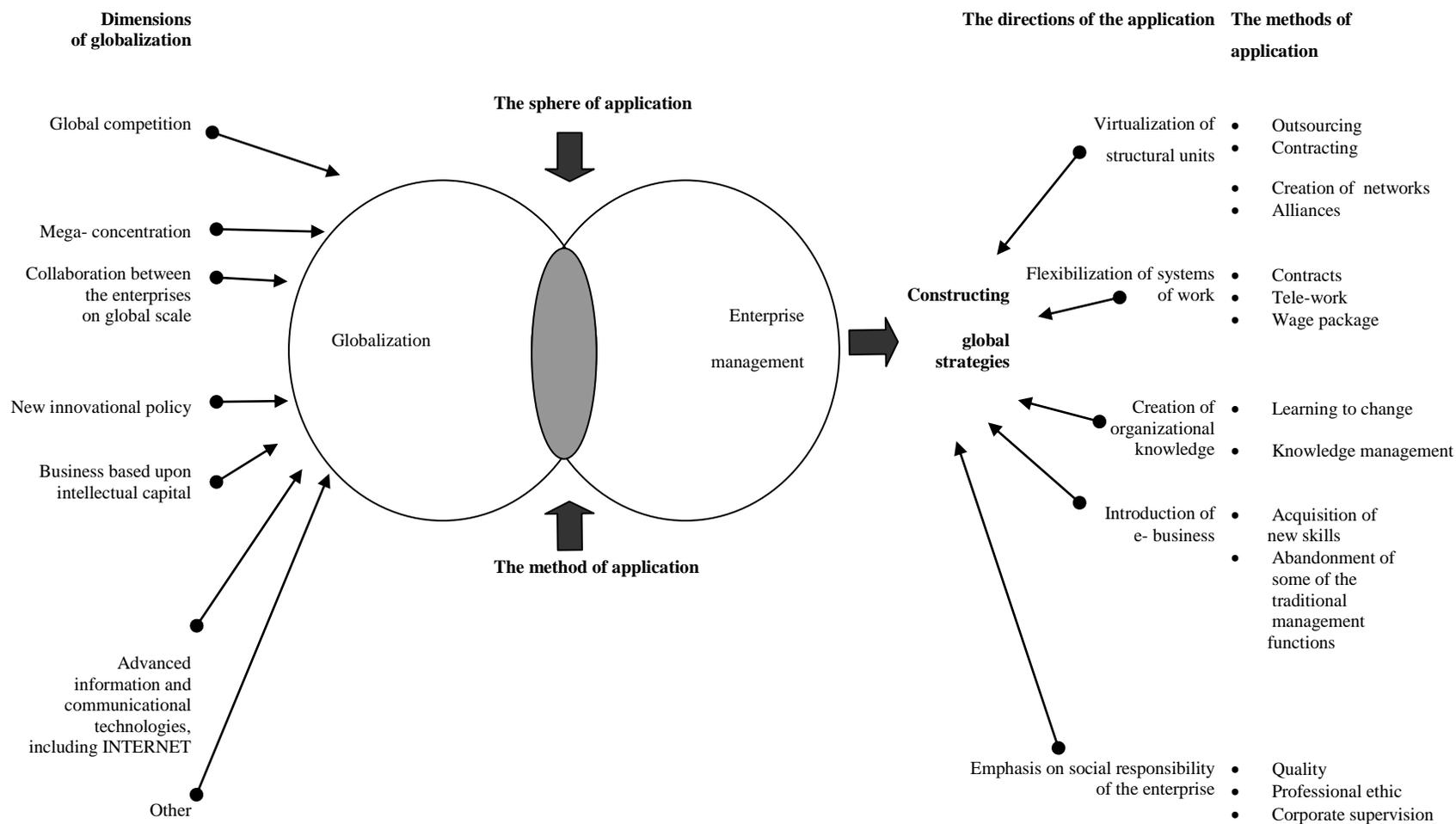
Management, in the opinion of W.R. Bukovitz and R.L. Williams „is a process by means of which the organization generates its welfare, which is based on its intellectual assets or organizational assets, which rest upon knowledge” (Bukovitz, Williams, 1999: 2). D.J. Skryme affirms that knowledge management „is a defined and systematic management of the important knowledge, and of processes of creation, gathering, organizing, dissemination, application and operation, related to knowledge management and directed at the accomplishment of the organization’s goals” (Skryme, 1999: 39).

Knowledge management can be regarded as one of the ways to adapt the enterprise to taking actions in the conditions of globalization (Compare Picture 3) (Gierszewska, Wawrzyniak, 2001: 80).

In the model, representing the components of the adaptation processes in the sphere of enterprise management its authors emphasize the aspect of the intellectual capital as one of the dimensions of globalization, and regard knowledge management and human resources management practices as the adaptation methods. Such approach results from the necessity to construct global strategies and develop the following adaptation directions: creation of organizational

knowledge, e-business, creation of flexible systems of work, virtualization of structures and social responsibility of the organization.

Pic. 3. Components of adaptation processes (adaptation to the conditions of globalization) in the sphere of enterprise management

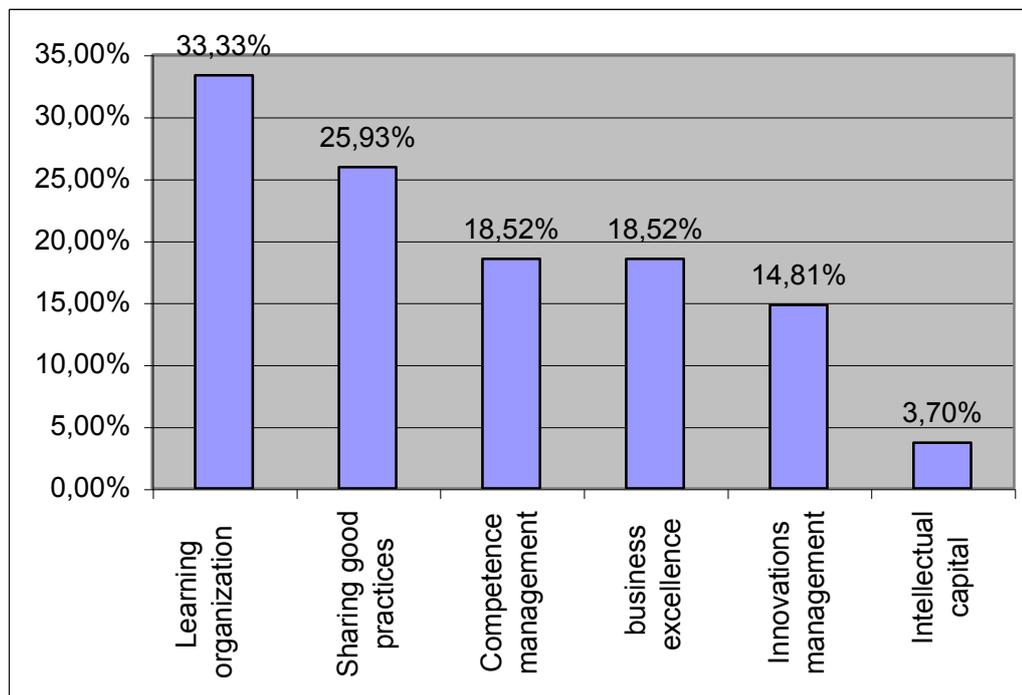


Source: G. Gierszewska, B. Wawrzyniak, *Globalizacja. Wyzwania dla zarządzania strategicznego*, PFPK - Poltext, Warszawa 2001, s. 80.

Speaking about knowledge management in practice, some organizations tend to use other definitions their knowledge management activities. The majority of the enterprises, examined by R. von der Spek and G. Carter, use the term “knowledge management”, however, in some cases the following synonyms are used: (Compare Picture 4) (Mertins, Heisig, Vorbeck, 2003: 196):

- Learning organization (33,33%),
- Sharing good practices (25,93%),
- Competence management (18,52%),
- Business excellence (18,52%),
- Innovations management (14,81%),
- Intellectual capital (3,70%) and others.

Pic. 4. Synonyms of knowledge management applied in practice



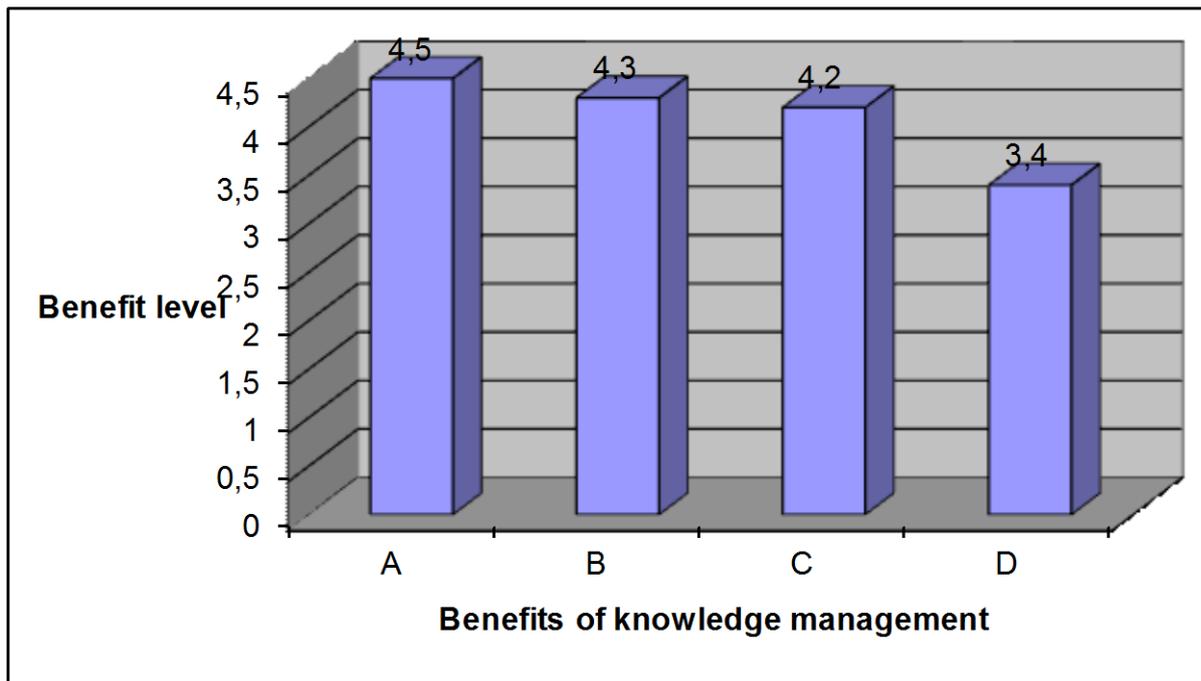
Source: investigation based on the research by R. von der Spek, G. Carter, *A survey on good practices in knowledge management in European companies* [w:] K. Mertins, P. Heisig, J. Vorbeck (red.), Knowledge Management. Concepts and best practices, Springer, Berlin, 2003, p. 196.

In spite of the ambiguous interpretation of the definition of knowledge management, enterprises emphasize certain common aspects, such as transmission of individual knowledge into common knowledge (organizational knowledge) of the enterprise, sharing knowledge and its application in practice, management and development of personal competencies, information management, volume of the intellectual capital and organizational learning (Sarriegi Dominguez, Ortiz Laverde, Lizarralde, Arregui, 2003: 2).

The necessity of knowledge management in the enterprises is more and more widely recognized by the administration of enterprises. Discovering the advantages of the application of knowledge, possessed by the enterprise, initiates the introduction of knowledge management programs. These programs are intended to improve the innovative approach of the employees, to shorten and improve the organizational processes and to optimize the efficiency of employment procedures. These programs are meant to result in the reduction of the operational costs of the enterprise and to the profit increase (Santosus, Surmacz, 2001). The investigations carried out by Knowledge Management Group in Poland discovered the following expectations of enterprises, practicing knowledge management: (Compare picture 5):

- A – better satisfaction of customers' needs (4,4-4,5),
- B – improvement of the efficiency of work (4,3),
- C – increase of motivation and satisfaction of employees (4,2),
- D – recruitment of highly qualified personnel (3,4).

Pic. 5. Expected benefits of knowledge management



Source: author's own investigation based on the research by M. Fryczyńska, *Zarządzanie wiedzą – przemijająca moda?* [w:] „Zarządzanie Zasobami Ludzkimi”, 6/2004, p. 88.

The research aiming at the identification of opinions related to certain elements of knowledge management was carried out at 33 various enterprises. The 5-grade scale was used, where 0 indicated no advantage, 5- indicated the greatest advantage (Fryczyńska, 2004).

The above-mentioned research conducted by the research team of Main Trade School discovered the following expectations of Polish managers, concerning knowledge management:

- Discovering of knowledge in the stream of information – quick identification of right sources of information,
- Retention of competence –avoiding the loss of knowledge together with the withdrawal of the employee,

- Operational mastery— avoidance of similar mistakes versus repetition of successes,
- Improvement of the innovativeness— creation of new products and services, development of processes and creation of new markets,
- Skill development and professional development of the employees – efficient management of knowledge acquisition processes; better accessibility of knowledge; application of knowledge in practice (Płoszajski, 2001: 16).

Other investigations demonstrate that a series of facilitating opportunities can also be attached to the expected results of the enterprise's activity. These expected results are as follows: increase of clients' and employees' satisfaction, increase of innovation level in the sphere of creation of new products and services (including development of new products and services), increase of their profitability (Sarriegi Dominguez, Ortiz Laverde, Lizarralde, Arregui, 2003: 2).

From the survey of the representatives of enterprises, which were successful in adapting the knowledge management system (the survey was conducted by Bernard Brunhes Polska Consulting Company [BPI Group]), one can differentiate the main factors, motivating the enterprises to adopt knowledge management systems (Tomczak, 2007:5). These factors are as follows:

- Development of the competence of the employees (81%)
- Activity acceleration (63%)
- Increase of customers' satisfaction (50%)
- Reduction of costs (44%)

However, the main result of these activities is the increase of the enterprise's efficiency. This result is achieved owing to the reduction of work time and time for decision-making as well as owing to the elimination of the effect of „Open door knock out”. Within the area of knowledge about customers and competitors, knowledge management system enables to react on the

challenges of contemporary market more successfully and to influence on the profitability of the enterprise in a more positive way. Besides, the capitalization of knowledge and the facilitation of knowledge exchange affect the development of competition. (Tomczak, 2007:5).

From the pilot investigation conducted by R. von der Spek and G. Carter one can find out that the majority of enterprises take appropriate actions in an effort to specify the influence of knowledge management initiatives on the enterprise's activity. Among the enterprises, which do not conduct such actions, 50% of them plan to adopt such actions in the future. The respondents formulated the following results of the initiatives within knowledge management: (Compare Picture 6) (Mertins, Heisig, Vorbeck, 2003: 205):

- Improvement of practices and processes (41%),
- Improvement of skills and satisfaction of employees (33%),
- Increase of customers' satisfaction (30%),
- Increase of enterprise's attractiveness for employment candidates (22%),
- Development of business activity (22%),
- Increase of innovation level (19%).

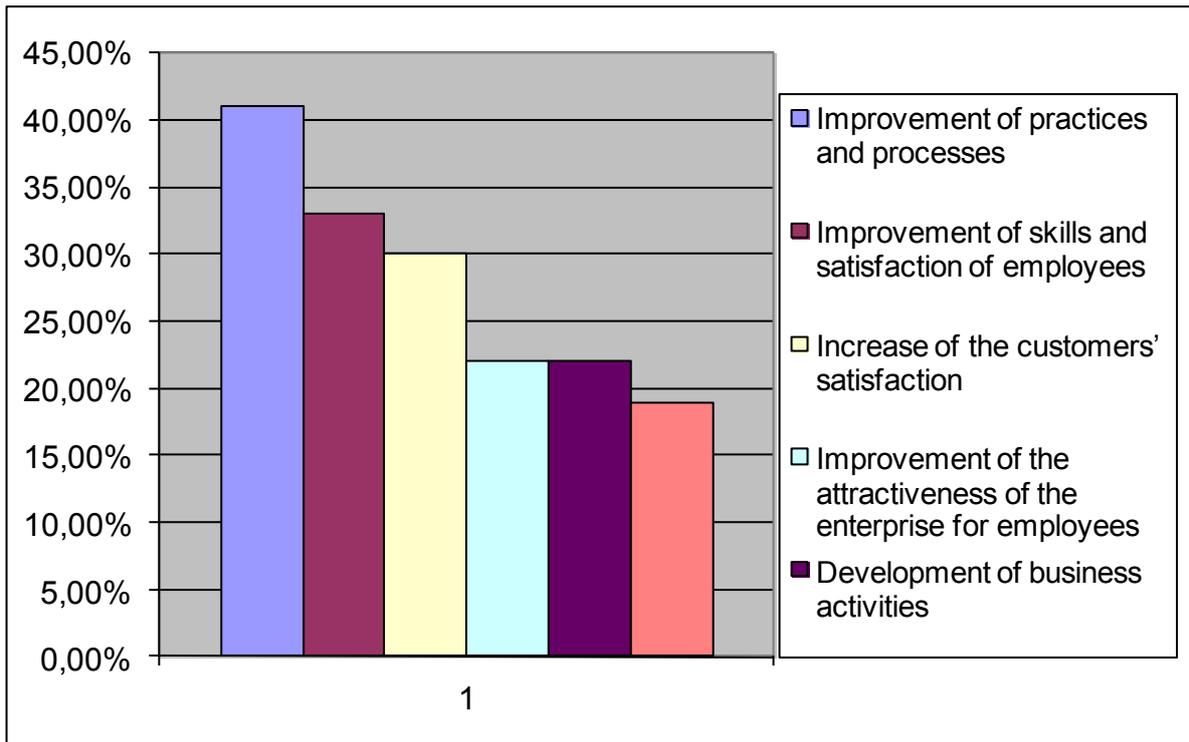
Knowledge management does not mean just the employment of researchers and theorists, as soon as its results for the enterprise are concrete and useful. Besides, there is a difference in the opinions about knowledge management. For example, investigations carried out by Fraunhofer Institute for Systems and Innovation Research (ISI) in Karlsruhe, bring a collection of various (different from above-named) advantages achieved by enterprises, which practice knowledge management. Investigations carried out in summer and autumn of 2002 at 497 German enterprises representing seven sectors of industry: business services (32,19%), biotechnology (15,29%), electronics (12,27%), mechanical engineering (10,26%) and other. Taking into account the criterion of employment volume, the majority of enterprises belonged to the

group of middle-sized enterprises (30,18%), the percentage of large enterprises was 27,97% and 24,35% were small enterprises. The results of these investigations the most frequent results of knowledge management are as follows:

- Better adaptation of products \ services to the customers' requirements,
- Improvement of skills and knowledge of employees,
- The increase of efficiency and productivity of the enterprise,
- Easiness of the introduction of new products and services,
- Improvement in relations with customers,
- Facilitation of organization's memory,
- Avoidance of duplication of actions in B+R sphere,
- Improvement of the ability to acquire knowledge from outside (including companies with a different character of activities),
- Improvement of the ability to acquire knowledge from the public research (Mertins, Heisig, Vorbeck, 2003: 217).

The results of the investigations conducted both by R. von der Spek, G. Carter and Fraunhofer Institute for Systems and Innovation Research clearly demonstrate that the advantages of knowledge management for enterprises are various. One can feel a certain “sensitivity” of knowledge management to issues related to customers (expectations and satisfaction), employees (satisfaction versus productivity) and to a better efficiency of the enterprise’s activities (processes, products \ services). In the list of advantages of the knowledge management adoption one cannot find the reduction of costs required for the functioning of the enterprise. However, the most attractive are the following advantages: improvement of practices and processes, improvement of skills and satisfaction of employees, their better efficiency and affectivity, and the avoidance of the duplication of the research and development actions.

Pic. 6. The most frequent results of knowledge management



Source: author's own investigation based on the research by R. von der Spek, G. Carter, *A survey on good practices in knowledge management in European companies* [w:] K. Mertins, P. Heisig, J. Vorbeck (red.), Knowledge Management. Concepts and best practices, Springer, Berlin, 2003, p. 205.

Yet the most astonishing criterion of the effectiveness of knowledge management application in enterprises is monetary value of such effectiveness. The analysis of the American Productivity & Quality Centre shows that owing to actions related to knowledge management taken by Texas Instruments, this enterprise saved 1,5 bln dollars, and Ford gained 1 bln dollars of revenue (Tomczak, 2007: 1).

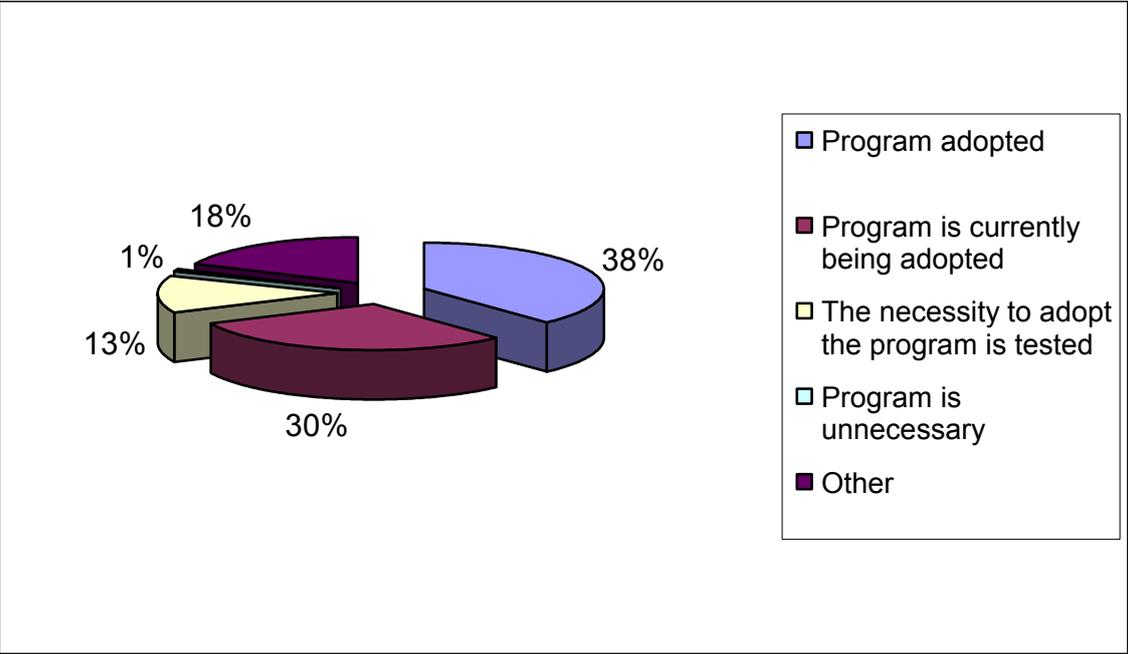
The previously conducted investigations of Bernard Brunhes Polska demonstrated that the achievement of these advantages of knowledge management requires the fulfillment of certain conditions, regarded as the factors of knowledge management success. These conditions are following (Tomczak, 2007: 6):

- Introduction of knowledge management actions into the everyday work activities,
- Encouragement of participants, e.g.: by financial and non-financial awards: recognition of the necessity of knowledge sharing, positive example of the superiors; creation of a positive image of employees sharing knowledge.
- Administrative support and general support of knowledge management process.
- Culture of the encouragement of cooperation, innovation and securing the feeling of safety,
- Obvious effects of knowledge sharing and a regular evaluation of knowledge- sharing solutions.

The tendency of a growing interest in the problem of knowledge management was confirmed by a group of researchers from Boston, known as the Delphi Group. Their investigation carried out at American and European enterprises, demonstrate that knowledge management is one of the most dynamically developing management conceptions. Namely, the number of enterprises practicing this conception increased from 28% in 1997 to 51% in 1998 (Krupski, Lichtarski, 2002: 592). Other investigations conducted at 423 companies with the profit level of about US\$ 347 mln, from UK, Central Europe and USA (Compare Picture 7) (KPMG Consulting, 2000). This research was conducted by Harris Research, a subsidiary unit of Taylor Nelson Sofres, in August- September 1999 among general managers, executives from financial, marketing and other departments, responsible for knowledge management at their enterprises. The following sectors were investigated: financial services (22%), production of industrial and consumer goods (20% each), chemical, pharmaceutical and energetics (14%), other services (13%), etc. The majority of investigated enterprises represented the USA (24%), UK (24%), Germany (20%) and France (18%). From all these enterprises 38% have already adopted

the knowledge management program, at 30% of enterprises the program was in the course of adoption, 13% of enterprises were only testing the necessity to adopt the program; only 1% of enterprises finally considered this program to be unnecessary. Ultimately the investigation showed that the majority (64%) of enterprises have already adopted the knowledge management strategy.

Pic. 7. Knowledge management programs in enterprises

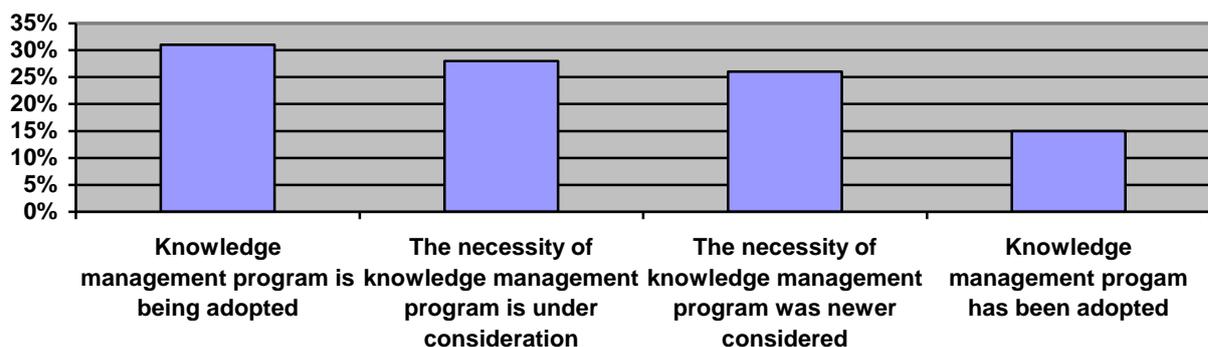


Source: author’s own investigation based on *Knowledge Management Research Report 2000*, KPMG Consulting.

R. von der Spek, G. Carter quotes the results of pilot investigation carried out in November 2001 – January 2002 at 27 enterprises functioning in Europe and representing various sectors of economy, chiefly telecommunication, IT (services and programming) and consulting. These were enterprises of different size, determined by the volume of employment: from small companies to large ones employing up to 40 000 people. From these investigations we find out that 77% of investigated enterprises have already adopted knowledge management strategies (Mertins, Heisig, Vorbeck, 2003: 194-195).

The situation at Polish enterprises is quite different. (Compare Picture 8). In 2004 KPMG and SMG/KRC carried out investigation over knowledge management at enterprises functioning in Poland. It covered a representative group of 121 from over 1000 largest enterprises. Their annual income was over 40 mln. Euro, and the volume of employment was above 250 employees. At initial it was assumed that the investigation will be intended for directors, responsible for strategical decision-making (KPMG, SMG/KRC, 2004). Only 15% of respondents declared that knowledge management program had been adopted, 31%, admitted that such program is being currently adopted. However, a considerable number of respondents (28%) declared that their enterprises are just considering the necessity of such program. These figures show that the problem of knowledge management is familiar to Polish managers. Only 26% of respondents claimed that they have never even considered the necessity of the adoption of knowledge management program at their enterprises.

Pic. 8. Knowledge management programs of organizations functioning in Poland



Source: *Zarządzanie wiedzą w Polsce*, Report of KPMG, KPMG SMG/KRC, Warsaw, 2004

R. von der Spek, G. Carter emphasize a considerable maturity of knowledge management initiatives in the investigated enterprises. In order to investigate this maturity the researchers applied the APQC- approach (Mertins, Heisig, Vorbeck, 2003: 195), which differentiates five maturity phases on knowledge management initiatives:

- Start-up,
- Development of strategy,
- Projecting and „launching” of knowledge management initiatives,
- Expansion and support,
- Institutionalization of knowledge management

Among the investigated enterprises 55% achieved the third level 44% among them were engaged in the development of knowledge management initiatives (level 4). Only three enterprises reached the fifth level.

KMPG' Report of 2004 also demonstrates the levels of knowledge management of enterprises functioning in Poland. The following classification of levels was applied in this investigation (KPMG, SMG/KRC, 2004):

- **Knowledge chaotic-** on this level there is no connection between knowledge management and the organization's goals, the practical application of knowledge is incidental and informal,
- **Knowledge aware** level is characterized by the implementation of pilot knowledge management projects and the awareness of the necessity to apply knowledge in the activity of the enterprise,
- **Knowledge focused-** on this level one can notice the connection between the procedures and tools applied in knowledge management procedures and benefits of the enterprise,
- **Knowledge management-** on this level the organization equipped with the applied procedures and tools of knowledge management, but still faces technological or cultural problems,

- **Knowledge centric-** on this level knowledge management is an integral part of organizational processes and knowledge resources are reflected in the values of the organization.

The investigations demonstrated that the majority of enterprises (61%) were at the lowest level and none of the enterprises achieved the highest level.

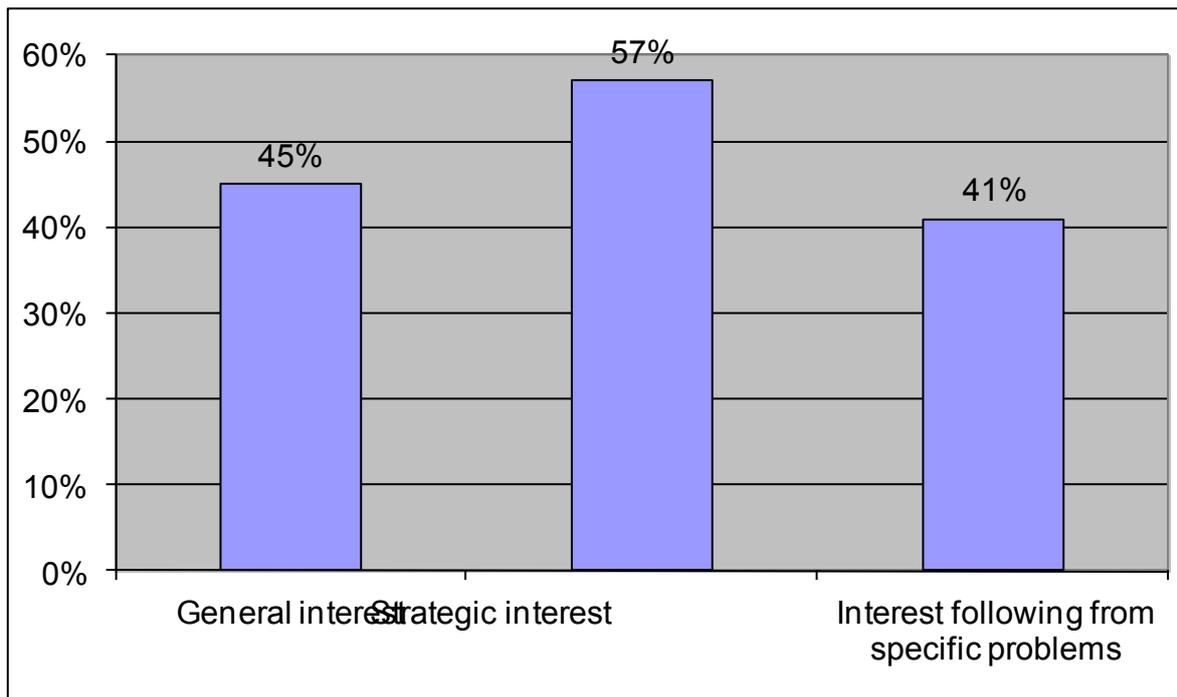
Also the investigations showed the forecast of the development of knowledge management practices and the anticipation of the levels, which will be achieved in the future. It was found that over half of the enterprises (57%) had a chance to reach the "**Knowledge focused**" level within a year, and the percentage of the first-level- enterprises could reduce down to 18%. It was also prognosticated that a group of enterprises, which will achieve the highest level ("**Knowledge centric**" level) will appear. (KPMG, SMG/KRC, 2004).

Turning back to the investigations conducted by R. von der Spek and G. Carter, it would be worth mentioning that 55,5% of enterprises had a knowledge officer as one of their employees (Engl. CKO – *Chief Knowledge Officer*), at 53,3% of these enterprises the position of knowledge officer existed for 2-4 years (Mertins, Heisig, Vorbeck, 2003: 194).

The analysis of the organizational structure of the enterprise is probably the easiest way to determine the level of knowledge management. At numerous enterprises this structure was supplemented with sections or independent positions responsible for the "turndown" of knowledge capital. Therefore, the following new job positions appear: CKO – *Chief Knowledge Officer*, ICD – *Intellectual Capital Director*, KE - *Knowledge Engineer*, ICC – *Intellectual Capital Controller*) (Sveiby, 2002). Another indicator of the interest in the introduction of knowledge management is financial resources allocated by the enterprises' management for this purpose. The investigation demonstrated a significant growth of expenditures for services related to knowledge management- from 400 mln. \$ in 1994 to 2,6 bln. \$ in 1996 (Takeuchi, 1998: 4).

However, the interest of managers in the practice of knowledge management has various motives. The investigation conducted by Reinold Hagen Foundation, at 360 German enterprises clearly demonstrates this. These were mostly the enterprises employing from 200 to several thousand people. In 75% of cases the proposed questionnaire was filled in by the representatives of the highest level of management (Compare Picture 9). Such interest may follow from the „general interest” (45%), strategic interest (57%) and the interest following from specific problems (41%) (Zarządzanie na Świecie, 2002: 43-46). The majority of respondents affirmed that practical application of knowledge management is possible only under a condition of a consistent support and engagement of the highest management representatives. This statement is confirmed by the investigation of KPMG: about 32% of respondents considered that knowledge management initiatives were launched at the level enterprise's management, other 41% of respondents were sure that such initiatives were worked out by high-level managers. (KPMG Consulting, 2000: 8). The investigation conducted in 2004 demonstrated the similar results. The following structural units of enterprises initiated the knowledge management: administration (42%), high-level management (21%), middle-level management (7%), others (7%), employees (1%), and 22% gave no answer (KPMG, SMG/KRC, 2004). These results also demonstrate a high level of understanding what knowledge management initiatives are and why it is important to adopt them at enterprises. The engagement of the administration of the enterprise is only a basis of success. From the investigation carried out by Delphi Group one can conclude that the most important factor of success in the adoption of knowledge management is organizational culture and the connection between knowledge management and the strategy of enterprise's activities. As many as 52% of respondents considered these factors the most important (Romańczuk, 2001, 189).

Pic. 9. The sources of manager's interest in knowledge management



Source: author's own investigation based on the research of T. Pfeifer, G. Hanel, H. Greiser, W. Reiser, *Wahrnehmung und Realitaet in der Wissensmanagement – Praxis*, „New Management”, Nr 10/2001, [w:] „Zarządzanie na Świecie” № 2/2002, p. 43-46.

The necessity to take into account the statistical context of the enterprise in knowledge management was confirmed by investigation carried out by M.H. Zack at 25 enterprises (Zack, 1999). The author points out that the relationship between knowledge management and enterprise's strategy is often mentioned in theory but largely ignored in practice. The fact that this strategy was not regarded as a motivational factor or a key criterion of the evaluation of knowledge management effort was confirmed by the investigation carried out at 431 companies from the USA and Europe (Rugles, 1998: 80-89) and by the investigation carried out at 100 American and European enterprises (Leider, 1998).

From the investigation of Main School of Commerce one can conclude, however, that among the enterprises, which have a documented development strategy, 40% declared the introduction of knowledge management activities into the enterprise's strategy (Płoszajski, 2001: 13).

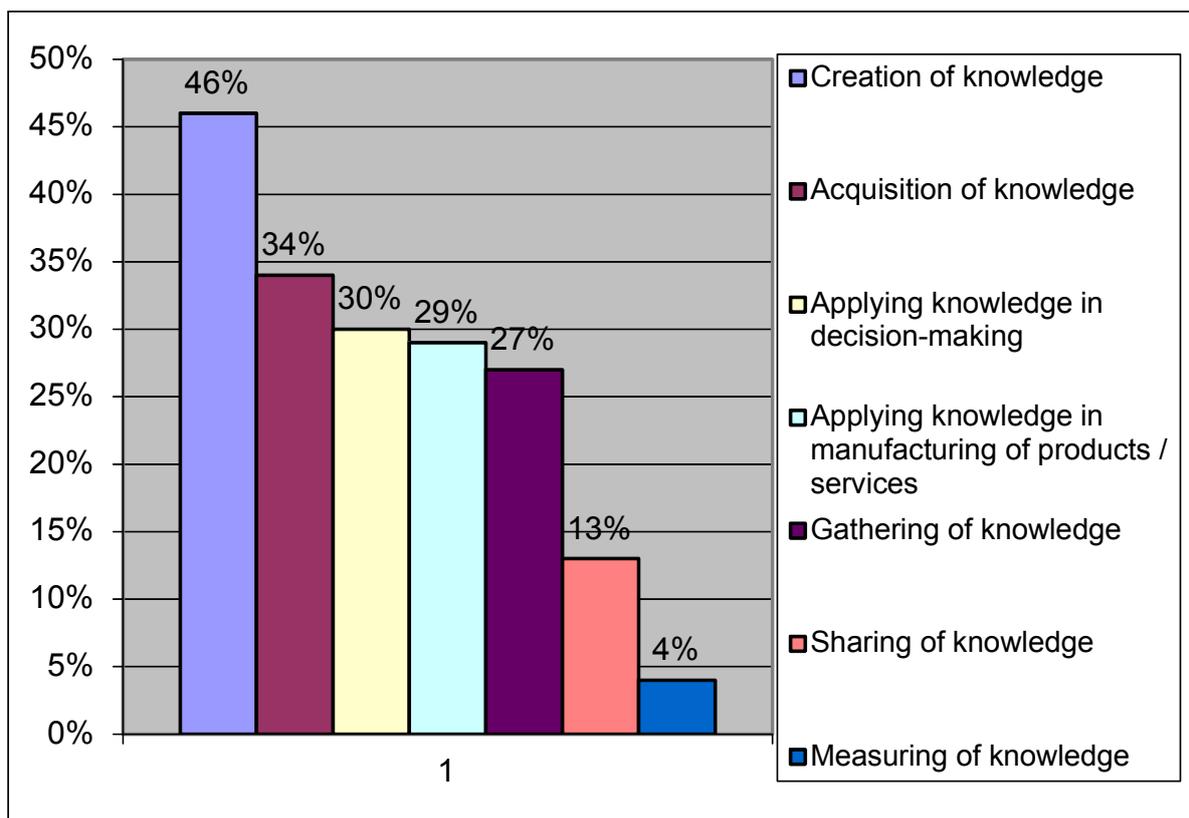
Speaking about the problem of knowledge management, it is necessary to specify the factors, which stimulate the initiative in knowledge management. From the investigations of Fraunhofer Institute for Systems and Innovation Research (ISI) in Karlsruhe, one can find out the following motivation factors of knowledge management initiatives:

- Acceleration and facilitation of knowledge transfer to new employees,
- Facilitation of knowledge integration within the enterprise,
- Protection of the enterprise from the possible loss of knowledge due to leaving of its employees,
- Encouragement of managers to sharing knowledge,
- Identification and \ or protection of enterprise's strategic knowledge,
- Facilitation of collaboration within projects or teams, the participants of which are physically far away from each other,
- The acquisition of "non- documented" knowledge (know-how), and others (Mertins, Heisig, Vorbeck, 2003: 214).

From the research of Ernst & Young, carried out in 1997 at 431 American and European enterprises one can conclude that among all the actions related to knowledge management taken by these enterprises, the most successful were the actions related to the creation of knowledge (46% indications), acquisition of valuable knowledge from external sources (34%) and application of available knowledge in decision-making (30%) (Compare Picture 10) (Rugles, 1998: 82). Less successful were the actions related to the application of knowledge in products \ services and to the gathering and sharing of knowledge among the

departments of the enterprise as well as the measuring of knowledge value (29%, 27%, 13% and 4% indications respectively).

Pic. 10. The effectiveness of the implementation of knowledge management sub-processes

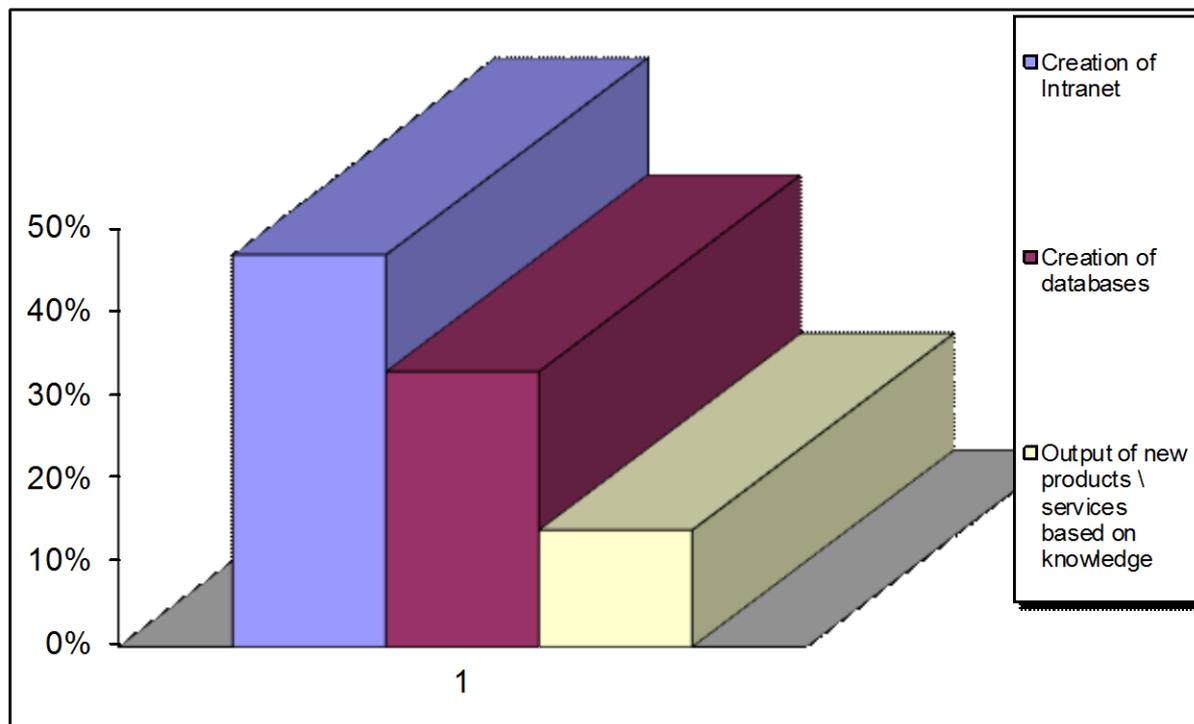


Source: author's own investigation based on the research of R. Ruggles, *The State of the Notion: Knowledge Management in Practice*, „California Management Review”, 1998, Vol. 40, No. 3, p. 82.

Enterprises try to undertake actions aiming at leveling above-named inequalities. Already during the investigation the following projects were implemented in the enterprises (Compare Picture 11): creation of Intranet (47% of indications), creation of databases (33%), adoption of groupware-technologies and tools facilitating decision-making (33%) or output of new products \ services based on knowledge (14%). Many of these actions deal with

information technologies, without which the procedures of sharing and exchange of knowledge at large enterprises cannot be implemented.

Pic. 11. The most frequent activities within the framework of knowledge management



Source: author's own investigation based on the research of R. Ruggles, *The State of the Notion: Knowledge Management in Practice*, „California Management Review”, 1998, Vol. 40, No. 3, p. 82.

Investigations of KMPG and SMG/KRC in 2004 demonstrated that the most frequently applied knowledge management practices are as follows (KPMG, SMG/KRC, 2004):

- Sharing “good practices” (43%),
- Benchmarking (36%),
- Adoption of formal procedures of knowledge management (23%),
- Construction of formal knowledge management networks (23%),

- Motivation \ encouragement systems for employees sharing knowledge (23%),
- Appointment of the executives responsible for knowledge management (23%),
- Trainings \ workshops in the sphere of knowledge management (21%),
- Elaboration of knowledge management strategy (21%).

Technology is an integral part of knowledge management. It has a large influence on the ways of sharing knowledge, i.e. on the most effective ways of making knowledge available. (Toelle, Holland). Technology provides new tools, which enable a better implementation of activities within the process of knowledge construction. Such tools are primarily computer systems facilitating interpersonal communication and databases as central, easily accessible common "knowledge depositories". As an example, at the enterprises investigated by a research team of Main School of Commerce the following systems and information and communication tools were specified:

- e-mail (100% indications),
- Internet (95%),
- Systems of the circulation of documents (81%),
- Intranet (66%),
- Systems facilitating management (65%),
- Tele- conferences (40%),
- Groupware (31%),
- Databases (32%),
- CRM-systems (24%),
- Video- conferences (16%),
- Extranet (8%) (Płoszajski, 2001: 12).

These tools are supposed to unite people searching for information (knowledge) with those who possess this knowledge. Researchers R. von der Spek and G. Carter wrote about one of the most interesting paradoxical phenomena, that is the role of information technologies (IT) in knowledge management. Respondents, which participated in their investigation, admitted that IT does not provide the most significant support of knowledge management, while the best results were achieved mainly thanks to IT. The following statement illustrates this paradox in the best way: „IT is not the most important tool supporting knowledge management, however we cannot do without it” (Mertins, Heisig, Vorbeck, 2003: 198). The most significant tools of support for knowledge management were so-called „Communities of Practice” (CoPs), the role of which in the creation of platforms of sharing knowledge cannot be overestimated. The majority (74%) of respondents use this tool for the following purposes (Mertins, Heisig, Vorbeck, 2003: 200):

- Sharing of knowledge and good practices (100%),
- Solution of problems (75% enterprises practicing CoPs),
- Creation of knowledge (65% enterprises practicing CoPs).

Knowledge management is not a necessity based exclusively on technology. Enterprises waste their time and money if they all they create to adapt knowledge management are just central system of databases, e-mail, website, or other contemporary knowledge management tools. Technology may be helpful, but it is not the first step to launch knowledge management. People, their knowledge and the enterprise’s goals are more important than technology (Santosus, Surmacz, 2001).

It would be worth noticing that, according to the investigations of Ernst & Young, enterprises are aware of the above-mentioned issues, and alongside with actions directed at the adoption of technology, they implement actions directed at people. Moreover they intend to intensify such actions. Here we mean the following projects: the creation of "knowledge maps" (18% of

responses), employment of knowledge- oriented employees (15%) and creation of exchange networks between them (24%).

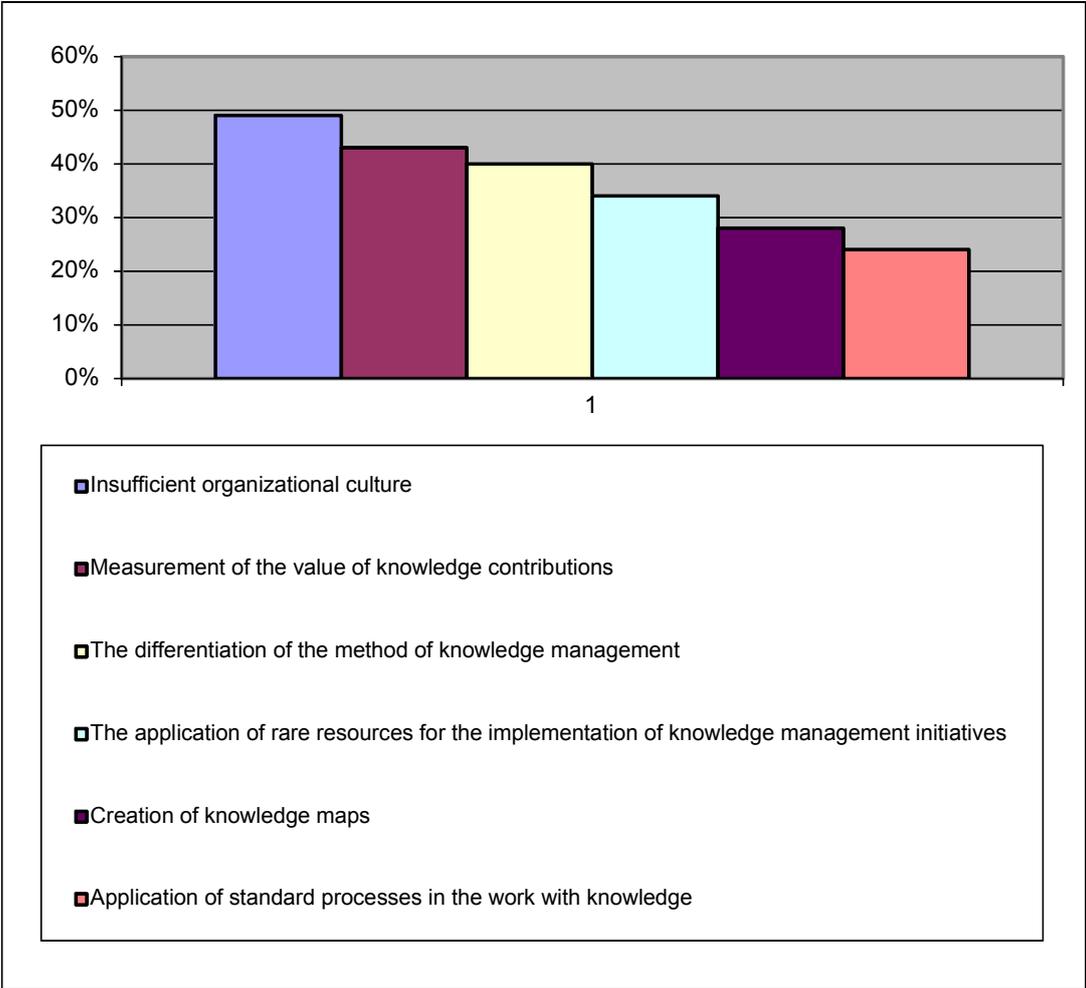
Pilot investigations, conducted by Centre of Management Studies of Leon Koźmiński Academy of Entrepreneurship and Management demonstrate that knowledge management initiatives are adopted also by enterprises functioning in Poland. (Dąbrowski, Kołodkiewicz, 2002: 3-20). These initiatives are directed to the solution of the problems of training, gathering of new knowledge and normalization of available knowledge, providing the employees with the access to knowledge. However, these initiatives are not sufficiently systemized and coordinated. The procedures of implementation of these initiatives were one-time actions with the possibility of multiplication or were to be applied for a long time.

The managers of enterprises seem to be aware of the importance of the problem of sharing knowledge; they are also aware of the importance of motivation system for the gathering and application of knowledge by their employees. However, at a great part of enterprises there is still insufficient atmosphere impeding the open sharing of knowledge (the survey conducted by the researchers demonstrated that at half of the investigated enterprises the readiness of employees to share knowledge with others is not more than satisfactory). There is also a lack of the sufficient reward system, encouraging people to engage in these initiatives (Pfeifer, Hanel, Greiser, Reiser, 2002: 46). Such actions aiming at the motivating of the employees to sharing knowledge are very difficult (Romańczuk, 2001: 190). Above-mentioned investigations of German researchers demonstrate considerable similarities in this sphere between Polish and German enterprises. Only 16% of investigated enterprises practiced motivational programs encouraging to sharing of knowledge (Pfeifer, Hanel, Greiser, Reiser, 2002: 44). However, the investigations of Main School of Commerce showed different results. At 80% of investigated enterprises the employees are motivated to share their knowledge and experience. At about half

of investigated organizations (47%), the attitude of personnel towards such actions are taken into consideration during the procedures of periodic personnel appraisal, at 36% of organizations the mechanisms forcing employees to share knowledge were applied (Płoszajski, 2001: 10).

From the conducted investigations it can be found out that the adoption of knowledge management initiatives faces a series of problems (Compare Picture 12).

Pic. 12. Problems of knowledge management by Delphi Group



Source: author’s own investigation based on the research by R. Ruggles, *The State of the Notion: Knowledge Management in Practice*, „California Management Review”, 1998, Vol. 40, No. 3, p. 83.

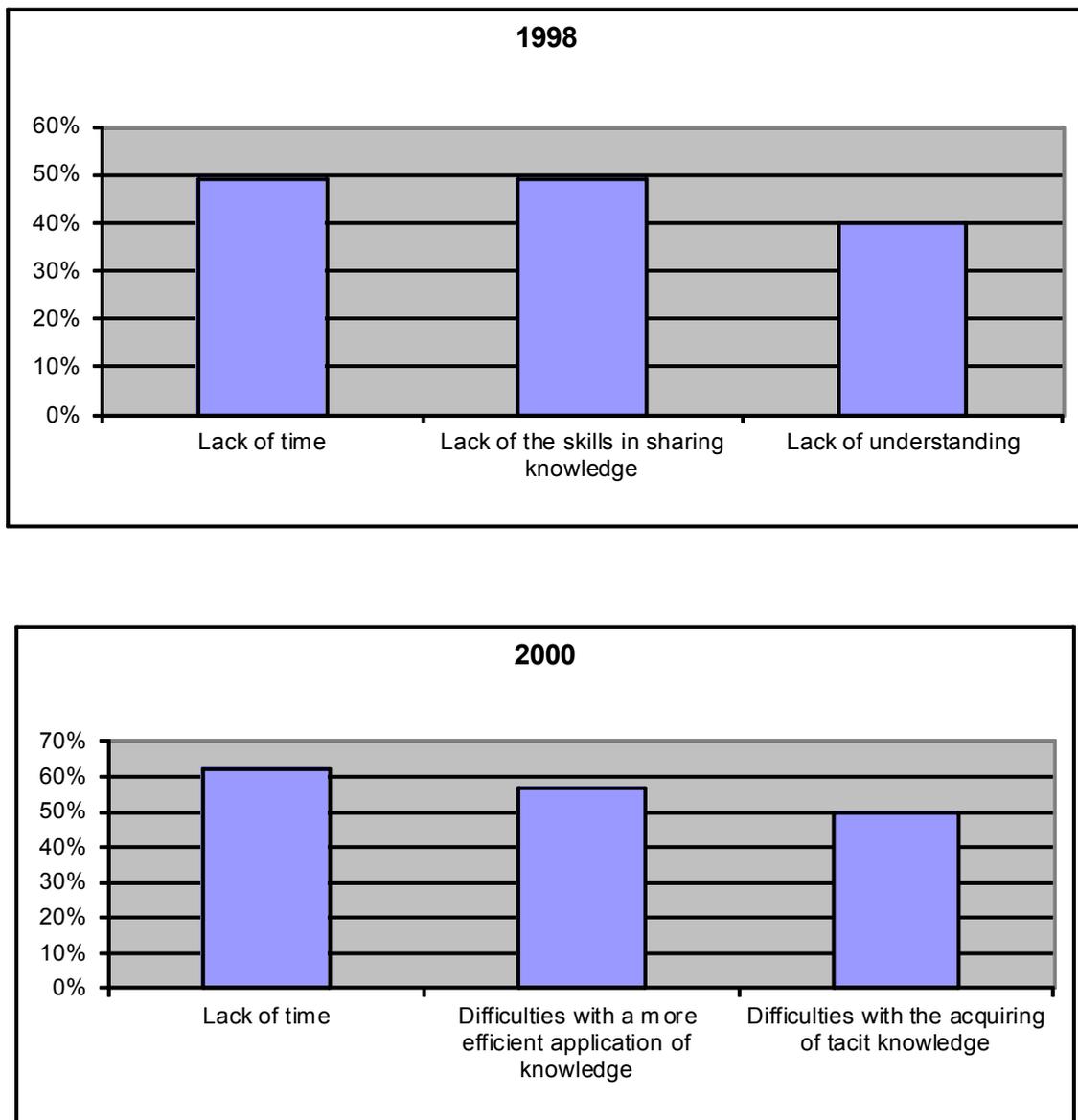
The investigations of Delphi Group show that the most serious problem in this sphere is the insufficient organizational culture, regarded as the most important factor of success (49% of respondents). The investigations conducted by Ernst & Young show that the most important source of difficulties in knowledge management is inappropriate behavior of people and the changes of their behavior are regarded as much desirable (56% opinions of respondents) (Rugles, 1998: 83). These investigations of Ernst & Young also discover a great importance of organizational culture in the adoption of knowledge management. Other important problems in this sphere were also specified, such as: the measurement of values and the role of knowledge contributions (43% of responses), differentiation of knowledge management methods, (40%), decision-making concerning the application of rare sources in knowledge management initiatives (34%), creation of knowledge maps (28%) definition of standard processes of work with knowledge (24%) (Rugles, 1998: 83).

The results of KPMG's report discover very serious problems in sharing knowledge (Compare Picture 13). The lack of time was indicated as the most widespread problem (49% of indicators in 1998 (Romańczuk, 2001: 191) and 62% in 2000 (KPMG Consulting, 2000: 2)), which is caused by a high tempo of work: how to implement the current project to be able to start the next one („competitive rush”). Other, more serious problems indicated in 1998 were following: the lack of skills in sharing knowledge (49%) the lack of understanding of the meaning of knowledge management (40%); however, in 2000 the list of problems was supplemented by difficulties in a more efficient application of knowledge (57%) and difficulties in the acquisition of tacit knowledge (50%). The investigation of Main School of Commerce identifies the following factors impeding the sharing of knowledge among the employees:

- Competition between employees (62% indicators),
- Insufficient awareness of benefit (57%),
- Competition between departments of the organization (55%),

- Lack of motivation (57%),
- Opinion: „knowledge is power” (45%),
- Lack of time (50%),
- Organizational structure (25%),
- Insufficiency of informational structure or the absence of such (20%) (Płoszajski, 2001: 11).

Pic. 13. Knowledge management problems by KPMG in 1998 and 2000



Source: author's own investigation, based on *Knowledge Management Research Report 2000*, KPMG Consulting.

Investigations of KPMG and SMG/KRC conducted in 2004 indicate that the problem of lack of time for sharing knowledge is chronic. It appeared in these investigations with an equally high frequency (64%). Other frequently appearing problems are as follows (KPMG i SMG/KRC, 2004):

- Chaotic pile-up of information (57%),
- Unnecessary repetition of the similar actions (40%),
- Lack of the applied technologies of effective sharing of knowledge (35%),
- Disuse of ideas, concerning the facilitation of the functioning of the organization (35%),
- Non-use of market chances (21%),
- Other (6%).

The investigation conducted by Bernard Brunhes Polska (BPI Group) are a reply to the rise of the problem of the lack of time for sharing knowledge and to other serious factors impeding an efficient adoption of knowledge management programs at enterprises. This investigation shows „other” obstacle for an efficient functioning of knowledge management programs. This problem, which is able to cause other widespread problems, is a lack of awarding of the efforts directed at the transferring of knowledge. The lack of elements motivating employees to sharing knowledge, results in their improper attitude towards sharing of knowledge as unnecessary and excessive ballast imposed by the employer (Tomczak, 2007: 3). Other problems discovered by the researchers were the following:

- Insufficient motivation of the superiors to initiate sharing of knowledge (75%),
- The non-acquaintance of the employees searching for knowledge with the individuals possessing necessary information (63%),

- The structure of the enterprise encouraging the communication only between departments \ vertical communication (50%),
- The organizational culture stimulating better results of employee's work and his knowledge (44%),
- Limited funds for the adopting of new solutions (44%),
- Non-user-friendly IT system (31%),
- Ignorance of the employees about the usefulness of their knowledge for to the others (25%),
- Other.

M. Santosus and J. Surmacz consider that reason for the problems in knowledge management is the ignorance of the enterprises about the people and cultural issues (Santosus, Surmacz, 2001). In the environment where knowledge is valued and rewarded, it is vitally important to adopt culture, which would discover tacit knowledge and encourage people to share knowledge. One of the methods to encouraging people to participate in knowledge management is the creation of the motivational program. Therefore, there is a danger of the participation of employees in such processes only for retrieving benefits of knowledge management program (awards, etc.), and attaching no importance or insignificant importance to the contributed information. Thus structure of knowledge management program should make people believe that their participation in knowledge management is an honor and an award (Santosus, Surmacz, 2001).

Investigating knowledge management at enterprises, it is worth using the researches of 2003-2005 conducted B. Wawrzyniak, the results of which are typical to Poland. This research showed that Polish enterprises are at the initial stage of adopting knowledge management programs. The absolute majority of enterprises demonstrated the lowest level of knowledge management. The biggest group is composed of the enterprises, which have not yet achieved the knowledge management level, which will enable them to create special work units responsible for the acquisition, processing, organizing and transferring of

knowledge. It is quite significant that enterprises with the mainly Polish registered capital (other than state budget) express their interest in knowledge management. Their interest is much stronger than that of enterprises with foreign capital (theoretically having a better access to good practices of knowledge management). Difficult financial situation of enterprises forces them to restrict themselves to using internal sources of knowledge. The role of internal experts, whose knowledge is used in finance management, marketing, elaboration of enterprises' strategy and human resources management, significantly increases. The above-mentioned restrictions are compensated by informational decision-making systems. In the majority of enterprises such systems enable to create knowledge and make it accessible. Such indicators as the accessibility of information, gathered by the organizations, and methods of organizing this information, were less positively appraised by researchers. However, about a half of enterprises got a good mark for the quality of these indicators. The situation concerning the technologies of the retaining and acquisition of knowledge is similar. It should be pointed out, that the adoption of knowledge management initiatives does not depend on technology only, but primarily on the ones who are the most interested in it, i.e. the employees. Therefore, the factors facilitating the adoption of knowledge management initiatives by the enterprises, attach significant importance. The investigations proved that the most important factor is the qualification of the employees and management executives and, finally, the organization culture of the enterprise. There is no doubt that knowledge management contributes to the achievement of concrete benefits. The most frequent benefits are the following: increase of customers' satisfaction, increase of the efficiency of business activities, improvement of enterprise's image, reduction of operational costs and many others. These benefits secure a good position of the enterprise at the market and often contribute to the acquisition of competitive advantage.

The efficiency of enterprises in the sphere of knowledge management goes together with their skills of human resources management. About half of organizations practicing knowledge management rely on good procedures of personnel management. The respondents from these organizations consider that their organizations are one of the best at the market in the sphere of personnel management skills. The adoption of knowledge management initiatives is supported by the applied systems of motivation of the personnel, which were apparent in the majority of enterprises. The most effectively motivating elements of human resources management were the systems of training and skill development of employees and managers. Such kind of the direct relation between the solid skills of knowledge management and human resources management seems to be confirmed by the hypothesis of the present research about the support of knowledge management by human resources management. In the next chapter of the present research the results of profound investigations will be presented. The objective of these investigations was the specification of the actual influence of human resources management on the results of the adoption of knowledge management, and in particular on the effectiveness of certain models of human resources management.

1.4 Knowledge Management as a business process

As it was mentioned before, knowledge management is a complex process, including creation \ gathering of knowledge \ information, organizing of knowledge \ information and dissemination, operating and application of information in the implementation of tasks and solution of everyday problems of the organization (Skryme, 1999: 39). M.T. Hansen, N. Nohria, T. Tierney consider that knowledge management is probably the most important process in

the enterprise. It definitely happened so in the sphere of consulting, where knowledge is the main asset and the main product. It was mainly for this reason that business consultants were the first professional group to draw attention to knowledge management. They seriously invested into the improvement of this process, they were among the first to investigate the application of information technologies in knowledge management. M. Sarvary also regards knowledge management as a business process- the process by means of which enterprises create and apply their common institutional knowledge (Sarvary, 1999: 106-116). This process is composed of the following elements:

- Organizational learning- the organization acquires information and \ or knowledge,
- Production of knowledge – the integration of certain information and transforming it into knowledge, useful for the successful solution of business problems,
- Distribution of knowledge- the process, which enables the members of the organization to get an easy access to organizational knowledge and an opportunity to use common organizational knowledge. (Sarvary, 1999: 95).

The acquisition, transforming and dissemination of information and constructing of personnel and organizational skills based on knowledge becomes a key element of the organizational culture.

To introduce the process of knowledge management, the organization should possess an appropriate infrastructure, or knowledge management system (Sarvary, 1999: 95). This system contains IT-infrastructure (databases, computer networks and software) and organizational infrastructure (appropriate motivational programs, organizational culture, valuable personnel and personnel teams, participating in knowledge management subprocesses) and, what is the most important- internal rules, which regulate these subprocesses). In practice one

can meet the approach, according to which the adoption of knowledge management is identified with the adoption of an efficient and technically developed system of transforming information. The appearance of such an approach was probably caused by the fascination with wide opportunities which such an information system provides. According to J. Szaban, enterprises adopting knowledge management indeed pay attention to employees, but just in order to minimize their resistance to adopted changes, and to make people use the information available in enterprise's databases. The development of the employees' habit to apply new technical and technological solutions in practice does not mean knowledge management. „This is just the first step in the direction of changing human nature („habit is a second nature of a human”); without such change there will be no success in knowledge management” (Szaban, 2003: 61).

Good knowledge management system includes organizational culture. An enterprise, which adopts this system for the first time should convince its employees of the necessity of this system, it has to make sure that its employees use it and contribute to its development. People will contribute to the development of this system only if they notice a great power reserve in it. (Sarvary, 1999: 100). Knowledge management changes the employees' everyday life. If the enterprise applied an efficient system, the work of its employees becomes rather a challenge than a routine obligation. People may attach more attention to the solution of problems instead of engaging themselves in laborious gathering of "dry data".

Adoption of knowledge management is nothing else than adoption of changes. „Hard changes” not accompanied by changes in human relations, in the organizational culture are doomed to failure- warns J. Szaban (Szaban, 2003: 48). „The only chance for success is the adaptation to changes- key elements of the organizational culture. One should begin with the changing of attitude and behavior of people in the organization, which adopts changes, and bear in mind that such changes may last for years (Szaban, 2003: 48).

The power of knowledge management system depends primarily on how its contents are used in specific situations of business. When used properly, the system may contribute to the construction of a stable competitive advantage. However, if used improperly and by incompetent people, it may lead the organization to a disaster (Sarvary, 1999: 101). While evaluating the potential of knowledge management system for the construction of competitive advantage it is necessary to evaluate the methods, with the help of which the members of the organization will use the knowledge management system.

In practice various approaches are applied for the creation of knowledge management system The most frequently applied approaches are following:

- The creation of the decentralized knowledge management system,
- The creation of the centralized knowledge management system (Sarvary, 1999: 102).

Decentralized systems are applied by enterprises, the administration of which does not intend to interfere in the functioning of such system; it only controls it in a rather free manner. This system puts a greater pressure on people, not on information technology. The main advantage of this system is that it is controlled by market mechanisms. Administrative costs are low, so there is no need to engage in management. Besides, when knowledge is created by its users, one could hope that such knowledge will be more practical and easier to use.

The other system- centralized- is created and controlled by the enterprise's administration. Such systems are to a great extent based on advanced information technology. The role of the communication between people is significant, but such communication is created with the help of large, central units (called knowledge centers). The main disadvantage of such systems is their cost, and their benefits are difficult to estimate. The author points out that there is no standard recipe for the construction of the efficient knowledge management system; it is also difficult even to recognize the system which will turn to be the best one (Sarvary, 1999: 103-105).

Another issue, which is very important from the point of view of the effectiveness of the adoption of new knowledge management initiatives, is a choice of the sufficient management strategy for the most important assets of the enterprise. In practice one can distinguish various approaches towards knowledge management, originated from two different strategies \ models (Compare Table 1) (Hansen, Nohria, Tierney, 1999: 106-116).

In some enterprises strategies are concentrated on information technologies, which enable to codify knowledge and store it in databases, available to all the employees. This kind of strategy is called codification strategy. In the process of knowledge codification the enterprises apply the approach of “document specialists”: knowledge is obtained from employees, which develop it. Knowledge is made independent from its creators, and then it is applied for various purposes. This approach enables many people to acquire and codify knowledge without communication with the individuals, which created such knowledge. Knowledge which was not codified (and probably could not have been codified) is transferred during sessions organized on the principle of “brainstorm” and “face-to-face” communication. The efficiency of the organizations applying codification strategy is achieved mainly owing to the “economy of repeated knowledge use”. For example, a computer program or a book can be used many times (there is no need to modify them each time before use). Having invested just once, we use the acquired results several times; we have large-scale benefits, because knowledge stored in “electronic depositories” may be used for the implementation of numerous projects and by numerous employees. Repeated use of knowledge saves work, reduces communication costs and enables the enterprise to implement a greater number of projects.

Table 1. Knowledge management models in consulting companies

KNOWLEDGE MANAGEMENT IN CONSULTING COMPANIES		
CODIFICATION MODEL		PERSONALIZATION MODEL
<ul style="list-style-type: none"> Invest into the knowledge resources just once and use them repeatedly Concentrate on generating of profit 	ECONOMIC MODEL	<ul style="list-style-type: none"> Take a high mark-up for a specific solution of unique problems Concentrate on keeping a high profit mark-up
PEOPLE-DOCUMENTS <ul style="list-style-type: none"> Develop electronical document processing systems, which codify, gather, disseminate knowledge and enable to use it repeatedly 	KNOWLEDGE MANAGEMENT STRATEGY	PEOPLE-PEOPLE <ul style="list-style-type: none"> Develop networks of cooperation between people, so that they can share their tacit knowledge
Invest into IT; the unification of people with the codified (and repeatedly used) knowledge is the goal	INFORMATION TECHNOLOGY	Invest into IT moderately; the facilitation of replacement and exchange of tacit knowledge is the goal
<ul style="list-style-type: none"> Employ new people—graduates of higher educational institutions, which are used to repeated application of knowledge and adoption of new solutions; conduct group training, use the method of distance learning Reward people for using and developing of documentary databases 	HUMAN RESOURCES	<ul style="list-style-type: none"> Employ MBA- graduates, which like to solve problems and tolerate the ambiguity of the situation; develop your staff through mentor programs (one-on-one) Reward people for the direct sharing of knowledge with the others
Andersen Consulting, Ernst&Young	EXAMPLES	McKinsey&Company, Bain&Company

Source: M.T. Hansen, N. Nohria, T. Tierney, *What's your strategy for managing knowledge?* "Harvard Business Review", March-April 1999, p. 109.

At other enterprises knowledge is closely connected with people developing it, knowledge is shared by means of direct interpersonal contacts. Sharing knowledge does not take place solely by means of direct contacts „face-to-face”, but also by means of a telephone, e-mail, video- conferences and transferring employees to other departments. Additionally, supporting the process, it is possible to take actions aiming at the developing of the system of electronic documents. The task of the system is not just delivering knowledge, but the analysis of documents containing information about previously implemented projects and their executors. Such system facilitates quick finding of documents, i.e. gives a considerable time advantage. Next action, according to such system, is the establishment of the direct connection of the individual searching for knowledge with an individual, who has experience in solving such problems. The main goal of the application of computers in such enterprises is not just storing of knowledge, but supporting people in the process of transferring this knowledge. This strategy is called personalization strategy.

The choice of a specific strategy is not a free process; it depends on the method of work with the customers, economy of their business, and on the employed individuals (Hansen, Nohria, Tierney, 1999: 109). The choice of an improper or an attempt to implement both kinds of strategy simultaneously, as experience showed, may severely violate the balance of business. In practice it is possible to meet enterprises applying both kinds of strategy, but the majority of them concentrate on a single one, the other type is just a supplement. The knowledge management strategy should be a reflection of the competitive strategy: how the value is created for customers, how this value supports economic model, and how employees influence on this value and economy (Hansen, Nohria, Tierney, 1999: 109). Owing to a better understanding of the effectiveness of both kinds of strategy, their advantages and disadvantages, the enterprise’s management staff will be able to make more correct decisions, concerning knowledge management and investing in it.

Knowledge management strategy is an occasional strategy of the organization; it is a link connecting individual elements of knowledge management system. „If knowledge management is not related to the company’s strategy, the company may soon become a charitable institution” – wrote B. Manville, the chief of the knowledge management department of McKinsey&Co Corporation. In the era of the economy of knowledge survival and development of the enterprise may depend on the choice of a proper knowledge management strategy (Strojny, 2000).

Efficient knowledge management requires support from technology, namely from IT. Certainly, the level of such support is different for different enterprises; it depends on the knowledge management strategy chosen by an individual enterprise. (Hansen, Nohria, Tierney, 1999: 113-114). Such support is vitally important to enterprises applying the codification strategy, however, it is not that important for the enterprises applying personalization strategy. Managers adopting codification strategy should be ready to bear significant expenses for special electronic systems of storing knowledge. In the codification model managers should adopt a system, which resembles a library or an archive with large volumes of documents. They also need a searching tool, which will enable people to find and use necessary documents. In the personalization model, however, the most important thing is to have a system, which will enable people to find other people. Enterprises applying the personalization model should possess a moderate system of electronic documents, supporting people in two ways: by delivering basic information, which creates the background of knowledge, and by connecting (contacting) these people with experts, who can provide further specific recommendations.

These strategies require different degree of support from information technologies and different infrastructure of this technology.

Knowledge management strategy should be closely connected with the competitive strategy. (Hansen, Nohria, Tierney, 1999: 115). This means, that management staff should be able to clarify certain key issues: why customers buy

their products and services and do not buy products and services of their competitors, what kind of value they expect and in what way knowledge gathered by the enterprise contributes to this value. They should not choose knowledge management strategy until they find answers to these questions, as they may choose a wrong strategy. The answers to the three following questions may help them to choose a proper knowledge management strategy (it is presumed that they are aware of their competitive strategy):

1. Do you offer standard or individualized products?

For the enterprises applying the standardization of products (low degree of the variability of products) the strategy of "repeated use" or codification strategy will be the most suitable. However, for enterprises applying the individualization of products or services (satisfying specific, unique needs of customers selecting individual products) personalization model will be the best option.

2. Do you have matured or innovative products?

Enterprises, the strategy of which is based on mature products, can better benefit from the codification model. The processes of development and sale of such products include clear and understandable challenges and knowledge, which can be easily codified. The strategy of personalization provides a better support for the enterprises, the strategy of which is based on innovative products. The employees of innovative organizations require specific information, the transfer of which in the form of documents is rather impossible.

3. Do your employees rely on tacit or explicit knowledge in the process of problem solution?

Explicit knowledge is knowledge, which can be codified like a computer program or market data. If employees rely on explicit knowledge in their work and use it for the problem solution, codification model is the best suitable option for such enterprises. If, however, employees use tacit knowledge

(difficult to express by means of writing and acquired through personal experience), the personalization strategy will be a better solution for such enterprises (Hansen, Nohria, Tierney, 1999: 115).

The answers to the above-mentioned questions often imply the choice of the main knowledge management strategy. It is not always simple. Additional reasons for anxiety may be caused by the process of „generalization” of knowledge and the presence of complex strategic business units in the structure of the enterprise. The coexistence of two knowledge management models in different business units within one corporation is possible, but these units should act as autonomous companies. Enterprises with closely connected business units should concentrate on a single strategy.

The interpretation of human capital as a strategic factor (Ludwiczynski, Stobińska, 2001: 55-70) enables to construct a relatively stable competitive advantage. The concentration on this capital as the most valuable asset of the enterprise causes the necessity to elaborate a new approach to human management practices and to the architecture of human resources.

Chapter II

HUMAN RESOURCES MANAGEMENT VERSUS KNOWLEDGE MANAGEMENT

2.1 Human Resources and their architecture

The high level of industrialization, the development of technology, informatization- these processes recently pushed the “human factor” to the background. The purpose of the actions within these processes was to minimalize or eliminate the participation of people in economic development. However, in spite of such an attitude towards people the science about the “human factor management” was developing. We can expect still more intense development of this science in the nearest future– in the era of the Knowledge–Based Economy. Although the theory and practice of human resources management are not new, we can discover a significant variability of applied terminology in this sphere. The variability of applied definitions may be caused by a continuous alternation of approaches towards the role of people in organizations. The development of science forced by the requirements of economy (growing competition, the changes in the size of the enterprises, alternations in the approaches towards management) also contributed to the emergence of new approaches towards the employees, new management conceptions and new terminology.

The search for the up-to-date methods of efficient use of employees has an immediate impact upon the contents of personal functions (Król, Ludwiczynski, 2006). This process leads to the emergence of new terminology. Frequently used definitions intended to systematize, in reality are so vague and ambiguous, that they make no significant contribution to the science and just

enrich the applied terminology. Vague terminological abundance and ambiguity of used definitions is a result of unsuccessful attempts of numerous authors to arrange or to introduce “something new” to the science. Such activities, although they have a different goal, lead to a still greater chaos in applied terminology. The example is the substituting application of definitions resulting in the misunderstanding of the defined terms.

One of the first approaches towards personnel management was defined as personnel welfare (McKenna, Beech, 1997: 2), which was the reflection of intention (emerged in the second half of the 19th century) to guarantee the providing of certain benefits to the employees such as: unemployment benefit, sick benefit and accommodation assistance. The conception of the personnel welfare was developing up to the period of World War II, after which a greater emphasis was put on the issue of the administrating of personnel. These years are marked with the development of recruiting practices and personnel training. The administrating of personnel aimed at the supporting of labor discipline, at the development of reward system, at the adherence to the work schedule and at the keeping of the personnel records.

Writing about the 1950s, E. McKenna and N. Beech use the terminology of personnel management, and such terminology, according to their opinion, widened the palette of tools, which included the administering of job positions, trainings and recommendations concerning the relations between employees and employers. However, the emphasis was put on the tactics rather than strategy. In 1980s personnel management reached the stage of the development of enterprise-spirit, market economy and enterprise culture. Personnel specialists started to play a more significant role in the definition of the development directions of the enterprise, its objectives and the methods to accomplish these objectives (McKenna, Beech, 1997: 4). The counterbalance of the personnel management conception was the human resources management conception of R.E. Miles. In his article published in 1965 only a sketch of this conception was

presented. The author emphasized the “urgent need for the complex approach to the personnel of the enterprise” (as a resource) and for a systematic approach to the implementation of personnel functions, namely the consolidation of taken decisions and personnel policy actions” (Król, Ludwicyński, 2006: 42).

L. Koziół points out that the described actions of personnel management were defined in the following ways: personnel policy, the policy of personnel management, personal policy, enterprise’s staff policy, administrating of personnel, human resources management (Koziół and others, 2000: 22). However, the contemporary approach to this problem demonstrates that the personnel function is much more often defined as the labor resources management, personnel resources management, management of social potential, personnel management or human resources management (Koziół and others, 2000: 22). One can meet such synonyms as labor potential, social potential, personnel and human potential (Lipka, 2000: 22). M. Kostera and S. Kownacki use the definition „social potential of the enterprise” meaning the „function including the recruitment and selection of the organization’s members, the function of awarding, punishing and developing of these members”. This definition may be substituted by the following ones: employment policy, personnel policy, personnel management, human resources management (Kozmiński, Piotrowski, 2001: 401).

Other profound scientific works only prove the fact of the inaccurate application of terminology. In the personnel management dictionary comprised by T. Listwan containing over a thousand words, the term „personnel management” is a synonym of staff management and human resources management. It means a collection of activities related to people and directed at the accomplishment of the organization’s aims and the satisfaction of needs (development of employees) (Listwan, 2005: 183). Using the term “human resources management” the authors develop this definition. They differentiate this term from the term “personnel management”, which, according to them, is

limited to the operational and objective approach. Human resources management denotes the strategic and subjective approach and attitude towards employees (Listwan, 2005: 184-185). Therefore, practicing human resources management, the administration of enterprises acknowledges the unique character of human resources strives for the increase (development) of their value and acknowledges their overall engagement in the accomplishment of the assigned tasks.

By M. Adamiec and B. Kożusznik, human resources management is nothing more than a strategy and practice of acquisition, application and development of employees, as well as “maintenance” of their skills within the enterprise (Adamiec, Kożusznik, 2000: 18).

A. Pocztowski represents human resources management as a conception of management within the personal functions of the enterprise, according to which human resources are regarded as the enterprise’s assets and the source of competitiveness (Pocztowski, 2003: 36). Human resources management requires strategic integration of personal affairs with business affairs, the engagement of linear management staff in the solution of personal problems. Human resources management also acknowledges the necessity of constructing the organizational culture with an emphasis put on the engagement of employees into the implementation of strategic goals.

The similar approach to human resources management was presented by H. Król. He wrote, „human resources management is a contemporary conception of the implementation of personal functions of the organization. The objective of this conception is the adaptation of personal features of human resources to the organization’s goals, harmonious with the needs of the employees and specified on external and internal levels” (Król, Ludwiczynski, 2006: 55).

Another synonym of personnel / staff management, although used less frequently, is personnel policy. According to the dictionary of T. Listwan, it is a collection of goals, rules, methods and tools intended to the creation of

personnel potential and the engagement of employees (Listwan, 2005: 118). The functioning of organizations is based on certain rules, values, norms, traditions or beliefs. These issues are imposed by their creators or appear in the course of time, together with the development processes of the organization, its cooperation ties, etc. The majority of these issues are related to the organization's employees. These features attach a specific tint to the organizations and make them either friendlier to the environment (and to employees) or less interesting and attractive.

Using a more precise definition we can identify personnel policy as a general, profoundly abstract philosophy of the organization, which concerns social potential. Personnel policy is the sphere of management; it consists in a conscious identification of rules applied for the creation of the organization's social potential (Król, 2000: 2). H. Król wrote, „personnel policy consists in the identification of goals related to the creation of the organization's social potential and in the activities directed at the accomplishment of these goals in accordance with external and internal conditions” (Król, 2000: 2). In his opinion, the policy related to human resources has to originate from the accepted personnel strategy (Król, Ludwiczynski, 2006: 71).

If personnel policy, processes and actions related to human resources management are effective, then we may speak about a strategic influence of human resources management on the functioning of the whole enterprise (Becker, Huselid, Ulrich, 2002: 75).

By M. Armstrong, personnel policy „defines values recognized by the organization; these values concern the methods of regarding people, according to these methods the organization creates rules, which managers should obey in their activities related to personnel management” (Armstrong, 2001: 234). Thus, personnel policy is a starting point for the elaboration of human resources management practices and for the decision-making, concerning the organization's employees. Personnel policy is a benchmark for the fair attitude

towards the organization's employees and fair actions concerning these employees; it facilitates the conformity of this attitude and actions with the organization's values. Such values are mainly related to the concept of justice and quality of life and the labor conditions created by the organization (Armstrong, 2001: 235-236). Personnel policy should be related to the issues of legislation and take into account the regulation requirements of the country, such as: labor code, civil code, legal acts (the personal information protection act), etc.

It would be worth remembering that personnel policy or staff policy are not arbitrary and cannot be applied substitutionally. In the opinion of H. Król, the attribute *personnel* should be applied in relation to all the employees (the whole staff), the attribute *staff* should be applied only in relation to management positions and important expert positions (Król, Ludwiczynski, 2006: 71).

Summarizing these terminological discourse, it would be sensible to adduce the opinion of A. Stabryła, who affirmed that „is the most frequently term used nowadays is the term „human resources management”, which denotes the management of human resources at the enterprise” (Stabryła, 1998: 179). Other terms are used as the ones with a similar meaning but with an older origin. In his opinion, the difference between such terms is slight and relative (Stabryła, 1998: 179).

As a system human resources management has its architecture. The architecture of human resources as a system (human resources architecture) is an external composition of elements, each of which has to do with the enterprise's employees. The architecture is a „configuration of functions, subjects and tools of human resources management, which are directed at the creation or increase of value for customers, employees, shareholders (investors), and for the whole society (social responsibility of the enterprise)” (Ludwiczynski, 2005: 3).

Literary sources contain numerous configurations of human resources architecture. Some of them are very general, conceptual and are intended to

attach a greater importance to actions related to the human resources management in the organization and to arrange these actions, so that they were in line with the general strategy of the organization. Other configurations are more ramified and complex; they demonstrate alternative forms of the organizational activities within the sphere of human resources management at the enterprise. The first group of architecture configurations consists of earlier conceptions, called the models of human resources management. These models are characterized by simplicity and profound generalization, as compared to the later models. They played the role of a foundation for more precise and complex conceptions of human resources architecture. In these early models it is difficult to discover features typical to the architecture of human resources management. However, these first models were a step forward in the development of the conceptions of human resources management. Therefore, their simplicity should not cause objections, as these models should be regarded as prototypes of more matured conceptions of human resources architecture.

First models of human resources management, created by American researchers, emerged in 1980s. In 1984 one of the most transparent conceptions of human resources management was created (Armstrong, 2001: 21). Its authors emphasized the necessity to consolidate human resources management systems and the structure of the organization into the comprehensive entity (Fombrun, Tichy, Devanna, 1984). They also emphasized the difference between the conceptions and applied tools of human resources management and traditional management of these resources. They appealed for the necessity of the appropriate attitude towards the problem of human resources, as these problems are equally important as the financial or production issues. In the same period of time the second model of human resources management was worked out. Later it was called Harvard model of human resources management (Beer, Spector, Lawrence, Quinn Mills, Walton, 1984). The chief message of its authors was the necessity to adopt a more complete and strategic perspective of human

resources, and these resources shall be regarded as potential assets of the enterprise rather than variable values. (Beer, Spector, Lawrence, Quinn Mills, Walton, 1984: 21).

The authors of Harvard model differentiated four main areas of human resources management (Pocztowski, 2003: 23-27):

- Employee influence (participation),
- Human resources flows (mobility)
- Reward systems,
- Work systems.

The analysis of these areas takes into account the participants (beneficiaries) of the organization and direct and long-term results of human resources management procedures. These results cause feedback and mutual dependencies. The main task of human resources management is the coordination of these four areas and their integration with the strategy of the organization. The accomplishment of this task may have three forms (bureaucracy, market, clan).

The conception emphasized the necessity of the integrity of human resources management policy and the participation of linear managers in human resources management. One of the researchers, R. Walton, widened this conception and pointed out at the necessity of the alternation of the approach towards human resources management (Walton, 1985: 76-84). He proposed to abandon the control in favor of engagement, which, owing to the identification of common goals and the reduction of a strict control, was supposed to strengthen the devotion and loyalty of employees.

The conception of interdependence of R. Walton is closely connected with this conception. R. Walton understands such interdependence as an aggregate of common goals, interrelation, benefits, responsibility and mutual respect. The model of human resources management should consist of activities facilitating

interdependence, as interdependence causes engagement, and consequently, a better economic effect and individual development (Armstrong, 2001: 21-22).

Another well-known model of human resources management in Michigan model, by which human resources management was integrated with enterprise's strategy and organizational structure. Enterprise's organizational structure and human resources management arise from the enterprise's strategy. According to this model, there are four functions of human resources management (Listwan, 1999: 23-24):

- Selection,
- Appraisal,
- Rewards,
- Development.

These functions are interconnected and create a human resources cycle. Model Michigan presupposes that the appropriate arrangement of individual elements of the cycle will influence on the employees' behavior and such influence will cause the achievement of effect-related goals (goals related to effectiveness). These functions are important at every level of management, i.e. strategic, tactical, and operational.

A major contribution to the creation of human resources management conceptions was made by British researchers: K. Legge, K. Sisson and J. Storey.

K. Legge acknowledged a great importance of human resources, which she regarded as a source of the strategic advantage. She recommended to integrate personnel policy, strategic planning and the application of personnel policy in the development of effect-related organizational culture of the enterprise. She considered that the integrated personnel policy facilitating the employees' engagement, contributes to the achievement of excellent results in work (Armstrong, 2001: 23).

K. Sisson, writing about human resources management, put forward four fundamental issues:

- The integration of different personnel policies and submission of them to the organization's goals,
- Remission of the sole responsibility for the human resources management from managing specialists,
- The alternation of the approach- from collective (relations: management staff- labor union) to individual (relations: management staff- employee),
- Emphasis on the engagement and initiative of the employees, and, at the same time, the role of the enterprise's management staff is that of „supporters”, „providers” and delegates of authorities (Armstrong, 2001: 23).

J. Storey is famous for his so-called „soft” and „hard” aspects of human resources management. Soft aspects emphasized a great importance of communication, motivation and leadership, i.e. interpersonal relations. Hard aspects expressed traditional, industrial approach towards people regarded as one of economic factors. This approach emphasized the quantitative, calculation and strategic issues of human resources management (Armstrong, 2001: 24).

In 1980-1990s in Great Britain appeared numerous scientific works related to human resources management; quite often these works were based on the earlier investigations, chiefly on Harvard model. Here we may name the works of Ch. Hendri, A. Pettigrew and D.E. Guest.

Ch. Hendry and A. Pettigrew analyzed human resources management from the point of view of employment procedures, implemented according to organization's strategy (Hendry, Pettigrew, 1990: 35). For the analysis of activities related to human resources management the authors adopted the structure of Harvard model to build their own. Thus, their model contained main economic aspects (property and control, the size of the organization and its

structure and life-cycle, etc.); technical (technology applied in practice and technology feasibly to apply); social and political aspects (country's system of education and training) in order to analyze the areas, important from the point of view of human resources management (Hendry, Pettigrew, 1990: 25).

D.E. Guest proposed to widen the conceptions of human resources management which constituted Harvard model by adding a system of policies (the objectives of human resources management policy). The task of these policies would be to maximalize the organization's integration (ex.: business strategy versus human resources management), to facilitate the engagement of the employees and to make employment procedures more flexible and the quality of work- higher (Guest, 1987: 503). Such policies are as follows: the projecting of organization and work, elaboration and adoption of the policy of action / management of alternation, recruitment and selection, periodic personnel appraisal, training and development of employees, work inflow, systems of rewards and communication (Guest, 1987: 516).

T.W. Schultz and G. Becker, the authors of the human capital theory, initiated the discussion on human potential. In the opinion of T. Schultz, Noble prize-winner in economy, the achievement of wealth by under- developed countries does not depend on the natural resources, vehicle fleet or energy, but on the knowledge of their citizens. This conception is totally different to the traditional conception of economy, according to which the economic development is just a result of investments to machines, buildings and equipment. Besides, every individual possesses a certain kind of abilities- adopted or acquired. The valuable features, which may be developed by means of the appropriate investing, are defined by T. Schultz as human capital. (Schultz, 1981: 21).

2.2 Human Resources Management in the Knowledge Based Enterprise

Within the framework of developing knowledge management conception new challenges appear for human resources managers- both for creators and executors-the craftsmen of personnel policy of the enterprise. The knowledge management system already on the stage of adoption of human resources management conception should be in line with its goals, tasks and needs. The necessity of the adoption to new conditions, particularly to the knowledge management activities and activities within knowledge-based economy becomes obvious (Mikuła, 2007: 2-3). More and more common areas emerge for human resources management and knowledge management. Therefore, we may speak about the tendency to apply the technique of knowledge management for the support of actions related to the employment and keeping of personnel in the organization, and to the activities related to the acquisition and dissemination of tacit knowledge in the organization (Roberts-Witt, 2003: 4). In the literary sources one can meet with the conceptions, which regard knowledge management not as something new or independent, but as a new (developed) form of human resources management (Yahya, Got, 2002: 460). According to such an approach, human resources management would play a role of a mechanism facilitating human interactions and collaboration processes with the help of contemporary informational tools. In such case it would be sensible to analyze human management within the categories of strategic human resources management, emphasizing the acquisition, organization and motivation of these resources (Armstrong, 2000: 576-593).

The majority of knowledge management initiatives and adopted human resources management programs are initiated by human resources management units. These units acquire new roles:

- They more closely cooperate with the management staff on different management levels,
- They function as a inspirator and project various solutions in the sphere of human resources management,
- They function as consultants and advisers for all the employees (Borkowska, 2002:26).

Moreover, human resources management units have a considerable importance in the supporting of the knowledge management programs' adoption strategy (Soliman, Spooner, 1999: 341). Such support usually includes the following activities:

- The creation of knowledge management teams,
- The initiation of knowledge management programs,
- The identification of regulations and rules of knowledge management activities,
- Actualization of knowledge management programs.

Such support may be based on a stronger effort (professionalization) in the implementation of recruitment and selection, development, motivation, encouragement and rewarding of employees, implementation of succession plans, appropriate management philosophy and control (Soliman, Spooner, 1999: 343).

Besides the above-named tasks, the main challenge of human resources management units is the measurement of knowledge (drafting of knowledge maps, identification of knowledge gaps), creation and dissemination of knowledge within the organization, encouragement of employees to the application of knowledge gathered at the enterprise and, and the monitoring of the use of knowledge bases (Soliman, Spooner, 1999: 337-345). Human resources management should take into account the following areas related to knowledge management:

- The attainment of the common direction of knowledge management activities and basic business activities of the enterprise,
- Identification of benefits of efficient knowledge management activities,
- The selection of appropriate knowledge management programs,
- Adoption of knowledge management strategy,
- The creation of the environment facilitating the knowledge management programs (appropriate climate),
- The application of information technologies facilitating knowledge management programs,
- The creation of knowledge management teams,
- The creation of leadership in the sphere of knowledge management.

Personnel management units are supposed to implement the following functions (Mikula, 2007: 5):

- The introduction of personnel appraisal criteria, which enable to evaluate the contribution of employees to the development of knowledge management programs and to the implementation of appropriate tasks originating from these programs,
- The continuous improvement of motivation systems, development of knowledge and human capital and organizational culture oriented at the development and application of knowledge, continuous training of employees at any time and place.
- The elaboration of a stable recruitment system, securing the dismissal of the employees, which do not come up to expectations (retaining of fluctuation level at 4-5%),
- The adoption of personnel controlling tools to new challenges related to human resources management in the organization.

The interdependencies between human resources management and knowledge management of the enterprise are complex. If knowledge management is regarded as a long-term strategy of the organization, then the

role of human resources management practitioners in the constructing and strengthening of ties between general strategy of the enterprise, knowledge management strategy and human resources management strategy becomes more and more significant. As a rule, the consolidation of knowledge management strategy and human resources management strategy contribute to the improvement of the quality of the organization's activities. Such an improvement leads to the increase of the efficiency of the whole enterprise and its achievements. (Gloet, Berrell, 2003: 83-84).

As it was mentioned before, the activities of human resources management units are intended for the facilitation of knowledge management initiatives. In order to secure a high productivity of such activities the following issues are important:

- Support of the initiatives from the management staff of the enterprise,
- Appropriate organizational culture,
- Planning and the structure of the organization,
- Education and training,
- The measurement of the results of implemented work,
- Engagement of the organization members (Dale, Cooper, 1992: 83-84).

The support of the management staff is necessary as its decisions have a significant influence on the members of the organization. The support of the high management often determines the success and results of activities. The management staff, which is aware of the relations between knowledge management and human resources management, also recognizes the value of tacit knowledge, the significance of human factor and the importance of human factor management. The support of knowledge management initiatives from the management staff of the enterprise does not mean the engagement of high-level management only. The same attitude should be typical for the middle-level management, as the managers of this level are responsible for the adoption of these initiatives within the organization.

In the opinion of I. Nonaka and H. Takeuchi, the representatives of middle-level management (often called “knowledge engineers”) often play the most important and valuable role in the enterprise. In order to make the best use of their role, the enterprise should adopt the management model „middle – top – bottom”, which- in their opinion- is the best among all the methods of knowledge management applied at the enterprise. Such model primarily contributes to the creation of the organizational knowledge. Analyzing the role of middle-level management, we may use the metaphor „strategic nod” or „bridge”, which perfectly reflect the significance of this role. „They act as a bridge between distant ideals on the top managers and chaotic everyday realities of common employees” (Nonaka, Takeuchi, 2000: 160). This model clearly emphasizes the role of middle-level management staff. The importance of this level of management is based on the fact that the managers of his level make attempts to solve controversies between what high-level management staff hopes to achieve and what is really possible to achieve.

Knowledge management requires the alternation of the role of high-level management and linear managers from reactive to pro-active in the sphere of training (mentoring, coaching), creation of business identity of employees, building of organizational culture which facilitates sharing of knowledge in the organization, as well as in the sphere of creating values, essential for customers, employees and shareholders. Human resources managers, in their turn, should perform the function of inspirators of the acquisition and creation of knowledge and creators of changes. The human resources management unit, particularly on the level of a large enterprise, should become a business partner of the enterprise’s administration and direct its effort on the creation and adoption of personnel strategy, of new methods and tools of human resources management, acknowledging the value of human capital of the enterprise.

The most serious problems accompanying the adoption of knowledge management are related to the sharing of knowledge/ information by the

employees with other employees and to the practical application of knowledge (acquired either from other persons or available in databases). Therefore, it is vitally important to achieve a mutual trust between employees and to develop the culture, which would detect tacit knowledge and encourage to sharing it. Organizational culture should primarily facilitate the continuous training, sharing of knowledge between the employees, and the development of teamwork. These aspects of culture enable to generate added value of the employees, regarded as the agents of the continuous progress (Dale, Cooper, 1992: 85).

One more element of human resources management supporting knowledge management is systematic planning and the organizational structure. These elements contribute to the appropriate arrangement of organizational resources, to the development of employees' engagement, and encourage employees to the participation in knowledge management initiatives. Besides, the structure of the organization should enable the build formal and non-formal communication channels for the experience exchange between the employees. The importance of employees searching for the solution of problems with the help of these channels significantly increases in the organizations adopting knowledge management. Such a "soft" environment contributes to the development of the strategy directed at the acquisition of the tacit knowledge of the employees (Dale, Cooper, 1992: 85).

Another element of human resources management supporting knowledge management is the development of the employees. Significant importance is attached to activities related to education and training of employees. B. Dale and C. Cooper consider that trainings should be less concentrated on systems and tools, and more concentrated at people and processes. Trainings should be directed at the learning of employees, they should facilitate the development of teamwork and encourage the sharing and dissemination of knowledge. This element is closely connected with the development and retaining of the organizational culture, which supports training processes in the organization.

According to the contemporary approach to human resources management, it is recommended to take into account all the composite elements of organizational learning processes and tasks directed at the evaluation of such elements (Mikula, 2007: 4).

In the activities related to knowledge management, as well as in the organizational activities a significant role is played by the measurement of achieved results. Therefore, all the benefits acquired in the sphere of knowledge management should be measured using qualitative and (if applicable) quantities parameters.

The acquisition of good results in knowledge management requires interest, acceptance and engagement of all the employees from all the levels in the activities of the enterprise. In the opinion of M. Santosus and J. Surmacz, the systems of motivation and reward become the most important here. However, during the involvement of employees in the procedures of knowledge management may lead to a danger that employees will participate in these action only for the purpose of getting benefits from the motivation program procedures (rewards, etc.) and attach minor importance to the quality of their own contribution (information, knowledge, etc.). The structure of this program should enable the employees to regard the participation in knowledge management itself as a reward. (Santosus, Surmacz, 2001). This is a new challenge that the practicing of human resources management has to face.

2.3 Human Resources Architecture in Knowledge Based Enterprise – model perspective

The appearance of the new innovative conception of management, i.e. knowledge management led to a new approach to the problem of human resources management. One of the key dilemmas in the sphere of human

resources management is the choice of a correct model of human resources architecture. Such model would determine one of the principle functions of human resources management, namely the acquisition of personnel. In the model of human resources architecture the choice of the form of human capital acquisition depends both on strategic and cost-and-benefit factors. According to D. Lepak and S. Snell, the decisions concerning the choice of the correct form of the human capital acquisition should be based on its potential to create value from various skills of employees and on the uniqueness of such skills for individual organizations.

It is possible to speak about the value of human capital resources only when these resources enable the enterprise to implement its strategy, which increases the productivity and efficiency of the enterprise, facilitates taking advantage of market chances and \ or neutralizes emerging threats. The value of human capital should be viewed in the context of the ability of the organization to solve the strategic dilemmas (Wawrzyniak, 2001: 59). The value of human resources and the skills of the employees are the fundamental internal source of competitive advantage of the enterprise (Barney, 1999: 131). Employees contribute to the value of the enterprise if they are able to contribute to the reduction of expenses and to provide greater benefits to the customers. Such value directly influences the economic results of the enterprise; the criterion of value should be one of the key determinants of decision-making, concerning the choice of the form of human resources acquisition (Lepak, Snell, 1999: 35).

The involvement of the employees to the accomplishment of difficult and new projects usually requires more tacit knowledge and specific skills, than the implementation of common, repeated everyday tasks. Activities based on teamwork and requiring the application of unique operational procedures, improving the social cohesion and developing tacit knowledge, contribute to the growth of the uniqueness degree of enterprise's human capital. Unique skills require specific processes of learning and become very difficult to acquire on the

open labor market. The degree of the uniqueness of resources directly influences on their potential in the creation of competitive advantage (Wright, McMahan, 1992: 295-320).

If resources or skills cannot be copied or adopted by other organization, they become a potential source of competitive advantage. The enterprise can develop a strong competitive advantage only by creating value, which is unique and difficult to adopt by competitors (Becker, Gerhart, 1996: 781). Due to a high importance of human capital of this kind, D. Lepak and S. Snell stand for its internal development (within the enterprise).

Thus, the value and the uniqueness of human capital function as strategical determinants of alternative forms of employment. Correlating these parameters, D.P. Lepak and S.A. Snell designed the following architecture of human resources, consisting of 4 models (Compare Picture 14) (Lepak, Snell, 1999: 36).

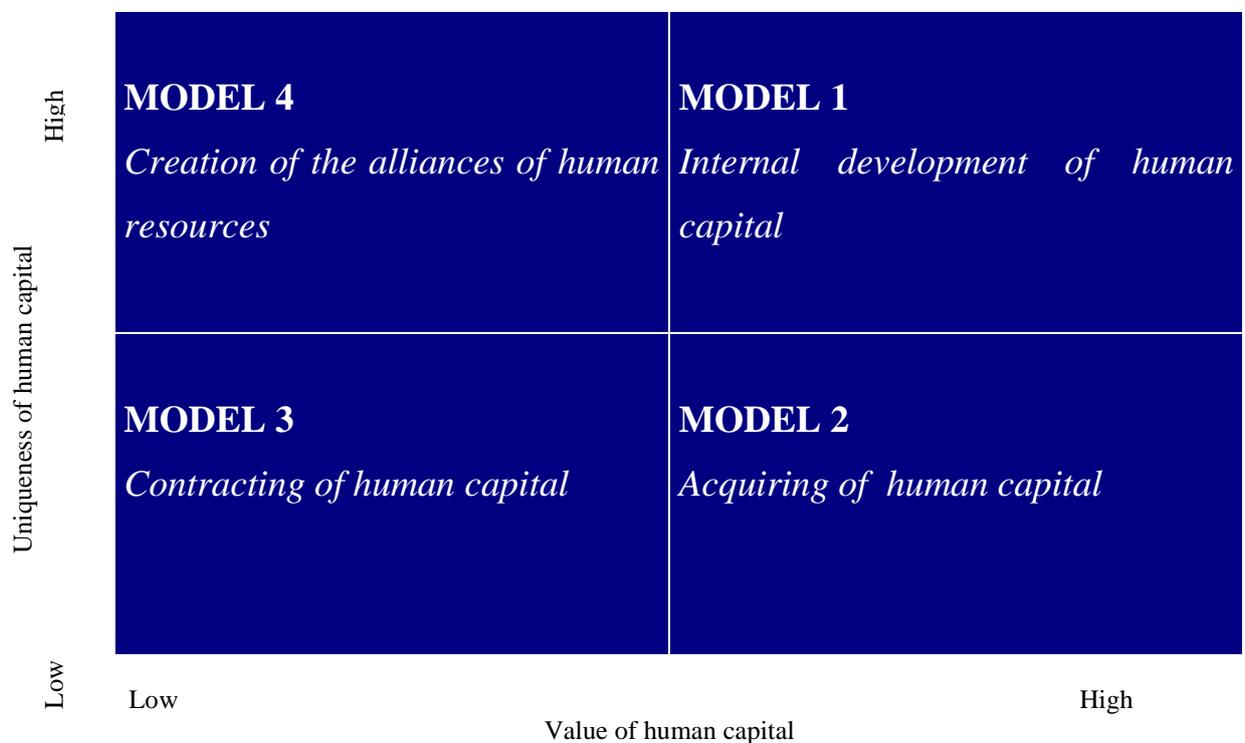
Model 1: Internal development of human capital

This model comprises employees, whose skills are both unique and valuable. These employees are individuals, who may be called knowledge employees, or „people who create value using mainly their heads, not their hands” (Lepak, Snell, 2002: 5-6). Possessing various alternative sources of recruiting the employees with such skills, the authors of this conception suggest using the model of retaining and internal development of human capital.

This model is characterized by considerable investments into the development of unique skills of the organization (intensive training). Caring for the continuous development of their employees, enterprises may sponsor the development of their careers and apply mentor programs in order to encourage employees to construct resources of specific knowledge, which is more valuable to this enterprise than to its competitors. Additionally organizations may adopt

motivational systems, encouraging to the independent learning, to the acquisition of skills and sharing of information within work teams, in order to make employees develop and acquire competences specific to their enterprise. Besides, in order to make sure the employees acquire useful information and feedback about their own results, the development-oriented systems of personnel appraisal should be applied.

Pic. 14. Architecture of human resources



Source: D.P. Lepak i S.A. Snell, *The human resource architecture: toward a theory of human capital allocation and development*, „Academy of Management Review”, 1999, vol. 24, №. 1, p. 37.

Model 2: Acquisition of human capital

In this model the skills of the employees are very important for the enterprise. However these skills are not unique. This model includes people characterized by a significant potential of contributing value to the organization, in spite of the fact that their skills are easy to transform (Lepak, Snell, 2002: 517-543). If the skills of the organization's employees are not unique or specific for the organization, investment to the internal development of human capital might be of no success. (Lepak, Snell, 1999: 38).

The adoption of this model is accomplished through „buying at the market" of human capital, which requires no future investments. This model enables to get benefits from valuable skills, which were developed somewhere else. The selecting of a talented staff directly on the market may also result in a significant reduction of development costs (Von Hippel, Mangum, Greenberger, Heneman, Skoglund, 1997: 94).

This model implies the emphasis on the recruiting and selecting; it gives the organization more confidence of the employment of proper staff members.

Model 3. Contracting of human capital

This model contains human capital, but individuals here possess just general knowledge and this knowledge has a limited strategic value. This is so-called "public knowledge" embodied in the skills that are easy to buy at the open labor market (these skills are regarded as commodity). Limited uniqueness of these skills discourages enterprises from investing to the development of such personnel. There are many alternative sources of the acquisition of such skills and the enterprise may choose the sources, which enable it to reduce the costs of recruitment (ex.: external contracting of personnel) (Lepak, Snell, 1999: 39).

Organizations are able to contract labor without a threat to their competitive position at the market. The following forms of employment prevail in this model: temporary work, labor leasing, etc. Organization's backup activities, which are not its key business process, i.e. office work, real estate management, keeping the turnover, etc. are more and more often carried outside, without the threat to the position of the enterprise at the market.

The use of the work of external employees enables the enterprise to reduce its general costs and keep up the flexibility of management. It gives the opportunity to concentrate development expenses on those skills the employees, which may contribute to the increase of enterprise's competitive advantage. In other words, sensible use of outsourcing enables the organization to increase its potential through the concentration of resources on activities, which bring the most significant added value.

If labor contracting is used often, the activities of personnel units should concentrate on securing the subordination of contracted personnel to the enterprise. This happens through manipulating the terms and conditions of contracts, and through supervising over the personnel's adherence to enterprise's norms, regulations and standards.

Organizations, which acquire human capital at the external labor market, seldom invest into the training and development. If, however, such organization carries out some kind of training with employees recruited in such a way, it concentrates on the following issues: the policy of the enterprise, applied systems and activity procedures (Lepak, Snell, 1999: 40).

The system of periodic personnel appraisal and the system of rewarding should be closely connected with the results of work and concentrate on the implementation of stipulated procedures.

Model 4: The creation of the alliances of human capital

The fourth model contains human capital, which is unique in a certain way, but plays an insignificant role in the creation of value for the customers. Due to the fact of possessing the personnel with a limited value-creating potential, the enterprise may get just insignificant benefits.

Knowledge and skills of such human capital are less codified and more difficult to transfer than usual skills. Nevertheless, they are more accessible for the enterprise than specific skills. Therefore, organizations should use both internal and external sources of acquisition of necessary qualification \ skills.

The term "alliance" is used here to mean the external relations (links \ relationship) between partners, each of which works for better common results (Romanowska, 1997). The alliance means the creation of a resource, which generates value only through the combined effort of the both or of a greater number of participants collaborating with each other. Creating such alliances, all the parties may benefit and use special knowledge of the partner. This means a generating of benefit from someone's human capital and transfer of knowledge without significant expenses for internal development and employing specialists to facilitate such development. In this situation human resources management units take additional actions aiming at encouraging and awarding the collaboration and sharing of information. Instead of investing into the units of human resources, this kind of human resources configuration tends to invest into the partnership and its efficient functioning. In this context, if the enterprise carries out any training, such training primarily aims at the following: the creation of teams, the removal of collaboration barriers, the development of knowledge- sharing technique, communication technique, etc.

In order to facilitate the sharing of information and knowledge transfer (necessary for the common decision-making and securing of high productivity) enterprises may adopt appropriate communication mechanisms, programs of the

employee's exchange, labor rotation, mentor relations, etc. (Nonaka, Takeuchi, 2000). They may also use group awarding, technique and tools of the teamwork appraisal.

2.4 Main elements of Human Resources Architecture in Knowledge Based Enterprise

Recruiting of employees at a knowledge-based organization

Recruitment of employees is a fundamental element of the human resources architecture, important from the point of view of knowledge management. The success of the whole process of knowledge management depends on this stage of activities. During the selection it is useful to make sure if the candidate possesses certain personal features, facilitating knowledge management. Such features include the following:

- Respect and openness of the intellect (facilitating the process of knowledge sharing- the easiness of transforming knowledge and application of available knowledge),
- Innovative approach,
- Creativity,
- Aptitude for taking risk and responsibility (the employee supports the creation of knowledge),
- Aptitude for the continuous development of employee's own personality (search and creation of knowledge),
- The ability to cooperate,
- Aptitude for the collaborative achievement of goals,
- Amiability,
- Respect.

If the employees have the above-named personal features, it will be much easier to create an appropriate organizational culture and climate, open for sharing knowledge.

According to the investigation of Delphy Group, namely culture and the connection of knowledge management strategy to the general strategy of the enterprise (Zack, 1999) are the most important factors of success in the adoption of knowledge management at the enterprise.

Other criterion determining the recruitment of the employee is his competences, particularly his knowledge. Speaking about the recruited employees, it is worth mentioning that the proper definition of their professional profile improves the effectiveness of the whole process of recruitment and selection (Kubicka-Daab, 2002: 243). While creating the competence profiles and describing job positions, one may detect so-called competence gap of the enterprise. Considering this gap while planning the future human resources of the enterprise and realization of it in the process of recruitment and selection will make it possible to eliminate this gap.

Depending on the job position of the employee, the administration of enterprises sets up different expectations, concerning the desired competences, which are necessary to implement job tasks. The key competences are particularly the following: the ability to collaborate in the group, the ability to control and evaluate the employee's own work and the work of the others, communicativity and certainty. The desired kinds of attitude are the following: engagement, leadership skills and charisma, customer-friendly approach, innovative approach, creativeness, a high ethic level and openness.

Such element of human resources management as recruiting is frequently used by enterprises to acquire knowledge. Enterprises using recruiting just for such purposes often regard the employees as objects, as these enterprises do not consider recruiting as a method of acquisition of new employees but as a carrier

of new knowledge. New employee means primarily new knowledge for the enterprise (new experience, new outlook, etc.) (Staniewski, 2003: 211-223).

Knowledge-based organizations tend to change the structure of management activities in the following directions:

- A considerable growth of the participation of new knowledge employees in management processes (specialists, managers), employees with high qualification, facilitating the creating, the application and transfer of knowledge.
- The increase of the importance of flexible forms of employment, time and place of work (Borkowska, 2002: 17).

The alternation of the structure of management to a great extent depends on the difficult macroeconomic situation. The organization's response to it is a new policy of value, the thinning of the organization, recruiting policy, etc., i.e. new personnel policy.

In such a situation enterprises, which apply the recruitment (in its limited form), use mostly internal sources of human resources. The development of their own resources is demonstrates the turn of the organizations towards the importance and value of human capital. During the employment processes enterprises much more often apply its flexible forms, such as labor leasing, temporary work, manager contracts, civil law contracts, tele-jobs, etc.

Continuous improvement and development of methods and tools used in recruitment and selection procedures demonstrate the growing attention of the enterprises to the absence of fortuitous employees, occupying job positions. The job-positions in the organizations should be occupied by employees possessing concrete required competences.

Motivating employees in the knowledge based enterprise

Motivating is a fundamental element in the structure of human capital. It is used to encourage the employees to participate in the process of knowledge management. The objective of motivation activities includes the creation of a sincere engagement of the employees into the adoption of knowledge management initiatives. However, the activities directed at the implementation of this element, bring numerous problems to the members of human resources management units. It is easier to recruit employees willing to acquire, create and gather knowledge than the employees willing to share knowledge. It happens so because people are afraid of losing their advantage over other employees- the advantage, which they had been building for years and acquired owing to their greater experience, better skills, abilities and acquired knowledge, etc. It is due to this advantage that they could feel that the enterprise needed them; and they were sure of their stable job position, they could feel their importance, they could make decisions and even manage other people (Coates, 2003: 5). Therefore, motivational systems should be constructed in the way that employees could respect them, and the applied motivators should have a value recognized by the employees. The employee should be motivated in such a way that he had no fear of losing his job position and willingly shared his knowledge. The rewarding procedures should be based on understanding of value and needs of management units. The more spontaneous the awards are, the better; such awards should be directed primarily at units and facilitate their engagement, etc. The award does not have to be a material thing or its money equivalent. It may have any volume, but it should be recognized by the awarded individual, ex.: designating of an assistant for a manager, allocation of a separate office, parking place, providing non-standard work schedule (Coates, 2003: 5).

One more way to motivate the employees to the participation in knowledge management initiatives is the introduction of the appropriate reward system. Such system should include the following:

- The encouragement of taking risks; the purpose is to reward creativity in the solution of everyday problems,
- The emphasis on the group rewarding; the purpose is to stimulate collaboration and sharing of knowledge between the team members (Garavan, Gunnigle, Morley, 2002: 466).

Such system should also include the awarding of employees for their individual contribution to the overall benefit of the group, for sharing of knowledge and for their innovative approach.

Speaking about the motivating the employees to share their knowledge, it is worth mentioning a specific motivation method, referring to the internal moral duty of the employee and to the concern for the overall benefit instead of the employee's own benefit. Such an approach changes the attitude of the employee towards knowledge as a private resource for his attitude towards knowledge as a public resource, which belongs to the whole organization.

A typical way of motivating the employees and changing their attitude is the application of an important instrumental tool of human resources management, namely the system of periodic personnel appraisal. This is a repeatedly effective method of awarding the employees engaged in the actions of the enterprise's administration. The system of periodic personnel appraisal promotes the employees' attitude related to the acquisition of knowledge, its creation, gathering and sharing. The system should be based on a clear identification of competences related to the sparing of knowledge and standards of certain job positions, as well as on knowledge possessed by the employees and the degree of its implementation at their job places.

Pilot investigation of knowledge management conducted by B. Wawrzyniak, demonstrated several typical methods of motivation applied by

organizations practicing knowledge management. The example of a well-functioning means of motivation of the employees to sharing knowledge with the administration is the system of rationalization proposals, which consists in the acquisition of valuable suggestions, facilitation proposals, suggestions concerning the modification of company's activity, etc. from employees; this kind of actions, in the opinion of the company's administration, is a form of the acquisition of knowledge from the employees. The encouragement tools applied within such system may have various forms: from financial gratification for the author of the accepted proposal to the additional award for the author of the best innovative suggestion among all the suggestions submitted within a certain period of time (ex.: a year). Other benefits for the employees participating in such procedures may be the transfer of an employee to the team, which implements projects both within the enterprise and outside it (in the enterprise bases its work on the principle of project management). Team work is also considered to be one of the motivation forms of the employees. Participation in such teams enables the employee to share his knowledge with other team members, as well as to acquire new knowledge from fellow-employees and the experience from the implementation of team projects. The participation of the employees in numerous projects indicates a great value of this employee and results in the referral of this employee to further training, intended to improve his skills and competences. Such employees usually act as internal experts and are often promoted.

Another form of motivating the employees may be the awarding for the sharing of knowledge, news, information acquired from books, magazines, etc. A frequent form reward is a material gift offered by the employees to the employee, who is considered to be the most polite, helpful, and most willingly sharing his knowledge and experience.

One more form of the motivating of employees practiced recently all over the world, is the organization of labor appointments dedicated to their recent

professional problems. In most cases during these appointments emphasis is made on new products and services introduced to the market, on the opinion exchange of the employees and on the acquisition of remarks and suggestions from employees. Using this form of motivation, measures should be taken to avoid expanding solely over technical or information issues.

An important method of acquiring new knowledge by the enterprise is the delegating of the employees to other organizations in or outside the country. Some organizations carry out the exchange of employees only within the enterprise or capital group, others conduct exchange procedures with their partners-other enterprises in the same branch. Such procedure is very useful, as it enables the enterprise to get a double benefit. The delegated employee brings new knowledge; the enterprise acquires the experienced employee, who is motivated to further work. Such delegating, alongside with its merely touristic value, is a form of award.

A group of researchers conducted by B. Wawrzyniak, which I mentioned in Chapter I, proved, that the main element of human resources management, used for motivating the employees to the participation in the adoption of knowledge management initiatives, is the development of the employees. The researchers considered the factor of variability of enterprises, expressed (inter alia) in their competitiveness.

The elements of human resources management, which most successfully motivated the employees to knowledge management activities at **leading** enterprises were the following: the system of training of the employees (92%), system of training of the management staff (77%), the system of the improvement of the employees' skills (69%) the system of the improvement of the activity of management staff (62%) demonstrated the following most frequently applied elements of human resources management: the reward system (76%), the system of training of the employees (68%), the system of recruitment and selection (64%) and the system of the improvement of employees' skills

(60%). At the enterprises with a market position, **typical** to the majority of enterprises, the following elements were most frequently applied: the system of recruitment and selection (60%), the building of career development ways for the personnel (60%), the system of training of the employees (50%) and the system of the improvement of employees' skills (50%). At the enterprises with the **weakest** market position only one element of human resources management intended for the supporting of activities related to the acquisition, creation and sharing of knowledge was applied. This element is the reward system (100% of indications).

More often enterprises applied the following development activities: training and improvement of the skills of the employees and the management staff. The weaker the market position of the enterprise is, the more often such elements as recruitment \ selection and the building of the development ways for the personnel were applied instead of training and development activities. Probably this dependency is related to the costs of implemented actions. The system of training and development was significantly limited at several enterprises due to the appearance of considerable budget gaps during the period of economic stagnation. In such situations only the employees with remarkable achievements and engagement into work were sent to the trainings, and trainings thereby acquired a motivational character.

As soon as the administration of the enterprises acknowledges the importance of the systems of awarding the employees' activities in the sphere of knowledge management, it has to initiate the adoption of a specially projected motivating system for the employees, in particular, reward systems, systems of material and non-material encouragement.

The development of „knowledge employees”

The development of the employees and the improvement of their skills together with its motivational function is one of the applied methods of knowledge acquisition. The development of human resources also contributes to the creation of knowledge by the employees. Possessing information, knowledge or experience, such employees have a greater creative potential. These greater opportunities may be the source of inspiration, new solutions, patents, enterprise's licenses, etc. Therefore, trainings aiming at the development of employees' skills are a method of knowledge acquisition not only by employees, but also by the enterprise. However, it is important to remember that human capital is not the enterprise's property.

The employee's own will, desire and aptitude to work for this enterprise are the key factors of the belonging of this employee to the enterprise. Therefore, there is a threat that the enterprise may never get a payback of the investment in this employee, as he may leave the enterprise at any time. It is vitally important to take all possible actions to prevent the leaving of valuable employees or (if such employees are regarded as knowledge-bearers) to prevent leakage of knowledge they possess. The means to prevent such leakage is the codification of knowledge.

Training activities of the enterprise should bring maximal benefit to the enterprise. Therefore, the administration of the enterprise takes appropriate actions aiming at the maximalization of benefit and minimalization of costs. Such actions may have the form of the business training trips of the employees responsible for the organization of the similar „mini-trainings” for other employees of the enterprise. These actions may lead to a considerable reduction of costs and attach the motivational impulse to the training activities.

In the era of Knowledge-Based Economy the process of human resources development should proceed in the direction of the creation of learning organizations. This can be achieved in the following ways:

- Supporting of employees in the process of creation and application of knowledge,
- The creating of collaboration networks,
- The engagement into the “double loop” learning process (Garavan, Gunnigle, Morley, 2002).

Continuous acquiring of knowledge, sharing of knowledge between the employees, common learning, and application of knowledge in practice may contribute to the growth of the innovation level at the enterprise, as well as to the facilitation of numerous business processes. In the new economy the learning of the whole enterprise and of its employees becomes the main factor of social development. Nowadays the market success primarily depends on the organization's and individual's ability to learn. The opinion that learning through all the life should be an integral part of professional activity is more and more wide-spread. In knowledge-based organization the continuous learning becomes the element of everyday work.

An enterprise which intends to become a knowledge-based organization should intensify the implementation of quality trainings (Yahya, Goh, 2002: 462). The development quality-oriented culture of the enterprise becomes vitally important. The overall understanding of this new quality conception by employees and the management staff of the enterprise will launch the processes of overall organizational learning leading to the continuous development. For the facilitation of codification (documentation) of knowledge, sharing and creation of knowledge, the most important training activities are those, which are directed at creativity, team building, and "group emotional intellect development" trainings. The trainings directed at team building provide skills and tools of the effective collaboration; "group emotional intellect trainings"

develop confidence, identification and effectiveness. Trainings directed at the development of emotional intelligence provide confidence, identification and efficiency of team members. Such trainings create the background for the efficiency and creativity of the whole team, they create leadership, they influence on the alternation of the mission and values of the enterprise. All these skills are vitally important for the launching of knowledge management processes; they promote activity of employees in the creation, documentation and sharing of knowledge.

Leadership skills are needed for the middle management, because this staff group of decision-makers initiates changes in the enterprise. This staff group is also responsible for the moral support of employees during a difficult period of changes. Leadership skills should be supplemented with communication skills, strategic thinking, collaboration abilities, spiritual leadership and a spirit of enterprise. Trainings related to the mission and value of the enterprise, are intended to inform the employees (and management staff) about the dependency between the strategy of the enterprise and knowledge management, and facilitate the selection of a proper direction of knowledge management activities (Yahya, Goh, 2002: 464). Activities related to such spheres of knowledge management (documenting, sharing and creation of knowledge) may be successfully supported by training activities directed at the development of skills and techniques of problem solution and methods of management. In the conditions of quickly developing computerization the training activities are implemented with the help of information technologies. Such solutions give vast opportunities to reduce training expenses and contribute to the development of pro-active approach of employees. Application of Internet or Intranet for training purposes (so-called e-learning) brings the following benefits:

- Wide and practically unlimited accessibility of knowledge for employees (from every work-place and at any time),

- The choice of training conditions is made by the employee,
- The choice of the preferred knowledge type (concrete training module) is made by the employee.

The opportunity to fill in convenience of learning and make the learning process more user-friendly. The main reason for the application of the methods of e-learning is the necessity to keep, systemize and efficiently apply knowledge possessed by the employees.

One more knowledge management initiative becoming more and more popular is the introduction of the institution of the internal coach. Thus, every executive of the enterprise's unit performs a temporary function of the coach for their fellow- colleagues. Such an employee during training procedures (which he conducts) shares his knowledge (concentrated around his department) with the employees of other units, which require such knowledge (ex.: the chief manager of human resources management unit of the computer production company coaches the programmers designing a knowledge management tool). The methods of coaching and mentoring are quite frequently applied initiatives of sharing knowledge between experienced employees and their younger colleagues.

Among the knowledge creation initiatives applied by enterprises the initiative of brainstorm is very popular. Also quality tools of problem solving are frequently used, as well as trainings directed at the acquisition of professional knowledge. Often enterprises give the employees an opportunity to proclaim their ideas (improvement suggestions), or they create Internet discussion forums for employees. Team games and simulations are also a popular method of generating knowledge. Such activities are most frequently carried out during the integration events, trainings and recruiting. The subject topics of such games may be various and depend on the strategic needs of the enterprise.

The above-mentioned investigations enable to notice a general tendency to invest to the quality of human capital. Such quality is the reason why the administration of enterprises strives to keep the best employees and to use their opportunities in the process of creation value for customers and shareholders. Taking care of their employees, several enterprises adopt the system of competence management and build competence development plans related to the plans of selection. Enterprises take actions aiming at the identification of employees with a high potential (for such employees specific training and development programs are developed). They also take the following actions: the widening of the labour contents, the work in different departments of the enterprise, business trips to other departments of the enterprise, etc. The applied programs are primarily intended for the identification of successors for future management positions, expert positions or other specific jobs related to internal consulting.

At the end of the present research, which shows the substance of knowledge management in knowledge management organizations, it would be worth presenting the results of the investigation of the research team conducted by B. Wawrzyniak, which in a complex way demonstrate the procedures of the support of human resources management, progressing in the direction of knowledge management. Among the factors from the sphere of human resources management, which support knowledge management, one may discover the following factors: organizational culture, qualification of the employees, qualifications of management staff, and motivation of management staff and employees. In the enterprises with the strong market position (leaders), the most frequently applied factors were the following: qualification of the personnel (89% of respondents) and management staff (84%) (Compare to Picture 30). The other supporting factors were the following: organizational culture (68%) and motivation of management staff and employees (51%). At the enterprises, the position of which is stronger than that of their typical competitors, the

situation is quite different. The most effectively facilitating factor at these enterprises was the organizational culture (79%), followed by the qualification of management staff (77%), the qualification of the employees (72%) and the motivation of the whole personnel and employees (54%). At the enterprises, the position of which is typical to the majority of organizations, the situation was very much similar to that of the market leaders. Thus, the most effectively facilitating factors were the following: the qualification of the whole personnel and employees (81% of respondents each), organizational culture (50%) and motivation of the whole personnel and employees (31%). At the enterprises with the weakest market position the facilitating factors were the following: organizational culture and the qualification of the whole personnel and employees (67% of respondents each). The least effectively facilitating element was the motivation of the whole personnel and employees (33%). The results of the investigation demonstrate that the most influential factors in the sphere of the supporting of actions related to knowledge management initiatives applied at the enterprises are qualifications (of both management staff and common employees). Somewhat less influential factor was the motivation of the whole personnel and employees.

Chapter III

THE ROLE AND A PLACE OF PERSONNEL APPRAISAL IN A PROCESS OF HUMAN RESOURCES MANAGEMENT

Periodical personnel appraisal procedures have a complex character. They enable to evaluate the results of work implemented within a certain period of time; they make it possible to plan the tasks for the future and to specify the development needs of the employees. They should follow the preliminary defined rules, criteria and techniques, familiar both to the appraising and appraised employees. They can also be a base for making decisions, concerning the current and future tasks, personnel policy, and salary issues. Personnel appraisal is also a strong motivational tool and can be a perfect source of information for managers about current and future problems in personnel management.

By L. Zbiegień-Maciąg, personnel appraisal can be applied in various situations, namely (Zbiegień-Maciąg, 1996: 99):

- During the personnel recruiting procedure for the purpose of getting the best employees,
- Estimating, if this individual will be a successful employee for the organization,
- Personnel appraisal procedures can provide feedback information about the results of work, they lead to the objective evaluation of the ambitious personnel and stimulate the weak employees,
- Personnel appraisal can be used in constructing of the communication channels: it can facilitate the procedures of communication with the subordinates and superiors,
- During the identification of the spheres where training will be necessary,

- During the definition of carrier development ways,
- During the specification of salary rate,
- During the identification of the best employees and candidates for dismissal,
- During the construction of the image of the company having an effective appraisal system,
- As a part of the policy of countermeasures against negative phenomena, like producing of low-quality goods.

The relations between the periodical personnel appraisal and other personnel management elements are numerous and complex (Compare picture 15).

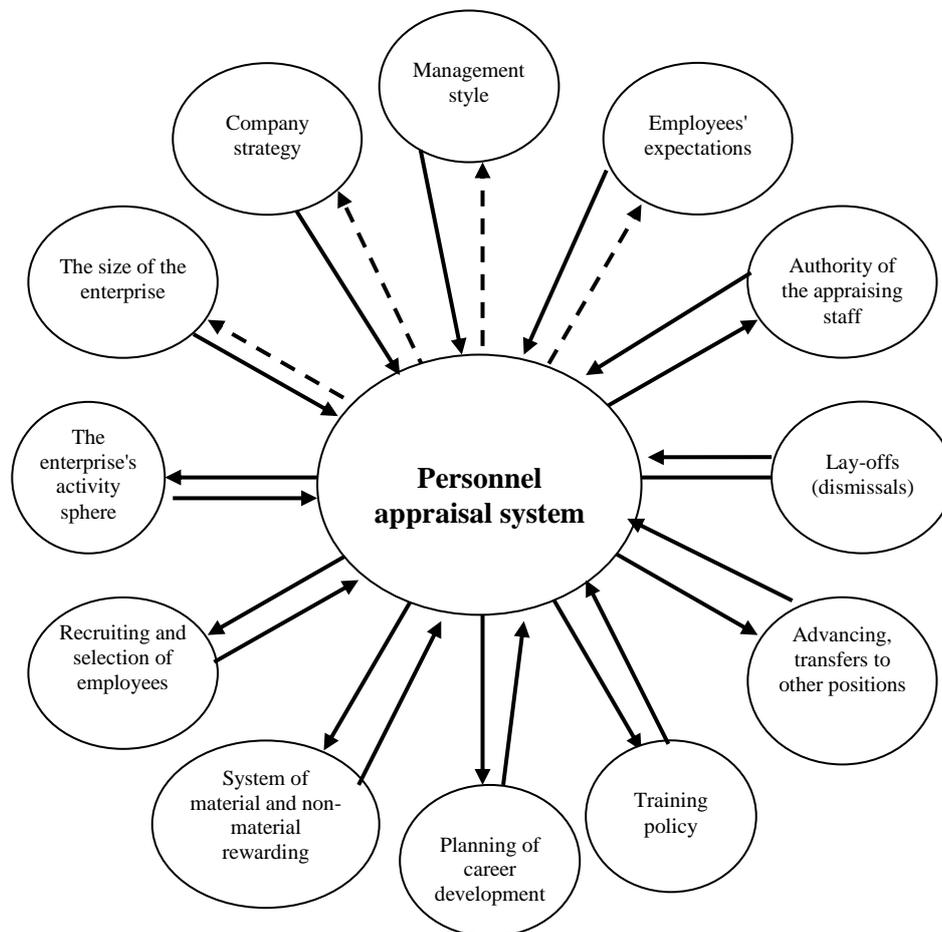
Personnel appraisal should be applied in the current personnel policy processes and while defining the personnel strategy of the company.

„The strategy of human resources management is a close set of actions including the definition of long-term goals, formation of rules, plans, and programs of activities, directed at the creation and application of organization's human capital, securing the solid competitive advantage” (Pocztowski, 2003: 60).

Exactly in this sphere one can distinguish the fundamental role of the personnel appraisal in the process of the development of knowledge management system at the enterprise.

The application of the personnel appraisal is related to the implemented strategy of the enterprise. Enterprises, which implement the strategy of development or defensive strategy, attach more attention to the personnel appraisal. Enterprises, which did not elaborate their own strategy, do not attach sufficient importance to the personnel appraisal (Atamańczuk, 2001: 53).

Pic. 15. The place of personnel appraisal system in the personnel policy of the enterprise



Source: M. Sidor-Rządkowska, *Constructing up-to-date personnel appraisal systems*, Economic Officinal, Kraków 2003 p. 22.

„The planning of human resources management procedures requires a constant answering to the question about the quality of human potential in relation to the organization's strategy. And due to the systematic personnel appraisal it is possible to come to concrete decisions about the next steps in human resources policy, leading to the employment of new personnel, to necessary training or to the organization of employment procedures” (Janowska, 2002: 116).

The appraisal for the purposes of human resources planning is based on the analysis of work and actual work positions. The appraisal enables to take rational decisions concerning the recruiting of the personnel. The appraisal also enables to compose a personal profile of the recruited candidate. The appraisal should accompany each stage of recruiting and selection process (Janowska, 2002: 116-130). The candidates for a certain job position may be found at internal and external labor markets. The recruitment of the candidate from the internal market, i.e. from own organization, is an easier and less expensive task. One can implement an accepted personnel strategy and promote enterprise's own and proved employees. To do it, one should analyze the description of job positions, professional profiles and results of the personnel appraisal. The final recruitment of candidates is carried out during the selection.

One of the selection methods is Assessment Centre (Jamka, 1997: 60). This method enables to define the potential of the personnel, its training and development needs; it enables to identify the candidates, which can be employed to a certain position or transferred to the position, which is different from the one he currently occupies.

The system of periodical personnel appraisal facilitates the acquirement of valuable information necessary for the effective motivation of the personnel. Results and conclusions of personnel appraisal can be used in salary grow procedures and tariff rate shifting. The system of periodical personnel appraisal is intended to facilitate closer ties between the systems of reward and the results of employees' work. The application of personnel appraisal may lead to the improvement of motivation level of the employees and to the fair distribution of financial incentives and bonuses for the employees.

By M. Sidor-Rządkowska, the employees regard the personnel appraisal system as fair only if there is a close relation between the results of work and the rate of bonus or award (Sidor-Rządkowska, 2000: 174).

To ensure a successful motivation it is not enough to tie motivation and financial sphere. Non-material issues shall also be included into the motivation increase procedures. The system of periodical personnel appraisal initially has a mobilization and motivation character, because it encourages the employed personnel to improve its qualification (Kaczyńska-Maciejowska, 2002: 46-49).

Depending on the result of personnel appraisal, the transfer of personnel - both vertical and horizontal can be carried out. We can differentiate advancing, dismissal, demotion and transferring.

Transfer of an employee is a very serious challenge for the training policy. It is vitally important to pick up an appropriate training program, which would enable the employee to feel comfortable at a new job position.

The system of personnel appraisal is also used in the procedures of dismissal of personnel.

It is necessary to carry out an explanatory talk with a negatively appraised employee. This talk is intended to define the reason for the negative appraisal (why the employee works badly). Maybe the reason of bad work does not depend from the employee and \ or is temporary and it will be possible to avoid dismissal.

„Such talk is intended to clarify, that the employee inefficiently performs his obligations because of the following reasons:

- The employee is not able to perform his obligations- there is a considerable difference between the abilities, necessary to implement his work and the qualifications of this employee,
- The employee does not want- one can observe the difference between the personal opinion of the employee about his duties and the expectations of the management of the company,
- The employee cannot perform his obligations – the organizational structure of the company makes it impossible to perform his professional obligations” (Sidor-Rządkowska, 2000: 189).

Before taking any actions it is necessary to check how long the employment period of the employee is, because it can become obvious that the negative personnel appraisal of this employee is caused by the improperly accomplished adaptation period. The method of "full load" without a proper preparation proves ineffective. Young employees should undergo a diligently elaborated preliminary training. It sometimes happens so, that the manager comes to a conclusion that an improper employee was hired. Therefore, recruitment and selection procedures shall be repeatedly analyzed in order to prevent such faults.

If an employee with a long term of service gets negative personnel appraisal, it is necessary to find out whether the requirements, concerning his job position changed, and if they really changed,- whether the employee was sufficiently trained. Maybe the employee has problems, which are not related to his work or he suffers from the "burn-up syndrome". In such case it is necessary to change the scope of his professional duties.

The decision about the dismissal shall be taken only after a proper analysis of positive and negative issues related to this dismissal.

Periodical personnel appraisal is intended to facilitate the identification of the best employees and the successful planning of their individual career development ways. Companies apply various approaches to career development ways of their employees. We can differentiate the following approaches (Kozmiński, Piotrowski, 2001: 437):

- "Invisible hand" approach- the organization is not involved in the career development ways of its employees, as it presumes that the best ones will cope with these ways anyway, and those who are not strong enough, should blame themselves for the failure in career development. In such situation more aggressive employees, not the best ones, are promoted.

- "Searching for pearls" approach- it is supposed that there is a group of talented employees in the company, and this group should be taken good care of. The task of managers is to discover this group and securing its members the promotion opportunity,
- The approach of planning the careers- the balancing of organization's needs and opportunities and individual aspirations and professional plans of the employees. Career planning in such case has a character of negotiations. Professional career is a common concern of employees and managers.

The word "career" is chiefly associated with a vertical advance. However, it is true that in the flat organizational structure of the company the number of the positions for the potential advance is less that in the companies with a ramified organizational structure. One should bear in mind that a good specialist does not always prove as a good manager. Therefore, while planning the career development ways one should consider a horizontal advance as well. An employee striving to acquire a certain job position should define his own strategy, his goals and ways to achieve these goals.

Already during the qualification interview it is necessary to analyze the abilities, skills and aspirations of the candidate for a job position. The employee should have a conception of his own career progress and define the approximate time of the realization of his career. It would be useful to come back to the qualification interview during the procedure of personnel appraisal of this employee. Exactly at this stage it is necessary to check the stage in the realization of career development plans, to review the existing difficulties and then make appropriate changes.

The results of personnel appraisal enable to select candidates for the personnel reserve (current, development and perspective) for the management positions and to improve the qualification of the employees by sending them to the training. „To attach the features of a well-thought and well- executed

strategy to the actions of personnel training (consisting not just in sending incidental employees to incidental training courses) a periodical personnel appraisal system is needed. It enables to accomplish a fair analysis of training costs.” (Sidor-Rządkowska, 2000: 175). In actual practice the following types of analysis are applied (Sidor-Rządkowska, 2000: 175-178):

- *the analysis of the efficiency of certain employees.* On the basis of personnel appraisal system, the advantages and drawbacks of each employee are defined, as well as the training plan of every employee;

- *the analysis of the requirements of a job position.* It is vital to specify whether an employee occupying a certain job position, possesses appropriate knowledge and abilities, necessary to perform his duties efficiently. If not, such employee should be sent to the training;

The decision about the advance should be supported by the comparison of knowledge, abilities and experience of the employee to the requirements of the job position. A candidate for a higher position should be appropriately trained in order to minimize the possibility of fault and promotion of an improper employee.

- *the analysis of the functioning of the company as a whole.* Advantages and drawbacks of the company are defined. On the basis of such analysis the departments, which sufficiently affect the functioning of the company, are identified. The analysis also enables to identify and train the key employees of the company;

- *collecting of the opinions of employees performing management functions and executive functions.* The employees should be aware what their own advantages and drawbacks are, and what kind of training they find consider to be the appropriate one.

The personnel appraisal system should be closely related to other issues of personnel policy. The interrelation of various elements of personnel management should take place under the condition of the feedback. Such

interrelation should affect the quality improvement of the personnel policy procedures (Atamańczuk, 2001: 25).

The application of personnel appraisal should be based upon the endeavor to achieve the defined goals of personnel appraisal.

The personnel appraisal system, if planned and applied correctly, is of great benefit both to the employee and to the organization (Compare: Table 2).

The employee gets information, concerning the perception of his behavior and work by his superior. Also the employee discovers his advantages and drawbacks, requiring the improvement. What is equally important is that the employee has an opportunity to compare his results with the results of his fellow-employees. If the appraisal is fair, it has a positive effect upon his relations with his fellow-employees.

From the perspective of the organization, personnel appraisal can be applied at any stage of personnel management. Already at the stage of employment it can be used to evaluate the efficiency of the candidate for a certain job position. It enables the employer to take a more correct decision whether a candidate fulfils the necessary requirements, or whether the abilities of the candidate could be more useful on other position in the structure of the organization.

The results of personnel appraisal can be also useful in the process of decision-making about the transferring of the employees, in the estimating which employee does not fulfill the assigned tasks efficiently and may be transferred to another position, or whose profile of competence coincides with that of an ideal candidate for a certain position. Thus, the employee becomes confident of the efficiency of the employee on a certain job position.

If the opportunities of the employee exceed the expectations and requirements of a certain position, the employee may advance to a more responsible job position. In the exceptional situations the appraisal results may be a sufficient ground for the dismissal of the employee.

Table 2. The benefits for the employees and organizations caused by effective personnel appraisal procedures

Employees	Organization
Satisfaction of the need to possess information about the behavior and work results of the employee	Improvement of quality and productivity of labor of certain appraised employees and groups
Satisfaction of needs for the personal comparison	A closer interrelation between rewarding (pay rise, bonuses, awards) of the employees and the results of their work
Widening of the feeling of safety due to the familiarity with the requirements and expectations of the organization	Improvement of the employees' motivation, a better application of their potential and a closer integration with the organization
Improvement of chances for the professional success due to the familiarity with the employee's own advantages and drawbacks.	Identification of the best employees and planning of their individual career development ways
Widening of the education and career development opportunities and ways	Identification of the worst employees and transferring them to lower and less responsible positions, involvement of them to an intense training process or dismissal
Impact upon the formation of communicative relations with the superior.	Identification of employees' training needs and gathering of the information necessary for the elaboration of the training plans in the organization.

Source: A. Ludwiczynski: *Human resources management. Creating the organization's human capital*. Warsaw: PWN 2006 p. 311-312.

In the motivation sphere the appraisal results should be a bench-mark for the elaboration of an efficient system of encouragement and rewarding. One

more sphere of the personnel appraisal application in the planning of individual career development ways.

In the sphere of training and development the appraisal is effective in the identification of the advantages and drawbacks of the employees. Personnel appraisal procedure should be the benchmark for the planning of individual development programs, which are supposed to improve the effectiveness of work.

It should be emphasized that the results of the personnel appraisal contribute to the improvement of internal communication, as they provide the employees with the information about the quality of their work.

Chapter IV

RESEARCH METHODOLOGY

The authors of scientific works, analyzing the subject of research, implicate the acute necessity to introduce the motivation systems, encouraging the employees to a more active engagement into the implementation of knowledge management programs, indicating which requirements should be fulfilled to facilitate the development and the acquisition of better results by knowledge management activities.

Like it was mentioned in Chapter II, there is a typical way of motivation of employees, which presupposes the application of the appropriate tool, i.e. the system of periodic personal appraisal. It is worth noticing that in some organizations this tool was regarded as the most effective method of the stimulation of the employees, engaged in the knowledge management activities, carried out by the administration of these organizations. According to the system, the activities, related to the acquisition, creation, gathering and exchange of knowledge were promoted. In some organizations criteria of knowledge exchange composed as much as 30% of all the criteria applied for the appraisal. In many enterprises one of the system features was a precise definition of the competences, concerning the knowledge exchange, and standards used at certain positions. In other enterprises the knowledge level of the employees and the degree of the application of knowledge at the positions occupied by these employees were determined.

The appraisal, among a large scale of roles it plays, is primarily a tool designated to facilitate the formation of certain attitude of the employees. Therefore, along with the motivation system, it can be used to facilitate the development of knowledge management programs or certain initiatives in this sphere.

The above- mentioned investigations stipulated the priceless role of managers in the development of knowledge management. Therefore, the directing of certain personnel appraisal procedures of the administration personnel to the formation of proactive attitude towards knowledge management seems obvious. It is not about the formation of the understanding the significance of knowledge management in the enterprise, but primarily about formation of the position of the engagement into the implementation of the knowledge management initiatives / programs and making effort to form the appropriate attitude of the subordinate employees, so that the idea of knowledge management expanded from the top to the bottom of the organizational structure. For this reason the tools, designated for the appraisal of the employees of the administration level, were analyzed. The idea of the investigation was the identification of similarities and differences between the tools of personnel appraisal applied in the enterprises with different levels of knowledge management, and the specification of the dependency of these tools and the levels of knowledge management achieved by the enterprises. The author presupposed, that personal appraisal tools, configured in the appropriate way, influence on the development of knowledge management practices. This would mean that the evaluation (within the framework of specified personnel appraisal procedures) of certain criteria (fundamental from the point of view of knowledge management), one of the determinants of the effective knowledge management.

The investigation was carried out in the research and development organizations (RDU), where the human and his knowledge is supposed to be the main source of competitive advantage, together with the efficient organization of "knowledge procedures", such as acquisition / creation of knowledge, exchange, gathering and application of knowledge aiming at (for example) the elaboration of new technology or material. Thus, it is worth mentioning that

here we mean enterprises based on development and improvement of knowledge management processes.

Investigation materials for this research was acquired thanks to the investigation project "Research and development organization as a knowledge-generating organization- models of functioning" conducted in 2009-2011 and financed by University of Finance and Management in Warsaw This project was inspired by previous initiatives of the author, related to knowledge management areas.

The procedural conception of knowledge management in the organization was accepted as a basic research conception. Considering the terminological proposals of D.J. Skryme (Skryme, 1999: 39), W.R. Bukovitz and R.L. Williams (Bukovitz, Williams, 1999: 2) it was acknowledged, that knowledge management is a collection of voluntary and repeated actions, including:

- Acquiring of knowledge from the environment,
- Application of knowledge in the organization,
- Evaluation of knowledge assets in the organization,
- Retention and development of knowledge assets,
- Sale of knowledge in the form of new products, services, technologies.

Besides, a considerably easy access to subjects of investigation and numerous publications (ex.: state reports, Internet pages of research and development organizations) enabled the author of the present research to collect precise information, closely connected with his own interests and goals of the present research. The projecting of the investigation in this way made it possible to acquire rich empirical materials, which form the basis of this habilitation research. The fundamental goal of the investigation was the identification of the influence of personnel appraisal procedures, applied in the research and development organizations, on the process of knowledge management. Simultaneously, the achievement of cognitive and practical goals was presupposed in the present research.

- Identification and descriptive characteristics of relations between personnel appraisal tools, applied in the investigated enterprises, and knowledge management,
- Identification of a definite trend in the constructing of personnel appraisal tools (which criteria are appraised?).
- **Practical goal:**
 - The definition of instructions facilitating the projecting of the periodical personnel appraisal tools in the knowledge management enterprise. .

The fundamental hypothesis of the research was formulated by the author in the following way: the level of knowledge management, achieved by a research and development organization depends on the personnel appraisal tool, applied in this organization.

- *The dependent variable* is the achieved level of knowledge management
- *The independent variable* is a set of applied tools of personnel appraisal.

The subjects of the analysis in the implemented research work were the tools of the periodical personnel appraisal procedures, facilitating the knowledge management procedures. The fundamental questions put by the author were the following:

- What is the knowledge management level in the research and development organization (RDO)?
- Does the tool applied in the research and development organization (RDO) facilitate the introduction \ development of knowledge management program?

- What is the set of criteria of the personnel appraisal (contained in the appraisal tool) most efficiently stimulate the employees to engage in the adoption of knowledge management programs?

One of the first steps in the implementation of the investigation was the elaboration of the investigation tool, namely the Questionnaire. This Questionnaire can be found in the Appendix №1.

The next step was the pilot examination of the research tool aiming at its eventual improvement.

The task of the Questionnaire, applied at this stage of the research was a general diagnosing of the development of actions related to knowledge management, implemented in the research and development organizations. The investigation enabled to identify various levels of knowledge management in research and development organizations (RDO). To differentiate between the levels of knowledge management the conception of R. Maiera (Maier, 2002: 393) was applied. This author is a representative of the "hard" approach towards knowledge management and mainly emphasizes information systems. However, the advantage of his conception is the fact that IT-tools are analyzed with a due regard to the human factor. R. Maier specified 62 functions of knowledge management systems, which were classified by him (for their better interpreting) into seven groups:

- Searching for knowledge,
- Presentation of knowledge,
- Publication of knowledge, structuring and gathering of knowledge (organizing of knowledge resources –data bases, etc.),
- Dissemination of knowledge,
- Communication and collaboration in the sphere of knowledge-related processes,
- Training, using the informational systems and tele-learning,

- Administrating of knowledge management systems (Maier, 2002: 393).

R. Maier, using the empirical investigation, checked whether these functions are supported by knowledge management systems. If a certain function was identified in the enterprise, the respondents participating in the investigation were to specify how frequently this function was applied. Moreover, the respondents had an opportunity to comprise a list of the specified functions, what enabled the researcher to compose a comprehensive list of functions of knowledge management systems functioning in German enterprises. The next step, taken by R. Maier was a classification of identified functions into three categories:

- Integration functions of knowledge management systems,
- Interactive functions of knowledge management systems,
- Linking functions- „platform functions”.

The first category (Integration functions) contains 28 functions, the fundamental task of which is supporting the knowledge processes through the non-synchronized exchange of explicit knowledge between its users. The following groups of functions are apparent in this category: searching for knowledge and presentation of knowledge, acquisition, publication and organization of knowledge, training using the informational systems and administrating of knowledge management systems (Maier, 2002: 394).

The second category (Interactive functions) contains 20 functions, responsible primarily for the sharing of knowledge, common development of knowledge by experts and \ or knowledge-based employees or between deliverers and searchers of knowledge. The following groups of functions refer to this category: communication and collaboration in the sphere of knowledge-related processes, (application of such tools as e-mail, video- conferences, audio-conferences, chats, etc.), tele-learning and administrating of the knowledge management systems.

The third category („Platform functions”) consists of 14 functions, linking the integration and interactive knowledge management systems. The fundamental task of these functions is, on one hand, the linking of knowledge elements with the knowledge network (IT- tools), on the other hand, widening of the context of the application of knowledge management systems functions aiming at searching for knowledge and its presentation. These functions tend to eliminate the gap between the integration and interactive knowledge management systems by supporting of the direct interactions between creators (authors) of knowledge and its users. Functions, linking the integration and interactive knowledge management systems are grouped in the following way: searching for knowledge and its presentation, acquisition of knowledge, publication and organization of knowledge, administrating of the knowledge management systems.

According to the results of R. Maier's empirical investigation, in the organizations, regarded as the pioneers in the introduction of knowledge management systems, one can distinguish four main stages of the introduction of knowledge management systems in the enterprises:

1. Basic level, related to knowledge management (simple and general IT- tools> Internet-platforms, Intranet, e-mail).
2. Integrated knowledge management systems (advanced level of knowledge management, supporting the search and codification of knowledge; it enables the administering and structuring of knowledge resources).
3. Interactive knowledge management systems (advanced level of knowledge management facilitating the localization of experts, establishment of contacts and collaboration with them, using contemporary IT- tools, facilitating the communication).
4. „Platform” knowledge management systems (the highest level, linking the Integrated and Interactive levels to ensure a high degree of

the contextualization of knowledge bases). This level is designated for the consolidation of the individuals, creating knowledge (authors) and individuals searching for knowledge. It presupposes a very personalized way of consolidation of employees having similar specialization profiles (Maier, 2002: 407).

The levels of knowledge management differentiated R. Maier were adopted by a research team of Centre of Management Studies of the Leon Koźmiński Academy of Entrepreneurship and Management to investigate the area of knowledge management.

Four levels of knowledge management were accepted:

1. Basic systems- there are opportunities of communicating and functioning of local informational tools (e-mail, Intranet, data bases); the actions directed at searching of knowledge by the employees are carried out locally in certain departments \ spots.
2. Integration systems - there are actions related to the coordination of information inflow and searching for information, there are information selection procedures; there is a coordination of information actions and various knowledge actions- voluntary application of gathered information.
3. Interactive systems – the coordination of information is supported by an opportunity of an access to the authors of information; there is a discussion about the contents of the information created and stored in the organization.
4. „Platform” systems – the actions related to the integration and interaction processes of knowledge exchange are carried out in a wider context and they result from strategic goals. For example: the organization intends to invest in a certain technology, therefore knowledge activities are directed at searching / gathering and dissemination of the information related to this technology / methods of work.

This approach made it possible to classify all investigated research and development organizations, according to different levels of knowledge management.

The questionnaire contains a positional instruction for the respondent. The investigation was carried out by mail. The questionnaire with the accompanying letter defining the investigation goal was sent to directors of 33 research and development organizations, selected from the Polish national database of research and development organizations, compiled by the Institute of Organization and Management in Industry „ORGMASZ”. This database was limited only to organizations, which contained the attribute "research and development" in their name. In the accompanying letter there was a request to fill in the questionnaire and to submit it back for further investigation of personnel appraisal tools applied in the enterprises (high and middle management levels). The reply rate was 30% (11 enterprises).

The next stage of the research was the analysis of acquired periodical personnel appraisal tools for the appraisal of the managers of research and development organizations (RDO). There was an appraisal questionnaire for each research and development organization. This kind of situation facilitated the implementation of the analysis. The collected appraisal tools (appraisal questionnaires) were classified according to the knowledge management level in certain research and development organization.

Further procedures of analysis were carried out within the groups of research and development organizations (RDO) with different knowledge management levels. The comparative analysis of appraisal questionnaires in the research and development organizations with the highest and lowest knowledge management levels was the most valuable. The selection of extreme knowledge management levels aimed at showing the difference in the applied appraisal tools.

The final stage of the research was devoted to the definition of recommendations, concerning the projecting of personnel appraisal tools in knowledge management organizations, particularly the identification of appraisal criteria, which are the most essential from the point of view of effective knowledge management.

Empirical material gathered as a result of the investigation was exposed to the analysis, taking into account the goals of the present research. Further the synthesis of results was made, and the conclusions and recommendations, indicating the direction of a more large-scale research were specified. The implemented procedures of the analysis make up a basis for the verification of the research hypothesis.

Chapter V

GENERAL CHARACTERISTIC OF RESEARCH & DEVELOPMENT ORGANIZATIONS

Research and development organizations (RDO) are one of the fundamental elements of the whole research and development sphere in Poland. This sphere consists of institutions and individuals employed in creative and innovative activities, implemented to widen knowledge resources as well as to discover new application opportunities for the available knowledge. Except the above-mentioned, the following types of organizations are an integral part of this sphere:

- Scientific departments of Polish Academy of Science (PAS), including scientific institutes and independent scientific institutions,
- Private institutions, the activities of which are classified under number 73 by Polish Classification of Activities- "Science",
- Higher Educational Institutions: public and non- public (private) implementing "R+D" activities,
- Organizations of scientific service (scientific libraries, archives, funds, etc.),
- Development organizations,
- Other organizations.

Scientific organizations are in particular scientific departments of PAS, which define new directions of the development of science.

Development organizations are commercial organizations (chiefly manufacturing departments), possessing their own research and development base (laboratories, engineering departments, construction and technological departments, research and development centers, research and technological departments, equipment development centers, training and projecting bureaus,

etc.), as well as agricultural and zootechnic centers, experimental stations and departments, scientific and technical centers, etc, implementing "R+D" activities mainly in the form of development researches, aiming at the application of available knowledge, acquired as a result of basic or applied investigations or practical experience. The activities of such organizations are also directed at the improvement of available materials, equipment, products, systems, services or the development of new ones.

Higher Educational Institutions, except for their direct educational activity, train scientific personnel and implement their own research and development projects, including those in the sphere of "non-for-profit" social and humanitarian investigations.

Other organizations are mainly hospitals implementing research and development activities (together with their direct work), and other clinics, not belonging to medical academies and universities (category "Higher Educational Institutions") and hospitals with the status of research and development institutions.

In the previous economic system in Poland a part of RDOs functioned within the units of large state-owned enterprises and commercial associations. After 1990 the ties between economy and RDOs were loosened. A turn to the market economy caused severe economic difficulties and complications in the management of large enterprises. These complications resulted in the decline in the interest of enterprises in a capital-intensive research and development activity.

Besides, foreign investments tended to bring foreign solutions, worked out at abroad and based on foreign research experience.

Transformation of the economic system seriously affected this element of research and development sphere of the country. In course of time, RDOs adapted to the functioning in a multiple market economy. They underwent an internal restructuring with a particular emphasis upon the employment, which

resulted in an over 50% drop, compared to its level in late 1980s. Besides, as a result of the consolidation of RDOs, their new and numerous forms appeared, such as Advanced Technology Centers, integrated scientific and technical institutes, technological platforms, improvement networks, consortiums and thematic networks aiming at the implementation of certain research projects. Six state-owned research institutes emerged and they were engaged in the implementation of long-term programs; some organizations were closed.

Nowadays RDOs play a significant role in the activities aimed at the improvement of Polish economy. Unlike Higher Educational Institutions and PAS-organizations, alongside with scientific and research activities RDOs are engaged in the adaptation of investigation achievements to the realities of production sphere; some of RDOs independently apply these achievements in the production (information is transferred during the meeting on the reorganization of research and development organizations supervised by the Minister of Economy 09.08.2006).

Research and development organizations play a significant role in the practical application of scientific achievements, at least on the laboratorial, half-technical level- that of conducted tests and pre-clinical investigations (Stefaniak, 2004). In the overall structure of organizations, engaged in the sphere of R+D-activities, scientific and research and development organizations constitute about 44%, and development organizations- 41% of all.

RDOs are state-owned juridical entities, belonging to the sector of public finance. Nevertheless, they have a commercial status, which means that they act on their own behalf and at their own expense in the commercial turnover, carry out independent commercial activity within the limits of their financial resources, following the rules of efficient application of available facilities.

The representative body of research and development organizations is the Supreme Council of research and development organizations (SC of RDO). The Council consists of 31 members, elected according to the Act about research and

development organizations, within the work schedule of the Council, approved by its electors. The election of Supreme Council members takes place during the Election Forum (once in three years) by the electors selected by the Scientific Councils of individual research and development organizations. The term of authority of the Supreme Council lasts three years. The goals of the Supreme Council are as follows:

- Identification of common problems in the environment of research and development organizations and exerting influence upon public life in order to solve these problems,
- Representation of the interests of research and development organizations in their relations with state authorities, self-administration authorities and commercial organizations.
- Collaboration with governmental and non-governmental bodies, actualizing scientific and technical policy.

The task of research and development organizations is the implementation of scientific investigations and development projects, the results of which shall be applied in certain branches of national economy and public life. RDOs are the greatest research potential of Poland, directed entirely at the applied and progressive investigations, at the development of national economy. The application rate of their investigations is 70-80% (according to the statement of Z. Śmieszek, Chairman of the Main Council of RDOs, declared during the inauguration meeting of the team, evaluating the RDOs' activities supervised by the Minister of Economy; the meeting dates back to January 22nd, 2007). RDOs definitely have the greatest impact upon the implementation of so-called target projects, worked up chiefly for the sector of small and middle-sized enterprises) (SME) –the application rate of innovations in Poland is 80% They also participate in the implementation of numerous investigation projects of the European Union.

The main goals of RDOs are the following:

- Implementation of scientific investigations and development projects, and adapting of their results into practice,
- Ensuring of the access to the results of scientific investigations and development projects,
- Implementation of additional activities, particularly in the sphere of training, science, technical and economic information, inventions and protection of industrial and intellectual property,
- Elaboration of analysis and evaluation of the development level of certain branches in science and technology, development of the application opportunities of scientific and technological achievements (the law, dated 25 July, 1985, *About research and development organizations*, Legal Acts Reporter, 1991, №44, position 194 with further modifications).

According to the Request № 5 of the Youth Education and Science Commission to the chairman of the Council of Ministers, concerning the implementation of the Law, dated 25 July 1985 *About research and development organizations*, the following main obstacles, impeding the activities of these organizations were mentioned:

- Long-lasting evaluation procedures of the RDOs' transformation projects at the supervising bodies, often depriving RDOs of the opportunity to implement such transformations (ex.: loss of strategic partners).
- Obstacles for scientific organizations, including research and development organizations, lying in long-lasting tender procedures for public institutions during the implementation of relatively small and short-term investigations, requested by private organizations, subsequently implemented in the form of civil-law agreements,
- The obligation of scientific organizations, including research and development organizations, to sell their shares in companies previously founded for the purpose of transmitting the products and services (which were a part of their activities) to these companies, and subsequent sell of

these companies. This obligation emerged according to the Law of the public finance, modified in early 2006.

The following measures were considered necessary:

- Improvement of the supervision of the appropriate authorities,
- Acceptance of the appropriate evaluation criteria for the research and development organizations aimed at their correct classification, taking into account their specific features and relations to other scientific activities (advantage of applied investigation over theoretical ones, advantage of the application of investigation results over scientific publications; a narrower area of implemented educational tasks compared to higher education).

However, in spite of numerous and serious obstacles in the activities of research and development organizations a series of effective actions is still apparent. A positive result of the activities of research and development organizations supervised by the Minister of Economy in 2005, was the adoption of the solutions, worth 0.9 bln PLN to the industry (information provided by the Minister of Economy at the meeting, devoted to the reorganization of research and development organizations, dated 09.08.2006). Organizations which worked out the most interesting solutions, were awarded by the Minister of Economy at the Contest „Polish Product of the Future”, initiated by Polish Agency of the Development of Business (PADB).

The Minister of Economy is a supervising authority for 101 active RDOs, which employed about 14 thousand employees and gained profit of about 1,64 bln PLN in 2005 (the law, dated 25 July, 1985 *About research and development organizations*, Legal Acts Reporter, 1991, № 44, position 194 with further modifications).

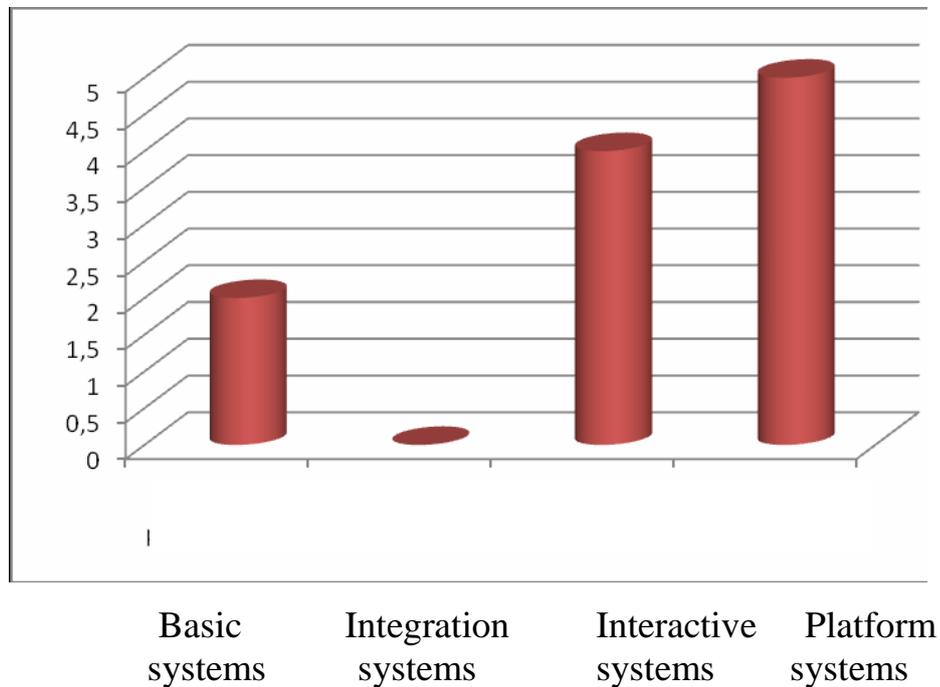
Chapter VI

PERSONNEL APPRAISAL IN THE PRACTICE OF RESEARCH & DEVELOPMENT ORGANIZATIONS – RESEARCH FINDINGS

On the basis of the material gathered during the research it was possible to classify the investigated research and development organizations according to the knowledge management level. The results were most promising. The absolute majority of research and development organizations occupied two levels with highly developed knowledge management. Five enterprises reached the fourth knowledge management level (the highest one) - „platform” knowledge management system, and four organizations reached the third level-interactive knowledge management system. Rather positive is also a fact that only two investigated organizations were only on their way to knowledge management, i.e. on the first, basic level. These investigations did not identify any representative of the second knowledge management level, i.e. integration system of knowledge management (Compare picture 16).

Such arrangement of knowledge management levels reached by enterprises may signify the growing interest in this problematics in practice and a regular effort in the development of this conception of management. Besides, such an intense engagement of the organizations in the implementation of knowledge management programs may testify in favor of good management methods applied in these organizations, and a high effectiveness of the accomplishment of their statute \ charter goals. These results would perfectly match the data specified in Chapter V, where the investigated objects were generally classified and information \ opinions concerning their effectiveness were represented.

Pic. 16. The arrangement of the identified knowledge management levels in the research and development organizations



Source: author's own investigation

The identification of knowledge management levels achieved by investigated enterprises and classification according to this criterion was important from the perspective of the further analysis. In compliance with the methodical assumptions of the present research, the next stage of analysis will be dedicated to the identification of common features of personnel appraisal tools within the framework of groups of enterprises (the criterion of achieved knowledge management level). The analysis was started from the most significantly represented level, i.e. from the fourth level of knowledge management (the highest level- “platform” systems). Five research and development organizations achieved this level: Marguerite, Hyacinth, Hibiscus, Chrysanthemum and Crocus.

The personnel appraisal sheet of the employee “Marguerite” consisted of four parts. The first part contained personal information of the appraised employee (such as: name and surname of the employee, job position, department, length of work in this sphere, length of work on this position, date of the appraisal, period of the appraisal) and the level of achievements and abilities of the employee. This level had a form of a 5-grade scale, where the grade “5” denoted a very high level– it definitely differs from all the others-, and the grade”1” denoted a very low level, well below the average- which means that the employee does not fulfill the expectations. The second part of the appraisal sheet contained the appraisal criteria of the employee, these criteria were grouped in three categories:

- Efficiency of the employee in the implementation of duties,
- Qualification (striving to the professional growth)
- Personal and behavior features.

Within the group “Efficiency in the implementation of duties” the following criteria were differentiated: the degree of the accomplishment of the assigned duties (quantity of implemented work), the quality of the implemented work, diligence, accuracy, solidity, honesty in the implementation of work (attitude to work), urgency in the implemented work, austerity and care about the reduction of costs (materials, equipment), implementation of the orders of the superior, willingness to implement additional work challenges.

Next group of criteria – “Qualification” included the following: current qualification (appropriate for the occupied job position) and skill development (professional training- courses, apprenticeship trainings).

The last group of criteria “Personal and behavior features” comprised the following: employee’s initiative and the innovation approach to the ways to increase the efficiency of work, availability, operational efficiency and independence, collaboration within the company, personal culture and

punctuality. The appraisal was implemented both by a superior and an employee.

In the third part the marks from the previous parts were summed up and the recommendations for the employee were defined; the fourth part, in its way, touched upon the eventual dismissal of the employee and conclusions of the appraisal team.

The appraisal sheet in "Hyacinth" had also a complex structure and contained an element of self-assessment. It also contained the aim of the appraisal, information about the employee (similar as in "Marguerite ") and 12 criteria of the appraisal with a 5-grade appraisal scale (1 – well below expectations, 5 – excellent). The appraisal sheet took into account the following appraisal criteria: knowledge and professional skills (the volume of the information and the ability to implement assigned tasks), implementation of instructions (understanding and implementation of oral and written instructions), the estimation of the situation (the ability to analyze and interpret information and to draw logical conclusions), efficiency (the ability to accomplish tasks on time), the quality of work (precise and diligent implementation of assigned tasks according to appropriate requirements), relations with fellow-employees (the ability to make good relationship with the fellow-employees at work, good cooperation with the others); relations with the superior (the ability to draw up good collaboration with the superior), an appropriate approach to the customer (the ability to build up an attentive and open cooperation with customers in the fulfillment of their expectations), appearance (neat, non-defiant clothes, personal hygiene), psychophysical condition (the ability to implement everyday work without the evident signs of tiredness and exhaustion), obligatoriness (the ability to carry out work without the continuous supervision, compliance with the time schedule), initiative (the ability to discover the necessity of taking certain actions); creative thinking and introduction of new solutions. At the end of the appraisal sheet there is a blank space for the information about the adherence to the

requirements of labor and industrial Hygiene, employee's achievements and professional career. There is also a place for a general appraisal and for the identification of employee's advantages and spheres of the planned professional training of the employee.

The appraisal sheet in „Hibiscus” is less complex than the others; however, it contains a wide palette of appraisal criteria. Alongside with personal information about the employee it contains a section, which has to be filled in by the employee and the superior (this section is the most complex, as compared to other sheets). In the section intended for the employee's appraisal the appraised employee is asked about the following: the scope of his professional duties, special achievements, failures and professional development (realized ambitions, intentions currently implemented and planned and the preliminary conditions). The section intended for the superior's appraisal contains fourteen criteria appraised according to the 6-grade (1 – well below expectations, 6- excellent). These criteria were as follows: knowledge and professional skills, methodical background, proficiency in foreign languages, ability to plan and organize work, implementation of the assigned tasks on time, the ability to work independently, the feeling of responsibility, the acceptance of new initiatives, due care about own professional development, relations with fellow-employees, the approach to the customer, psychophysical condition, due care for own appearance, engagement into the development of the company and into its positive representation. The appraisal sheet is finished with remarks, conclusions, recommendations and suggestions of the superior.

The appraisal sheet in "Chrysanthemum”, just as the other sheets, contained general information about the employee, a general appraisal and commentaries of the superior and the appraised employee (in the final section of the sheet). However, its main part included the appraisal of seven criteria according to the 5-grade scale (definitely does not fulfill the criteria- excellently fulfils the criteria). The appraised criteria were as follows: professional preparation for the

implementation of tasks (education, professional experience, readiness to improve professional knowledge), quality and quantity of accomplished work (an accurate organization and planning, the ability to arrange the priorities, efficient work in accordance with the schedule (efficient time management), solution of problems, initiative (the ability to identify problems, to select important facts and circumstances, to draw correct conclusions, to provide an innovative contribution in the form of new ideas); engagement (the approach to the implementation of duties, consistency in the accomplishment of tasks, acceptance of new challenges), team- work ability (active participation in team work, harmonious collaboration in the group, respect for the others), communication skills (the ability to formulate ideas precisely, effective communication with the superiors and fellow-employees, the ability to construct effective oral communication, the ability to construct effective written communication); focus on customers (care for the customers, amicability / politeness, due care for the company image, due care for the place of work and appearance).

The appraisal sheet of the enterprise „Crocus” in its structure was similar to the appraisal sheet applied in "Chrysanthemum". It included the employee's self-assessment; the appraisal was carried out according to the 5-grade scale, but the appraisal criteria were widened and included three more criteria, namely:

- Effective work in changing environment (the employee works well under pressure and willingly accepts changes. He regularly achieves good results in spite of the changing environment. He helps to avoid problems by way of anticipation of eventual problem situations).
- Constructing of professional contacts with other departments (the employee searches for an opportunity to develop cooperation relations with other departments). The employee contacts with the employees from the other organizations, develops information exchange about common needs and means. The employee delivers information and provides

assistance to other departments, tries to encourage and motivate the others.

- Instructing and advising (the employee establishes open, helpful and double-sided contacts with other employees, he carries out the regular instruction sessions consecutively and regularly, he tries to help other employees in improving their skills and knowledge, so that they can implement their work in the best possible way).

These three additional criteria were described very precisely, as compared to the others. There were no criteria of this kind in any other appraisal sheet. Two of them ("Constructing of professional contacts with other departments" and "Instructing and advising") seem to fit the group of criteria "Ability to the team work". However, the administration of this organization decided to separate them, probably, in order to emphasize their specific character. These criteria seem to be very up-to-date, as compared to the others, they are fully compatible with the knowledge management conception, due to their considerable importance in the support of a wide-scale cooperation (between departments), in the information / knowledge exchange (including tacit knowledge and learning through experience), in the estimation of the adaptation skills of the employee (minimizing the obstacles impeding the acceptance of any new initiatives).

Certain appraisal criteria (the common ones) were a bit less precisely characterized as compared with their characteristics in "Chrysanthemum". Such inaccuracy concerns the following criteria:

- Solution of problems, with no ability to select important facts and circumstances included,
- Focus on customers with no care for company image included.

It should be pointed out that appraisal sheets of all the enterprises in this group contained a clearly defined appraisal aim which generally emphasizes the following:

- Assisting the employee in his professional improvement,

- Supplying the employee with regular important information,
- Providing the employee with professional assistance in the sphere of professional self-improvement.

Next numerous group of enterprises were the research and development organizations which reached the third level of knowledge management—interactive systems, i.e. second most important level of knowledge management. This group consisted of four organizations: Mimosa, Butterfly orchid, Rose and Tulip.

The personnel appraisal sheets of the representatives of this group, similarly as those from the previous group, contained an introductory section with the information about the appraised employee and a final section with appraisal conclusions.

The appraisal sheet in the enterprise "Mimosa" contained eight appraisal criteria: significant knowledge, effectiveness of work, adherence to the standards of the organization, initiative, efficiency in time management, successful team collaboration, attitude to customers, and adherence to the discipline requirements. As the majority of appraisal sheets this one also contained the five-grade appraisal scale (from "requiring a major improvement" to "excellent").

The appraisal sheet in the organization "Butterfly orchid" structurally was very similar to that in "Mimosa". Eight criteria were appraised according to the five-grade appraisal scale (well below expectations- well above expectations). This appraisal sheet contained the following criteria: the ability to arrange priorities in activities, the ability to solve problems and to make decisions, the ability to collaborate with the others and to form a team, determination and consistency in the implementation of tasks, initiative and innovative approach, resistance to the stress, obligatoriness and precision, discipline.

The appraisal sheet in the organization "Rose" was the most specific in this group of research and development organizations, as it was divided into two

parts. One of these parts contained three criteria (education, proficiency in English and PC). These criteria were appraised according to three-grade scale. The other part contained descriptive appraisal of the following criteria: effective time management, the ability to comply with the work schedule, dynamism, initiative, creativity, ability to make decisions, collaboration with fellow-employees, punctuality and the desire to improve qualification.

The appraisal sheet in "Tulip" had the most complex structure, as it contained as many as sixteen appraisal criteria. Among them one can find the following: responsibility for assigned tasks, persistence in the accomplishing of goals, the ability to organize work, the ability to establish and support contacts, independence, the ability to work without regular control, initiative and introduction of changes \ innovations, the ability to act quickly, flexibility in the accomplishment of tasks, resistance to stresses, the ability to solve problems and to make decisions, communicative ability, the ability to collaborate, the ability to influence upon the others, the ability to soothe tension \ to resolve conflicts, willingness, engagement in the development of one's own professional qualification. These criteria were appraised according to the five-grade scale without the characteristics of each individual appraisal grade.

The remaining organizations formed the group with the lowest level of knowledge development practice. This group consisted of two research and development organizations: Iris and Calendula.

The appraisal sheet in the organization "Iris" contained one very general question directed at the appraised employee. This question was the following: How would you estimate the effectiveness of your work? The appraised employee had to select one of five possible answers: very high (effectiveness), high, satisfactory, requires improvement of certain aspects, but generally sufficient, insufficient. Besides, the following four questions were addressed to the appraised employee:

- What would you change in your work in order to accomplish your tasks better?
- What would you change in the work of your team?
- What would you change in the organization of your company's activity?
- What ways to improve your own qualifications do you consider the most sufficient? Name the sphere, the order and the desired term of proposed trainings, courses, etc.

This sheet was intended for the appraisal of the employee only. There was no place for the second appraisal stage in it, i.e. the appraisal carried out by the superior. There was no place for conclusions and recommendations in it either. Although this appraisal sheet was also meant to facilitate the development and collaboration- important elements for knowledge management sphere- however, it contained only the employee's wishes. There was no employee's appraisal regarded as a broad concept, there was just the employee's estimation of the effectiveness of his own work.

The appraisal sheet in "Calendula" had also a very simple structure. It contained just the following criteria: collaboration, the education level, obligatoriness, accuracy, the ability to organize tasks and the attitude towards customers. This appraisal sheet, in its turn, was intended for the superior, who could appraise the criteria according to the three-grade scale (poor – sufficient-high). It should be noted that the majority of the appraised criteria emphasized the technical aspect of the implemented work (four criteria). Only two criteria had a social character (collaboration and attitude towards customers).

Both appraisal sheets contained only fragmentary information about the employee, such as: name and surname, department. There was no information, available in the appraisal sheets of the organizations from higher levels of knowledge management. Such information is as follows: the period of work in

the company, the period of work at this position, the appraisal period, the date of the last appraisal, the results of the last appraisal, etc.

The composite characteristics of personnel appraisal sheets of the investigated research and development organizations were presented in Table 3.

Table 3. The composite characteristics of personnel appraisal sheets of the investigated research and development organizations

Name of the enterprise	Appraisal aim	Detailed characteristics of the criteria	Self-rating	The appraisal of the superior	Conclusions from the appraisal
Chrysanthemum	+	+	+	+	+
Butterfly orchid	-	-	+	+	+
Hyacinth	+	+	+	+	+
Hibiscus	+	+	+	+	+
Iris	-	-	+	-	-
Crocus	+	+	+	+	+
Mimosa	-	-	+	+	+
Calendula	-	-	-	+	-
Rose	-	-	+	+	+
Marguerite	+	+	+	+	+
Tulip	-	-	+	+	+

Source: author's own investigation

For the purpose of the comparing and identification of common features of personnel appraisal sheets, applied by research and development organizations of the same group, i.e. practicing knowledge management procedures on the same level, the appropriate modifications of their arrangement (represented in Table 3) was carried out. All elements remained the same, only the order of

characteristics of certain organizations was modified, i.e. these organizations were arranged according to the achieved level of knowledge management, not alphabetically, as shown in Table 3. General characteristics of personnel appraisal sheets based on the criterion of knowledge management level is presented in Table 4.

Table 4. The complex characteristics of personnel appraisal sheets of the investigated research and development organizations (according to criterion of knowledge management)

Level	Name of the enterprise	Appraisal aim	Detailed characteristics of the criteria	Self-rating	The appraisal of the superior	Conclusions from the appraisal
IV	Chrysanthemum	+	+	+	+	+
	Hyacinth	+	+	+	+	+
	Hibiscus	+	+	+	+	+
	Crocus	+	+	+	+	+
	Marguerite	+	+	+	+	+
III	Butterfly orchid	-	-	+	+	+
	Mimosa	-	-	+	+	+
	Rose	-	-	+	+	+
	Tulip	-	-	+	+	+
I	Iris	-	-	+	-	-
	Calendula	-	-	-	+	-

Source: author's own investigation

Table 4 became a very good benchmark for further comparative analysis. It was easy to distinguish the advantage of appraisal sheets applied in research and development organizations, which reached the highest knowledge management level, over the personnel appraisal sheets in other organizations (with a lower level of knowledge management). The difference seems drastic if we compare the organizations on utmost knowledge development levels (fourth and first).

Personnel appraisal sheets applied in Chrysanthemum, Hyacinth, Hibiscus, Crocus and Marguerite had many common features. They were the closest to the ideal model of the personnel appraisal sheet. They contained a clearly formulated aim of the appraisal; they had a sufficient number of personnel appraisal criteria. These criteria were not presented as slogans but they were justified (specified) so that everyone can understand them in a similar way. Besides, more than the sheets of other organizations, these sheets contained specific and more important personnel appraisal criteria (from the perspective of knowledge management), such as psychophysical condition (Hyacinth, Hibiscus). This criterion is often ignored in personnel appraisal sheets, but it seriously affects the efficiency of the employee and his ability to implement new initiatives. These sheets to a great extent (like those of research and development organizations practicing knowledge management on the third level) measured a series of other criteria important for knowledge management, such as: possessed qualification, skill development, initiative and innovative approach to work, collaboration within the company, ability to analyze and interpret information and to draw logical conclusions, ability to solve problems, an approach to the customers, engagement in the development of company and its positive presentation, communicativeness. The fact that the opinion of the appraised employee (self-assessment) was also considered is an important feature of these personnel appraisal sheets. Moreover, each appraisal sheet contained blank space for the conclusions summarizing the appraisal recommendations and other remarks, important for the employee's further development.

What concerns research and development organizations, which occupy the basic level of knowledge management (first level), their personnel appraisal sheets are used for the implementation of the appraisal by the superiors (Calendula) or for self-assessment (Iris). Their level of accuracy is far from the norm. The structure of their appraisal sheets wishes much to be desired;

therefore the effectiveness of the appraisal is highly doubtful. The employee is not aware of the goal of the appraisal; he has no opportunity to express his opinion about his own advantages and drawbacks (Calendula). He is not aware of the results of the appraisal, its impact on his future job and fate, etc. Therefore, the appraisal itself may be regarded as a mere pro forma action, a needless measure.

The appraisal sheets of the research and development organizations, which reached the third knowledge management level, are close to those of organizations from the fourth knowledge management. The majority of these their-level organizations take into account a considerable number of appraisal criteria, but these criteria are not precise, which causes a risk of their dissimilar interpretation and irregular results. Another disadvantageous feature of these sheets was a lack of a clear aim of the appraisal. However, their advantage was that they were designed both to the appraisal of the superior and to the self-assessment of the employee, and contained conclusions and recommendations for the future. One more advantage of these appraisal sheets was the criteria measured by them. Namely, these sheets take into account a series of criteria, which are important from the perspective of knowledge management, in a similar way as the research and development organizations from the highest (the fourth) knowledge management level.

The arrangement of the basic characteristic features of personnel appraisal sheets of all investigated research and development organizations demonstrates obvious dependencies between applied appraisal tools, and the achieved level of knowledge management. As it is shown in the Table 4, all research and development organizations, the appraisal sheets of which contained the aim of the appraisal, conclusions drawn from the appraisal, criteria, important from the point of view of knowledge management, a part of the appraisal accomplished by the superior and the appraisal (self-assessment), as well as the developed

(specified) criteria of measurement, reached the highest level of knowledge management- “platform” system of knowledge management.

Other group of research and development organizations, the appraisal sheets of which measured a number of appraisal criteria, important from the point of view of knowledge management, contained conclusions drawn from the appraisal and a section intended for superiors and for employees, reached the third level of knowledge management- interactive system of knowledge management.

The appraisal sheets in the rest of the research and development organizations were the poorest from the structural point of view. They measured only a small group of appraisal criteria; the majority of these criteria were not specific and important for knowledge management, they were not précised, and the employee was not acquainted with the goal of the appraisal and its concussions. These appraisal sheets should be referred to the group of ”other” appraisal sheets, as they had no common features. Enterprises applying such appraisal tools reached only the lowest knowledge management level – the basic level.

It should be acknowledged that this analysis and the characteristics of interrelation between the personnel appraisal sheet applied in the research and development organization and the level of knowledge management achieved by the research and development organization is a **main cognitive goal of the present research and a confirmation of the basic hypothesis**, that the knowledge management level achieved by the research and development organization **depends on the personnel appraisal tool applied in this organization**. It was proved that in the enterprises, where the personnel appraisal sheet was close to the ideal model and considered the features specific for knowledge management, the level of knowledge management was the highest (levels IV and III).

The analysis of the empirical material lead to the conclusion that there are criteria of the personnel appraisal which are applied everywhere and at all the enterprises (ex.: meritorious knowledge, qualification, efficiency), and some of the criteria are important from the perspective of knowledge management (ex.: the ability to identify problems, to define important facts and circumstances, to draw correct conclusions; the innovative contribution in the form of new ideas, innovative approach to professional duties, persistence in the implementation of tasks, willingness to accept new challenges, active participation in team work, harmonious collaboration in the group, respect for the others, ability to formulate ideas precisely, effective communication with superiors and fellow-employees, ability to support oral communication, ability to carry out written communication, due care for customers), as they stimulate the development of certain knowledge management processes. There are also criteria which are applied very sporadically, however, their role in the development of certain knowledge management processes is very significant (ex.: psycho-physical condition). The results of this analysis enabled to identify the trend in the construction of personnel appraisal tools (which criteria are evaluated?) in research and development organizations- that is, to implement the second cognitive goal of the present research.

CONCLUSIONS

**PERSONNEL APPRAISAL IN THE RESEARCH & DEVELOPMENT
ORGANIZATIONS – THE BEST SOLUTION FOR PRACTICE**

Continuous advance towards welfare is a moving force of new technological, ideological and conceptual solutions. One of such conceptions is knowledge management. The opinion that economic growth depends on the effective generation, acquisition, dissemination and application of knowledge was supposed to become the most principle way to achieve a balanced social and economic development, securing the improvement of living conditions. It is true that the importance of human capital was taken into account both by the development plans of national economies and strategic plans of enterprises. Although the developers of these plans started to regard human capital as a source of advantage in the competition between both countries and enterprises, knowledge management (alongside with all its benefits) is still not a sufficiently acknowledged and recognized process. Such skepticism is somewhat above comprehension, because practice shows that knowledge management (as a chief competitive advantage) brings expected benefits. The achieved results are beneficial to customers, employees and the enterprise (See Table 5).

However, in spite of the voices contesting the adoption of knowledge management practices, this conception seems to be one of the most dynamically developing management conceptions.

Table 5. The benefits of knowledge management from the perspective of customers, employees and enterprise

MAIN BENEFITS OF KNOWLEDGE MANAGEMENT		
Customers	Employees	Enterprise
<ul style="list-style-type: none"> • Increase of customers' satisfaction • Facilitation of sale processes • Better access to products • Improvement of relations with customers 	<ul style="list-style-type: none"> • Improvement of knowledge and skills of employees • Increase of employees' satisfaction • Increase of innovativeness 	<ul style="list-style-type: none"> • Improvement of practices and processes • Increase of the enterprise's attractiveness at the labor market • Development of business activity • Innovativeness in the sphere of products / services • Increase of profitability • Adaptation of product offer to the requirements of concrete customer groups • Increase of efficiency and productivity of employees

Source: author's own investigation

The issue of knowledge management is not entirely recognized, however, it is obviously a complex process with multisided dependencies. In his previous works the author of the present research demonstrated significant interdependencies between knowledge management and human resources

management. The most recent investigations, which were the base for the present research, demonstrate even more profound **dependencies**. The supposition that enterprises show a great interest in this new management conception is confirmed by reality. All investigated research and development organizations were engaged in knowledge management practices, and many of them achieved high levels of excellence— interactive systems and “platform” systems of knowledge management. Only two organizations reached just the first knowledge management level (basic). This situation is quite different from that in the previous investigations, according to which the majority of enterprises, seriously interested in knowledge management, achieved only the lowest knowledge management level (basic). However, one should be very cautious about making conclusions, as this change of situation does not have to imply a fast development of knowledge management, it may only be a result of deliberately selected investigation groups.

The investigations conducted by the author of the present research enabled to identify a close connection between the tool of periodic personnel appraisal applied by the enterprise and the achieved level of knowledge management at the enterprise. The results were surprising, as numerous common features of the personnel appraisal tools applied for the employees of the enterprises from the same knowledge management levels were discovered. Thus, research and development organizations, which applied the appraisal tools with similar characteristic features, constructively were very close to the ideal model. These research and development organizations took into account appraisal criteria, specific to knowledge management, and occupied two highest knowledge management levels (interactive knowledge management system— level III and platform knowledge management system- level IV- the highest level). Organizations, which applied very scanty personnel appraisal tools with numerous structural drawbacks, achieved only the basic level of knowledge management.

It should be acknowledged, that the analysis of the relations between the personnel appraisal sheets applied in research and development organizations and the knowledge development level of this organizations demonstrates the achievement of the **main goal of the present research** and confirms its fundamental hypothesis, that the **knowledge development level achieved by the research and development organization depends on the personnel appraisal tool applied in this organization**. Certainly, it should be presupposed that there is a series of other factors / criteria affecting the knowledge development level of the organization, such as: management style of the enterprise, human resources management model, the type of organizational culture, etc. However, the applied appraisal tool, which reflects personnel policy and takes into account the above-named criteria, is a significant element in the development of knowledge management practices and the improvement of their level.

Besides, the results of the analysis enabled to identify **the trend in constructing the personnel appraisal tools** (which criteria are appraised?), apparent in knowledge management enterprises. The identification of this trend demonstrates the **accomplishment of the second goal of the present research**. Moreover, the analysis of the empirical material demonstrated that there are wide-spread personnel appraisal criteria apparent in all enterprises (ex.: important knowledge, qualifications, effectiveness), and some of them are important from the point of view of knowledge management (ex.: the ability to identify problems, the selection of essential facts and circumstances, the ability to draw proper conclusions, the innovative approach in the form of new ideas, the appropriate approach to implemented duties, consistency in the implementation of tasks, acceptance of new challenges, active participation in team work, harmonious collaboration within the group, respect for the others, the ability to formulate the idea precisely, effective communication with superiors and fellow-employees, good oral communication skills, good written

communication skills, care for customers, etc.), as these criteria stimulate the development of certain knowledge management processes. There are criteria which are applied very sporadically, however, their importance in the development of certain knowledge management practices is considerable (ex.: psychophysical condition)

The practical goal of the present investigation was to define recommendations concerning the projecting of the tools of the periodic personnel appraisal in knowledge-based enterprises. The results of the present research enabled **to define the main characteristic features of the personnel appraisal tools, necessary for the achievement of good results in the implementation of knowledge management processes.** These features are namely the following: clearly defined and precise appraisal goal, intelligibly explained to the appraising and appraised individuals; summing-up of the accomplished appraisal and appraisal conclusions (familiar to the appraised employee), consideration of the criteria important from the point of view of knowledge management. These criteria are as follows: professional preparation to the implementation of professional tasks, problem solution skills, initiative, engagement, the aptitude to the team work, communicativeness, customer-oriented approach, etc. Besides, it is important to avoid presenting these criteria as slogans or generalized appeals; they should be properly specified / defined, and the whole appraisal should be (at least) carried out both by the superior employee and the appraised employee (self-assessment). One should acknowledge that these conclusions are not up-to-date, as literature in the sphere of human resources management described model tools many years before and emphasized a series of essential, fundamental features, effective tools of periodic personnel appraisal. Nevertheless, these results may be regarded as a verification and confirmation of theoretical assumptions. Moreover, in literary sources so far nothing has been mentioned about the importance of the exemplary implemented personnel appraisal process (or a personnel appraisal

tool with the exemplary structure) for the purpose of the development of human resources management practices, so important in the creation of the stable competitive advantage.

Taking into account that the majority of research and development organizations achieved two highest levels of knowledge management (although it is difficult to generalize due to a small investigation group) and that the activities facilitating the development of knowledge management processes (periodic personnel appraisals) are characterized by relative easiness, one can expect a major increase in the effectiveness of functioning of research and development organizations. The results of the investigation demonstrate a positive picture of conditions and perspectives of functioning of these organizations. Only research and development organizations which achieved high levels of knowledge development, may be efficient and worth financing from state budget (certainly, only during the transition period, as the efficient enterprise should be all-sufficient: the sale of new solutions on the form of patents, the sale of new technologies, etc., requiring no additional external financing) and able to compete at world research and development market. Only such organizations can contribute to the development of country's economy and to the improvement of living standards of its inhabitants. The results of the present research are supposed to become the inspiration for many enterprises at the contemporary market- not only those which have knowledge creation as their goal (research and development organizations), but for all enterprises, which intend to survive at a strongly competitive and challenging market of the 21st century. So far the alternative to knowledge management was not found; therefore enterprises should direct their whole effort to the development of knowledge management practices. As practice shows, one of the ways to achieve excellent results in this sphere is the efficient implementation of the periodic personnel appraisal processes. Such activities are fundamental for the development of employees and of the whole enterprise. Besides, these activities

are directed at the achievement of better results in knowledge management. That is why the results of the present research should be widely disseminated and applied in practice.

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III. Appendix № 1- Questionnaire

A. The evaluation of the obtainment and processing of the information in the company

(Not only technology is meant here, but also the activities directed at the immediate acquisition of knowledge by the employees)

(Please mark with "X" in the square, one answer only)

1 –there are communication opportunities in the company, there are local sources of information

(The company has e-mail, Intranet, department data bases), the activities of the employees directed at the acquisition of knowledge are carried out locally, in some departments, sections

2 – there are activities related to the information inflow coordination and the acquisition of knowledge,

There is a selection of such activities; there is a coordination of informational and various knowledge activities- voluntary application of gathered information

3 –the information coordination is supported by an opportunity of an access to the authors of the information;

There is a discussion about the components of the information created and stored in the company;

There are activities related to the integration and interactions of knowledge exchange.

These interactions are carried out in a wider context; they are originated from the planned strategic purposes.

(Example: a company intends to invest to a certain technology and therefore it directs “knowledge activities” at obtaining \ gathering, dissemination of the information related to this technology \ methods of work);

4 – activities related to the integration and interrelations concerned with the knowledge exchange

carried out in a wider context, such activities are originated from the planned strategic purposes.

(Example: a company intends to invest to a certain technology and therefore it directs “knowledge activities” at obtaining \ gathering, distribution of the information connected with this technology / methods of work

B. Metrical information about the company

1. Company name

Please write the full name of the company in the squares)

2. The year of the foundation of the company

(please write the year of the foundation of the company)

3. Main products \ services of the company:

(please name the main products \ services of the company)

4. Define the actual basic capital of the company:

(please mark the correct answer with x)

- a) Polish- state budget
- b) Polish- other than state budget
- c) Foreign
- d) Mixed (partially Polish and foreign)

5. The company branch

(please indicate the company's' scope of activity: ex.: telecommunication, education, heavy industry, etc.)

6. Web-site of the company

(please write the web-site of the company)

7. Please write the position or positions of the person filling in the questionnaire

(please name the position of the person in the squares)

**8. Teleph
one**

*(please write the contact telephone number and a
prefix)*

9. E-mail address

(please write the contact e-mail address)

Comment on the problems related to the application of

**10. information \ knowledge in the
company**

*(please write your own comment on the application of the
information \ knowledge in the
company)*