

# We are IntechOpen, the world's leading publisher of Open Access books Built by scientists, for scientists

6,900

Open access books available

186,000

International authors and editors

200M

Downloads

Our authors are among the

154

Countries delivered to

TOP 1%

most cited scientists

12.2%

Contributors from top 500 universities



WEB OF SCIENCE™

Selection of our books indexed in the Book Citation Index  
in Web of Science™ Core Collection (BKCI)

Interested in publishing with us?  
Contact [book.department@intechopen.com](mailto:book.department@intechopen.com)

Numbers displayed above are based on latest data collected.  
For more information visit [www.intechopen.com](http://www.intechopen.com)



# Intellectual Capital in Context of Knowledge Management

Maria Antosova and Adriana Csikosova  
*The Technical University of Košice*  
*Slovakia*

## 1. Introduction

Success of every organization depends today more and more from human capital as well as from physical capital. When we consider human capital as a combination of qualification, skills, abilities and intelligence of people, that means as a factor, that gives special, original and extraordinary character to every business or not business organization, then we know that namely employees are source that is able to learn, able to make changes, innovation and possibility to have creative effort, that means source, that is properly motivated, and by this way they will secure long – term prosperity of its organization.

When organizations and firms want to be successful in present world, they must be willing to learn. That demands to consider that they are not perfect and they must improve themselves by this way that they will enable their employees to develop. Therefore modern firm must know needs of permanent improving and to find possibilities how to receive recognizing. Some of the managers have found out that they need qualitative strategy that can help to achieve success at heavy competition markets in present dynamic time and strong globalized tendencies. Inseparable part of such strategy must be also securing of qualitative human sources, therefore it is necessary to invest to this area. From the same reasons firms should find proper Access to the effective development of its own employee's development and to be interesting about proper process and methods for evaluation of such processes.

In present globalized world with dominant market economy, one of its characteristics is also fact, that there is deepening difference between accounting and market value of the organizations. More and more knowledge of its employees decide about competition advantage and success on the market. It is indisputable that every firm disposes except tangible assets also with hidden assets that cannot be reported in financial reports but they are very important and decisive for its wealth in modern world. There is knowledge, abilities and skills of the employees – that means assets, for which it is necessary to create qualitative and effective process and methodology how to identify, obtain, measure, report and evaluate them. Development is showing the importance of such hidden, not visible wealth, that is still growing and we can assume its further growth.

In last years we meet many times idea that key to the success in competition environment of global economy is effective using of knowledge, ability and creativity. Rising of new discipline – knowledge management is response to this demand, since it concentrates every trends of development in last time and moreover it is trying to develop systematic way how

to identify, obtain, maintain and use intellectual capital. Mainly mutual exchange of knowledge support significantly acting of the subject in knowledge society that means transition to the knowledge firm. But there is necessary to create such firm's atmosphere, where value of intellectual capital and managing of knowledge is the highest priority.

Goal of this chapter is to specify place and importance of intellectual capital in process of firm's value creation, to emphasize necessity of investment to the human capital (as a part of intellectual capital), to analyze accesses to further profession education of employees in organizations and mostly to present possibilities and ways of measurement and evaluation of human capital investment profitability in context of knowledge management in present globalized world.

## **2. Intellectual capital and its management**

Present time put still higher demands for qualification preparation of people in labor relation, but also of such people, that does not have employment in present time but they are searching to apply at labor market. Today man preparing for future profession has extended possibilities to choice study program at secondary and high schools. But today employers cannot rely only to the school system about sufficient preparation of absolvent for practice according their needs and concepts. Such reason is only one of the whole lists of others that result from sophisticated business environment, change of human needs and their demands for goods and service quality, intensive technical development, changes in organization and work characteristic, development of information Technologies, globalization and internationalization of economic activities, etc. This is demanding that every employee in productive age have been prepared no matter of their work position to react to the new tasks and to accept challenges of the environment for further education and development of their own personality.

And here employer (business or not business subject) plays significant and important task, as well as supported and organized education and development activities of the subject. Such activities must have permanent place in the firm's strategy, where personal strategy is included. Education and development of employees must be orientated to the decisive factors of organization success that contribute to the achieving of competition convenience and profitability of investment to the human sources.

Question that is not answered is still measuring of human capital investment profitability. When manager of human sources does not know proper methods for evaluation of human capital investment profitability and when he does not have enough experiences with its evaluation, he is hardly able to present convincing arguments before firm's management for supporting of their further development.

### **2.1 Intellectual capital as a part of market value of organization**

Present market economy is orientated mainly to the expressing of direct financial revenues, but there is growing more and more force to the expressing of not tangible capital, since it is also part of the market value of the subject. In present time expressing of organization's value must be more orientated to the maintenance of key employees and to use their knowledge and innovation abilities as for emphasizing of image, brand as well as for basic equity growing. Very soon such organizations that are using ability to find and develop human capital necessary for obtaining of competition advantage, will have better position.

Manager's demand in present times more and more information about investment profitability not only to the material provision and Technologies, but also to the human capital. Investment in technology is very easy to report and evaluate then investment to the human source. Such problems exist and they cannot be without recognizing. But in present time employers are not identifying enough with philosophy of human capital investment, many times investment to the employees are expressed by the cost that are comparable (sometimes higher) with cost to the physical capital.

Improving of market position of organization presents very sophisticated process from the view of time and intellect. Picture 1 shows connection between market value creation and individual capital in organization.

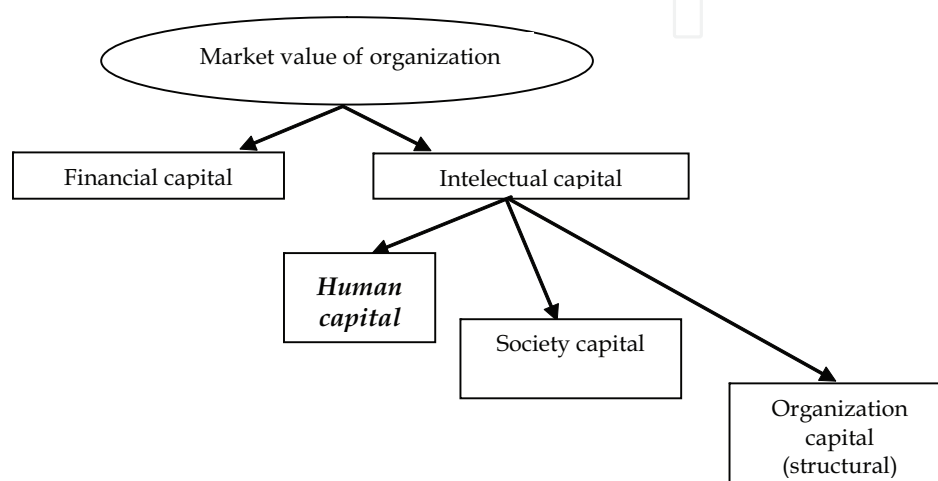


Fig. 1. Process of organization value creating

**Market value of organization** creates financial and intellectual capital:

- *Financial capital* presents monetary assets by the way of cash and securities,
- *Intellectual capital* is presented by organization knowledge using for creation of organization wealth. According Armstrong (2002) it can be stocks and flow of knowledge disposal in organization. Such knowledge can be considered as not tangible sources that contribute to the quality of internal processes and create value added. Moreover such sources content value of relationships in the frame of organization and external relationships. Intellectual capital is then combination of human, society and organization capital.
- *Human capital* is created by employees, by their inherent and obtained knowledge, skills, abilities, talents and competences. Human capital can be considered as dynamic index and very important factor for organization prosperity relating to the present time. From the view of future success, perspective and development of organization, quality and development of such aspects of human capital is very important, and they must be used effectively, and they must help to go ahead. In this case it means *human potential*, as file of dispositions and assumptions of people, orientated to the performance of such activities that enable organization to go ahead and increase its competitiveness. That means ability of man to produce products and services and to transform himself. Also human capital contents elements of dynamics and it is related more and more to the future time. (Differences between human capital and human potential is not so significant, in practice these concepts are replacing and differed not so consistently.)

- *Society capital* presents stocks and flow of knowledge, resulting from the relationships in the frame of organization and outside it. They are such characteristics of society life (relationships, norms, expectations, liabilities) that enable participants to work common effectively on goals achieving. It is relating to the institutions, relationships and norms that create quality and quantity of social interactions in the society. Not only stock, but also flow of knowledge is decisive for intellectual capital, therefore in organization such processes, during which people work and act mutually are important.
- *Organization capital* presents institution knowledge created and owned by organization that is stored in databases, manuals, etc. Here are also working processes, organization norms, technological processes, know-how, brand, etc. It is marked many times also as structural capital.

*Human capital* can be considered as an important part of market value of organization from the view of employee's ability to make such things that will secure success. Theory of human capital put accent to the value added by which people contribute to the organization development. In present time there is more and more accent to the idea that considers people as a wealth, assets, not as a cost. Human capital is defining in expert literature from various points of view, we can mention following definitions:

- Davenport (1999) – it is summary of inherent and obtained abilities, skills, knowledge, habits, motivation and energy, which people dispose and which can be used for production during certain period. Ownership of human capital is related to the person that disposes mentioned characteristics.
- Bontis (1996, 1998) – it is production factor in organization, that means combination of intelligence, knowledge and skills, that gives every organization its special character. People are such elements in organization that are able to learn, innovate, think creatively, initiates and realize changes. At the same time this is necessary assumption for long term successful acting on the market. Bontis defines not tangible sources as factors that are different from financial and material property and contribute to the firm's processes that create value and that are under firm's control.
- G. S. Becker (1993) divided human capital as follows:
  - *general*, that can be used in various types of employment and
  - *special*, used only in given organization or firm.

Such division of human capital is basis for debate about motivation and need of firm's investment to the education for mentioned human capital types.

Managing of human capital means obtaining, analyzing and reporting of information about strategic investment and decision in area of human sources management, how it is giving value in organization. Characteristics of the definition of human sources capital is according Armstrong (2007) using of tools for measurement of certain leads for people managing that is considered as a wealth, as organization assets, and it underlines that competition convenience can be obtained by strategic investment to such wealth by the way of employees obtaining and stabilization, by managing of talents and programs for their education, development and career.

## **2.2 Investment to the human capital and access to further professional education of employees**

Basis of the creation, or increasing of human capital value means investing of monetary as well as not monetary tools in present time with goal to achieve monetary or not monetary revenues in the future, that means not only satisfying of present needs. Theory of human



capital management supports idea of tools investing to its creation as an investment, not as consumption. Every cost connected with spreading of the content and increasing of effectiveness is considered as investment to the human capital. They can be unrepeatable, or they can be realized as long term activities, but their result is always expressing in long time period. Human capital is source of revenue and it presents by this way stock of the economy wealth.

Investment to the human capital is divided according Vodák – Kucharčíková (2007) to three basic aspects:

1. Forms, that means for example school (formal) education, further Professional education, training at working place, education outside the working place, etc.,
2. Effects to the volume of income and consumption,
3. Level of investment part, measure of revenue, as well as intensity of connection between investment and revenue.

According Becker (1993) individual's fortune plays during process of human capital creation also very important task that is connected with environment where individual had been born and where he lives. During investment to the human capital abilities of individuals have also their importance. More able people obtain commonly more education and training than less able people.

According Kamenička (2003) by investment to the human potential individuals are improving their knowledge and abilities, they increase quality of their human sources and consequently their personal and monetary incomes. State and creation of human capital is significantly influenced also by inherited disposition, as well as family environment, social background and environment in which individual is living and developing.

Investment to the human capital – as a production input – can be realized in organization by various ways. They can be orientated to the following:

1. *increasing of quality and improving of working abilities, skills and increasing of knowledge of employees* through firm's education,
2. *improving of working conditions*, when firms secure for their employees still modern equipments and still more effective protection working tools by which they can prevent health damaging of their employees or rising of work injury,
3. *improving of health state of employees*, that means regular preventive health care, recondition bath residence, offer for fitness centre, swimming pools or other sport's activities, with regard to the social program of employer.

With regard to the analysis of human capital investment they are in economic theory mostly evaluated investment to the education. Qualification investment profitability can be compared with investment to the tangible (material, physical) capital.

Investment to the education leads to the investing of financial tools, and at the same time they bring various effects. Representative of new theory of economical growth – Lucas says that investment to the human capital bring so-called internal and external effects:

- *internal effects* are rising when mentioned investment contribute to the increasing of expert and Professional abilities of people and secure by this way growth of employees productivity,
- *external effects* that are rising in case when by the increasing of abilities, knowledge, skills and knowledge of people there is increasing also productivity of other employees and firm's profitability as well as total effectiveness of the whole economy.

Such external effects are considered as a positive externality and they are becoming very important factor of long – term growth of every economy.

Human capital topic has very big importance in economical theory, as well as theory of human sources management that means during searching and analyzing of job market, during statement of wages level, during analysis of factors that influence economic growth speed and economic abundance of the country, etc. In present time that is characterized by speed and extend installing of technical and technological innovation, most important factor of technical development and production factors productivity growth is increasing of human capital value as well as total economic growth that is important for further education that brings knowledge growing. New obtained knowledge is necessary to adapt innovatively and creatively to the present needs and possibilities of concrete organizations and whole economy.

Therefore support of profession education organized by employer's subjects is basic assumption for further development of organizations. It is necessary to involve to further education in organization every profession categories of employees that means laborer career, technical and economical profession as well as managers. Participant of firm's education need to see purpose of his task, therefore he must be ahead informed about conveniences resulting and by this way he is motivated to the education. Firm's education can be distinguished as three basic accesses:

- *learning running in the firm by education activities* – that react to the moment needs of the individuals or firm and they lead to the removing of differences between real and demanded qualification and that cannot have education or developing effect because of their casualty,
- *systematical access to the education* – it connects firm's strategy and personal strategy with system of firm's education as one of the personal processes. Firm's education is from the view of such Access considered as systematic process in which there is change in working behavior by the way of structure change of knowledge and skills of employees
- *conception of learning organization* - it is complex model of people development in the frame of various type organizations (it is also as following process: learning firm → learning organization → learning society). In such organization employees are learning continually at every opportunity from everyday experiences. That is target managed process that enables learning to be done rapidly then changes forced by environment. Through learning of its employees firm is becoming able to create, collect, transfer, improve and apply knowledge in broad internal and external environment and according a need to modify its behavior. By this way we can consider also in this area with rising conception „*knowledge management*“, that means Access to the obtaining, change and application of knowledge in the firm, improving of human capital as one of the intellectual capital element.

Practice of successful firms proved theoretical idea that most effective education is good organized *systematic education* that is orientated to the forming of working abilities in larger sense, including forming of individuals characteristics and values necessary for creating of healthy interpersonal relationships at working place, etc. among people that are working in the firm and it is running as a cycle. Profession education is becoming part of human sources management, through organizing and supporting of firm's employees education firm proves their value and importance. By this way firm gives employees perspective and enables them at its own cost to increase their competitiveness at job market. By support of employee's development it contributes also to the increasing of quality and effectiveness of internal processes, as well as to the development of the whole firm.

With regard to the effective education that will provide organization with invested Money profitability, it must be systematic and it must result from total firm's strategy, which demands support of this idea by every managers. According Koubek (2001) it is still repeated cycle, resulting from principles of firm's education policy, following goals of the education strategy and based on the carefully created organization assumptions. Assumption is existence of experts group with initiative leading to the securing of expert and organization side of profession education. Existence of education program properly equipped training place or properly created conditions for education and development at working place is also very important. Own cycle of education has four basic steps, illustrated at Picture 2, and each of the steps has its own importance and process of realization which is still improving by the practice. Most sensible and complex step in this cycle is evaluation of education results and answers to the question „To which measure had firm's education achieved its goals? “

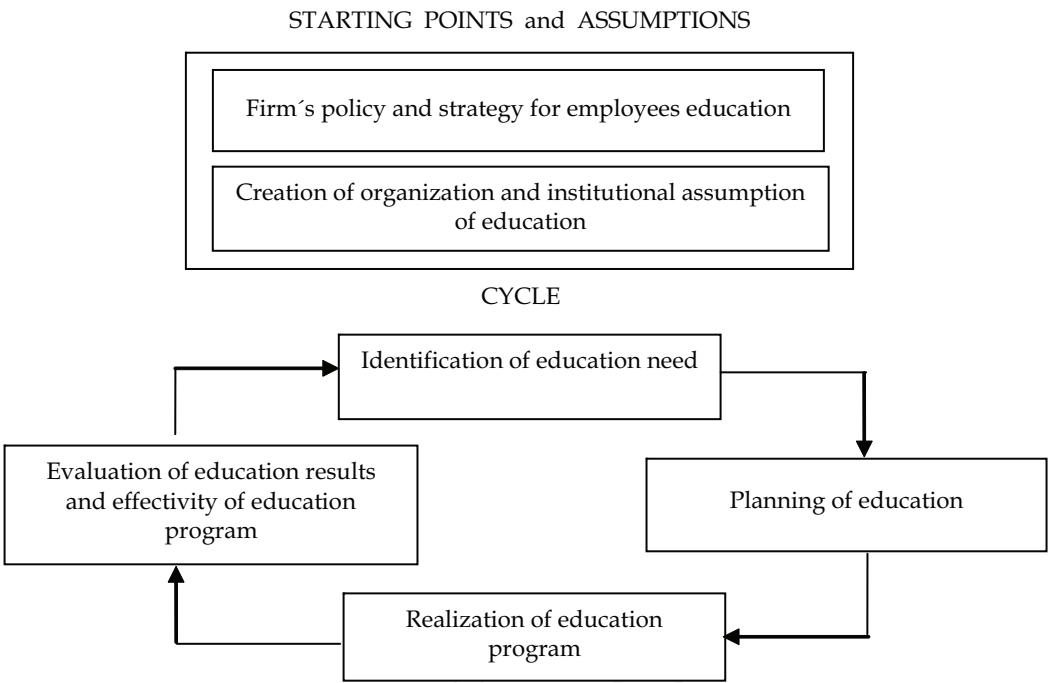


Fig. 2. Process of systematic firm's education and its cycle

Theory of intellectual capital (that is unthinkable part of human capital) directs its attention to the practical activities connected with obtaining, choice and stabilization of employees, their remuneration and social development, measuring of people values, learning in organization and knowledge management. In spite of the fact, that such theory can be viewed as philosophy of human sources management, considering employees as a wealth (assets), it underlines that this wealth is not ownership of the employer. People - employees themselves decide about investment to their future and they can choose how and where to invest.

We can see knowledge value at least from three points of view:

- *individual point of view* - man can have benefit from acknowledgement that by his knowledge he contributed to the firm's success, and he can obtain Access to the knowledge that will help him in further work, and enable him to learn new things and to participate at the team activity, etc.



- *from the view of whole firm* – at the level of the firm contributions of knowledge management are documented by the way of numerical data as well as by collection of cases in which contributions of knowledge management are clearly expressed. One of the demonstrations is for example also changing system of human sources management (for example firm is more interesting about forming of own employees, their stabilization, decreasing of fluctuation, etc.).
- *from the view of clients* – business subject that is orientated to the client should deal with client's opinion; it should take time to deal with problem solving in relation to the clients, satisfaction of the clients, etc.

When we consider human capital as one of the basic production inputs and at the same time as a key part of market value of organization, then it is necessary to put emphasis to the *measuring of human capital value*. Measurement can provide basis for strategy creation of management and human sources development and consequent monitoring and evaluation of personal work effectiveness. Moreover firm's practice shows several other reasons why it is necessary to measure and evaluate intellectual capital.

### 2.3 Measurement and evaluation of profitability from human capital investment

Contribution of human capital to the economic growth and prosperity of the society is recognized long time by theory and practice. With afford to define optimal process form the view of its forming big attention is given to the quantification of human capital rate on economical growth. Mainly contribution of human capital to the economic growth of some economy is considered as most important social contribution brought by human capital for society as a whole. But from the view of theory measurement of effects and quantification of human capital rate of economic growth is still not solved item.

Knowledge, skills and abilities of a man are considered as special form of capital also due to the fact, that their development is in time very sophisticated and it demands rather notable material sources. At the same time similarly as physical capital they secure for the owner and user certain value (revenue). Human capital is specific by the fact, that whole time it is connected with its bearer and consequently it is not possible to sale or stole it. And since there is not existing special market with human capital, his bearer (individual) can rent his own capital on job market. In market economy every man can decide himself where, when and for whom he will work, that means how he will use his own human capital.

Complexity of this problem can be explained according following four reasons (Starovic a Marr, 2001):

1. *historical reason* – accounting rules have been created for tangible assets that have been main source in industrial area. Accounting reporting cannot react to the changed claims of the new economy flexibly. Some experts have the same opinion that implementation of intellectual capital to the accounting system is not possible due to the not tangible character and relative value of its individual elements.
2. *without possibility to measure not tangible assets* – it is not possible to measure them and to evaluate their influence. Many processes are not predictable and they have not expected consequences.
3. *relatively important character* – what is valuable for one organization (firm, society, company), it is not important for other one, that means changing importance.
4. *reason due to the existence of both intellectual capital dimensions* – static dimension means that individual parts of intellectual capital can be measured and evaluated, dynamic

dimension lies in the fact that such components are acting in mutual interaction as a system and by this way their importance for the society is duplicated.

Measurement of human capital has been defined by British Incomes Data Services (IDS, 2004) as something „that is connecting with relation, correlation searching and in ideal case casual connections between various data files about human sources during using of statistics methods. “ Chartered Institute of Personnel and Development CIPD, 2004) underlines that measurement of human capital „is dealing more with analysis of present skills of employer rather than declared programs and policy of human sources. “

Measurement and evaluation of human capital is very important part of its management, it is becoming also assumption for effective management of whole organization. Management of human capital is becoming according Kearns (2005) expression of organization value through people, according „development philosophy, when development of people means everything that change value for organization. “

Managers should be interested about methods for human capital evaluation, since they means help for decision due to the following reasons:

- human capital is key part of market value of organization (research of CFO Research Studies in 2003 found out the value of human capital presents more than 35% of total sales of organization),
- people in organization are source of value added (it is reason for estimation of such value as basis for following of personal policy effectiveness),
- process of identification for measurement ways and process of finding and analyzing of information is orientated to the organization attention to the changes during obtaining, stabilization, development and optimal using of human sources, etc.

It means also to know decisive driving power of people management and to model effect of their possible change. One of the views is also afford to increase job performance, in case when managers and personalists can see area of human sources as a part of the system for realization of the firm's strategy.

#### **2.4 What are possibilities of measurement and pricing of human capital?**

Evaluation of intellectual capital can be realized by measuring and pricing of its individual elements through following:

- *measurements methods* – that means finding of quantitative or qualitative marks. Result is evaluation by number, that means index of intellectual capital elements that can be expressed also as complex index of intellectual capital,
- *pricing methods* – that means expression of monetary value estimation that is linked to the utility of evaluated object.

There are several accesses to the human capital value measurements, but till this time there has not been accepted unified methodology (neither in academic area, neither in practice). Basis for installment of system for human capital measurement is to know that people and their development do not present cost for organization, but investment to the future. Without measuring of human capital employer does not need to realize neither its human potential nor the fact if he invested effectively to his own employees. Without measurement effective management is not possible.

For example Anderson created tool for evaluation of human capital based on the three key factors, namely harmony, cost and value:

- *harmony* – it will show, if management of human sources is in connection with organization goals,

- *cost* – they measure real expenses invested to the human sources and personal work,
- *value* – it estimates results from human sources.

When we admit importance of achieving of human capital conveniences, it will lead to the fact that in expert groups there is great interest about methods for evaluation of its value, rising approximately in 60-ties in 20.century, but these ones had not been then accepted by organization. For example Bontis (1998) suggested for the need to measure human capital three models resulting from accounting of human sources, namely: *Cost model of measurement, Models of human sources value and monetary models.*

Further we will mention three methods from the list of known and published accesses to the human capital measurement:

- *Models of organization performance* (Nalbantian, 2004) created by Mercer Hunan Resources Consulting, based on the following elements: people, working processes, structure, and profile of management, information, knowledge, decision and remuneration. Every one of these elements is acting in organization by various ways, and they create commonly so – called unique DNA of organization. When individual elements are created gradually, or they are not properly linked, there is not harmony and it is probable that human capital will not be optimized and there will not be created possibilities for permanent improving of organization revenues. Identifying of such possibilities demands careful measurement of human capital value in organization and process in management that influence organization performance. As a statistical tool „analysis of internal job market“ is used, that demands permanent reporting of data about employees and job market with aim to analyze real skills of employees. By this way we can make differences between the fact what is in area of human sources demanded with interest of personal policy and support of firm's goals and by the fact what is already acting in the organization.
- *Model Sears Roebuck* (Rucci, 1998) defines chain: „laborer – client - profit“ (it uses also name „model of liability and commitment). Basis of the model is to maintain in organization high level of employees satisfaction with regard to their attitude to the organization and job. That means that employer creates „attractive environment“ in the organization that will influence positively stabilization of employees, and lead to the providing of useful services and enforcing of demanded values with consequent satisfaction of clients, as well as extension of organization image in public. By this way there will be created „attractive purchase place“, that will create conditions for „attractive investment place“, since all this will influence asset growth, service profitability and income increasing. Model recommends making research of attitudes for measurement of employee's satisfaction with work and sense of commitment.
- *Methodology Balanced Scorecard* (Kaplan – Norton, 1992, 1996) called also „Card for balanced score“ has been formerly created as strategic managerial system for management, stated for management of long term strategy, but also as a system for measurement used for improving of critical processes. Goal of the authors was to oppose tendencies of managers in organization to concentrate only to the short term financial profit. They came to the conclusion that none of the economic indexes can orientate attention individually to the critical areas of business. Managers' demands balanced offer of financial and service indexes. Their card of score demands from managers' answer to four following questions, or to view organization from four different points of view:

1. *Internal point of view* (Where organization can excel?)
2. *Financial point of view* (How stakeholders view the organization?)
3. *From the view of client* (How client see organization?)
4. *Innovation and learning point of view* (Can organization continue to create value added and make it perfect?)

By this way organization is orientated to the several critical key elements in the important target areas. In other words organization must manage and monitor everyday operations influencing its future development. Conception is based on three time dimension: yesterday (how it was yesterday), today (what we will do today) and tomorrow (what will be impact tomorrow – in the future).

Individual measurement of human capital still does not mean securing of effective management. Measurement is tool for goal achieving, not single goal. Gaining of data serves for managers to decision and business of further steps that can effectively manage intellectual capital of organization.

Measurement of human capital is therefore basis for its evaluation. In present time methods of intellectual capital evaluation can be divided to three categories:

- *Direct Intellectual Capital Methods* (DICM) – they identify structure of intellectual capital and they are pricing capital according its value by the help of some simple or single composed index in monetary expression.
- *Market Capitalization Methods* (MCM) – they express intellectual capital as difference between market and accounting value of the firm, for example VAIC.
- *Return on Assets Methods* (ROAM) – during measurement of intellectual capital they results from assets profitability, that is compared with average assets profitability in given branch. Average incomes of the organization that are not under taxation are divided through average value of tangible assets; result is compared with average in given branch. Obtained result is duplicated by average value of tangible assets, expressing annual average incomes of not tangible assets. Division of such incomes through average cost of capital is expressing value of intellectual capital, for example ROI method (Return on Investment).

Conveniences and disadvantages of mentioned methods using:

- ROAM and MCM method results from accounting data and rules, they are easily comprehensible mainly for financial managers, but they do not provide detail information about intellectual capital elements and therefore they do not have direct influence to its measurement and consequent management. But results of this method provide managers possibility to compare obtained data with other firms in the branch.
- DICM method provides more detail evaluation of intellectual capital, therefore it is more exact then ROAM and MCM. But they have also disadvantage that measured elements of intellectual capital have different importance for various firms and also definition of individual elements can be different in every firm. This causes that comparison of such indexes in the branch is complex and not accurate. Disadvantage is also low interconnection with financial reports of the firm.

In following text we will mention process of human capital evaluation according three chosen methods, mainly ROI, VAIC and Scandia Navigator:

## 2.5 Method of profitability (ROI – return on investment)

Other method used for calculation of investment profitability from tangible assets is for example (Return on Investment). Basically there is relation:

$$\text{ROI} = \frac{\text{Revenue} - \text{Investment}}{\text{Investment}}$$

For evaluation of investment profitability from education this relation can improve and compare financial contribution of concrete education activity with its cost. ROI of education activity is expressed in % or as a rate of cost on the education activity contributions. Evaluation on such level is realized at high cost education activities. Investment profitability from education activity is calculated according following relation:

$$\text{ROI (\%)} = \text{Net contributions of education activity} / \text{Cost of education activity}$$

$$\text{Net contribution of education activity} = \text{Contribution of education activity} - \text{Cost for education activity}$$

Many firms apply this method ROI in practice, mainly at high cost education activities. Reasons for using of ROI method are today in practice obvious. Managers are interested mostly about investment profitability from every program and projects, including management and development of human sources.

## 2.6 Method VAIC

One of the possibilities for evaluation of investment from intellectual potential using is VAIC method that means calculation of value added intellectual coefficient with regard to the difference between market and accounting value of the firm. Such process can be used also in the subjects that are on the filed on the bourse. Idea of such method is to not include personal or other expenses on employees to the cost due to the active task of intellectual potential.

Calculation of VAIC index consists from four steps:

1. *Stating of ability to create value*, that means value added as difference between total incomes and total cost of the firm, except cost for employees.
2. *Calculation of effectiveness of value added creation by physical capital:*

$$\text{VACA} = \text{VA} / \text{CA}$$

Where: VACA - coefficient of value added of physical capital  
 VA - value added  
 CA - stock of physical capital in the firm

3. *Calculation of effectiveness of value added creation by intellectual capital:*

$$\text{VAIP} = \text{VA} / \text{IP}$$

Where: VAIP - coefficient of value added from intellectual potential  
 VA - value added  
 IP - intellectual potential

4. *Coefficient of intellectual value added* is sum of both higher mentioned coefficients:

$$\text{VAIC} = \text{VACA} + \text{VAIP}$$

Calculated coefficient shows effectiveness of intellectual and financial potential using in the firm. It is very simple tool for calculation and it is easy for using during management of physical capital as well as intellectual capital. VAIC method enables broad using either on



the level of one subject or at broader extend, during analysis of various economical units in the frame of individual branches of economy. At the level of the firm it is possible to use index for operative management, it is necessary only properly performed system of accounting that will secure Access to final data in short time interval.

From the results of foreign research made by this method we can see significant differences in effectiveness of intellectual potential using in various branches of economy. There are branches that do not create big value during using of enormous physical capital, but also such branches that achieve extraordinary results with low volume of stocks. For example low VAIC coefficient is usually in civil engineering and traditional industry, but also in medial branches and generally in area of services this index is higher.

Using of VAIC method brings positive results, but it has also negative:

- *Convenience* is its simplicity, as well as cost for using. When evaluation of effectiveness of intellectual potential using will cost more then results of this potential, it is not necessary to install it. Using of universal index without its adaptation to the conditions, in which concrete given firm make its activity (as in case of other method), secure possibility to compare results.
- *Disadvantage* is the fact that simple analysis of indexes does not regard many important facts influencing activity of spotted organizations and limits its usefulness. For example generally weak ones during comparison are subjects that invest big tools for investment to the physical capital – in this case there is significant variation of index value in consequent periods. Except mentioned this method does not deal at all with problem how to manage intellectual potential, it evaluates only effectiveness of yet existed practice.

## 2.7 Scandia navigator method

This method has been suggested by Swedish financial company Scandia that began to introduce in its annual report also report about intellectual capital (from 1994). It is using methodology Balance Scorecard and extends it with fifth area, human area and illustrates them as a house, as illustrated at Picture No 3. This method has been used at first only for internal needs, lately it was adapted to the universal conditions and from 1997 it is used by various firms. Authors of mentioned method (Edvinsson – Malone, 2002) orientated to five area of organization (that means financial, client, process, human area and area of renovation and development) that are illustrated by the „house“. Basis of the house present renovation and development, walls of the house represent present time that means client and process area, roof means financial area of organization. In the middle of the house there is human area that means its inhabitants. Authors had stated 112 indexes for mentioned areas that are presented in % or financial value. After obtaining of every value intellectual capital of organization can be calculated according following relation:

$$IC = i \cdot C$$

Where: IC – intellectual capital

i – coefficient of effectiveness stated by percentage, expressing position or direction of organization

C – intellectual capital in financial expression

Due to the possibility to measure and evaluate human capital as a part of intellectual capital it can be achieved what is considerable in knowledge economy that means stating of

effectiveness for value added creation. Mentioned methods are chosen from till now suggested and published processes for intellectual capital or its elements. Also here we see visible development of the access to this problem. Firstly first methods have been orientated only to several parts of intellectual capital and not tangible assets, but experts are gradually trying to express real picture about state and movement of elements of such more and more pricing capital. Still not solved task is to suggest method that would provide complex view to the intellectual capital. Development in this area is continuing and its final goal is to give managers most precious source for every firm or organization. But it is not enough to secure organization with qualitative material means and Technologies. Value added is created by people that are bearer of human capital, without them technical conveniences and solutions would be not used, or they would terminate.

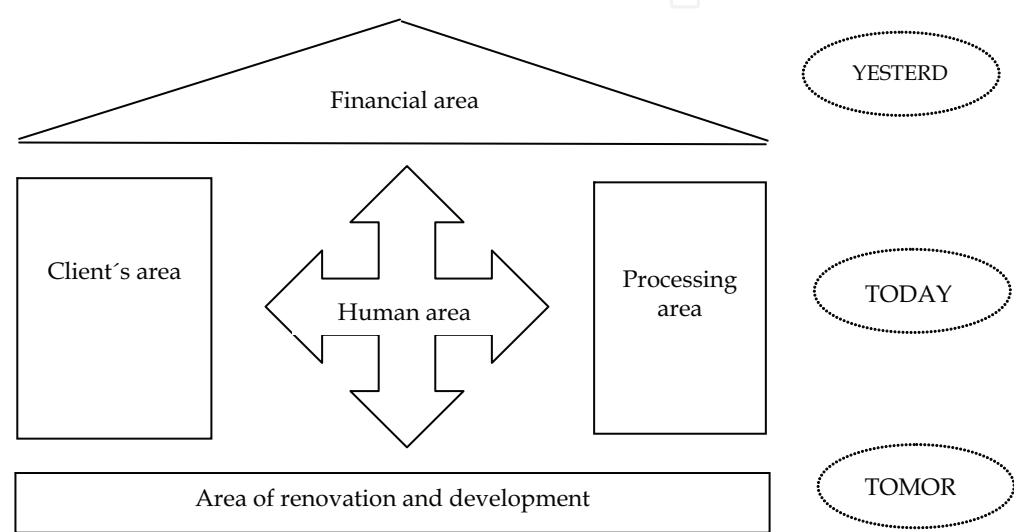


Fig. 3. Scandia Navigator Method

3. Knowledge management as challenge in 3rd century

In last time we meet more and more idea that key to the success in competition environment of global economy becomes effective using of knowledge, abilities and creativity. We are in society of permanent and rapid changes and in economy based on the knowledge that must be captured and managed. Response to such claim is rising of new discipline – knowledge management that includes every development trends of last time and moreover it is trying to develop systematic way how to identify, obtain, maintain, develop, measure and evaluate intellectual capital, or manage it in a word. Mainly mutual Exchange of knowledge support significantly active running of the subject in knowledge society that means transition to the knowledge firm. But in the firm must be such atmosphere, in which knowledge management would be highest priority.

Today conception of knowledge management is considered as most modern trend of organization development. But interest about knowledge is not new, new is only frequency of this terminology using regarding data, information, knowledge, methods for its obtaining, elaboration, managing, transmission, etc. Mainly knowledge management is important step during creation of future as a key factor of organizations success in 21st Century. New system of wealth creation appears in the world and it is still more and more influencing development of the society as well as business environment. Such development

can be characterized as advancement from industrial society to knowledge society. Therefore it is necessary that organization will be changed during change of firm's culture to knowledge organization.

### 3.1 How and when knowledge management originated?

With afford to penetrate to the basis of knowledge management it is useful to know roots, history, basis and collisions of knowledge management origin. Knowledge and work with knowledge is from old inherent for people. Roots can be found from Platon, approximately 400 years before our era, lately in Antique or in old Greece when medicine, logics, mathematics and philosophy started to develop. Further dramatic development of work with knowledge had been in 16th Century when attention had been given to the practical importance of knowledge. This is proved by experiments of representatives of so-called scientific society, for example René Descartes, Galileo Galilei, Isaac Newton and others. They started to collect, sort and systemize information, first encyclopedias originated that can be considered as first basis of knowledge. Lately in 18th and 19 Century there was classification of every available knowledge, academics and scientists stated what is scientific, new branches originated and former knowledge data changed its character.

Work with knowledge at the organization level can be seen still from 20th Century. When P.F.Drucker in 1993 predicted necessity to manage knowledge, he was not first one. Kenichi Ohmae stated before him that new originated economy will be based on knowledge. Till the end of 20th Century brings first clear limitation on which experts create practical conditions for it applying in the practice. Also here we can follow up three basic directions:

- *American conception* orientated to the artificial intelligence and technology, based on the knowledge knowing from the environment and also their providing to the environment;
- *European conception* orientated to the strategy with goal to obtain, maintain and using of knowledge in society and creation of knowledge culture;
- *Japan conception* orientated to the creativity and innovation.

We are living yet several years in third Millennium, it is time of society based on knowledge, and knowledge had become most important way of capital in every organization. That does not means that during product production there will not be necessary capital, work or technical development, but priorities had changed: first role today has knowledge.

### 3.2 Levels of work with knowledge

In present time organization know that traditional sources connected with industrial era are not just ones where is necessary to give attention at mutual present transition to knowledge society and knowledge economy. Strategic source for 21st Century is knowledge, they can secure stable tempo of performance growth and competition convenience. Therefore knowledge are more and more in attention, knowledge management had become more and more spoke about in theory and practice of organization management, without regard to their task or activity. Basic principles of knowledge management can be applied in production firm, business organization, education institution, health organization, and also in offices of state administration. Such new access means confusion of concepts borrowed from various area of human activities, where belongs for example artistic intelligence,

creation of knowledge system, reengineering of firm's processes, management of human sources or organization behavior.

Knowledge can have attention at some levels, their explanation is subject of expert discussions among theoreticians and practitioners, but still in present time it is not clear. For example Bureš (2007) illustrated knowledge management at figure No 4 as a basis for further levels of knowledge management. Basis is therefore knowledge management where products and outputs have application at organization level. Organization level creates basis for knowledge economy at national level and also for knowledge society at over national level.

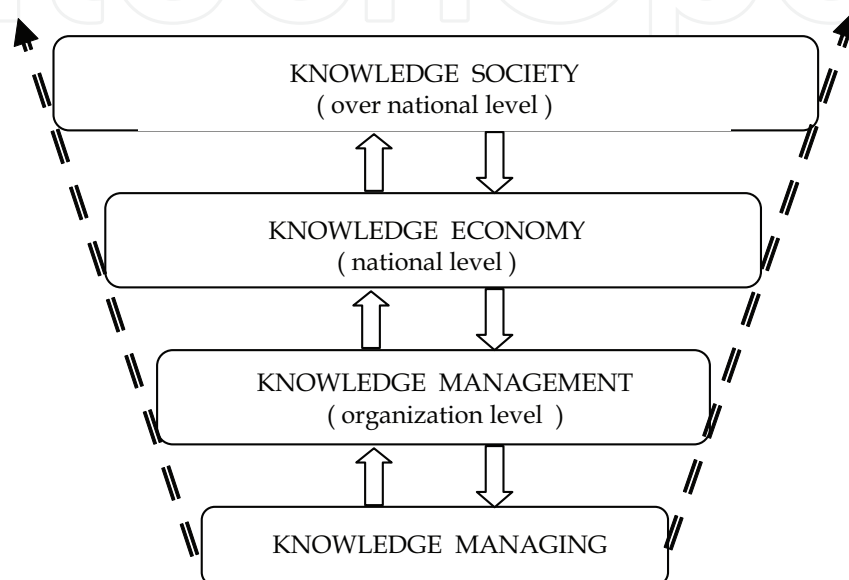


Fig. 4. Levels of attention given to the knowledge

In expert literature we can find expressions as for example „*knowledge managing*“, „*management of knowledge*“ or „*knowledge management*“. Also here such expressions are very similar, but in reality they are very different from the view of the content. We can see attention given to the knowledge at several levels:

- over national level (knowledge society),
- national level (knowledge economy),
- organization level (knowledge management),
- level of knowledge managing.

### 3.2.1 Knowledge society

This over national level of work with knowledge is most extended, general and it create basis frame for lower levels. In knowledge of certain problem there are obvious significant mutual differences between people, resp. between their more or less organized groups, firms, institutions, etc. Chaos of information society has begun to transform to the other, more organized way of so-called *knowledge society*. Seams to be that it will be characterized by mass access of knowledge and using of knowledge and skills deposited and elaborated by information techniques according users demands.

In practice we meet in present time also with doubting about why it is necessary to underline importance of knowledge as something that should give character of society that

is rising? Since knowledge played great task in human society always, yet craftsmen before centuries had them. That is true, but then there was period when through the influence of technical development convenience of craftsmen disappeared in the industrial mass production. Their knowledge had transformed to the activity of production lines, where new originate proletariat was enough to operate, and knowledge of craftsmen was not needed. Through influence of further development of techniques also work of proletariat became replaced by technical systems, robotized production links had been installed where techniques overtook next tasks.

Knowledge in the way owned and used by craftsmen belonged irreclaimably to the past. Society changed to the way where knowledge stopped to be ownership of the individuals and became ownership of bigger organizations. But together with mentioned raised the question about storing, obtaining, protection, using and spreading of such knowledge. These are tasks that give specific character to the coming knowledge society.

What are the expectations? What will be knowledge society? Seems to be that knowledge society will be in its final way presented as society in which individuality of individuals and his position in the society will not be so notably determined by the knowing of this man. Social demand will be approximately similar to the demand defined by information society due to the existence of computer remembrance, elaboration and technical tools of mass access of information – that means elimination of differences between members of society that result from their individual ownership of information or possibility to have access to information.

Knowledge management is reality that is connecting in present time with every inhabitant, firm and organization of European Union. Organs of EU create at over national level assumptions and conditions for realization of concrete steps at national level of individual member state. Argument for such contention is also resolution of hanging of European Counsel Chair in 2000 in Lisbon with goal to approve new strategic goals of EU. European representatives accepted for stimulation of economic growth and employment so-called *Lisboan strategy*. Concept of knowledge economy is here mentioned in several connections, mainly as a part of strategic goal for the next century. Literally it says: *European Union has state strategic goal for following decade – to become most competitive, dynamic economy in the world, based on the knowledge that will be able to maintain economic growth with bigger volume and quality of job and bigger social coherence.*

Lisboan strategy is EU program for unifying of economical growth, competitiveness and employment on one side and social and environmental tenability at the other side. It stands on three pillars that are as follows:

- Competitiveness (economical pillar),
- Social coherence (social pillar),
- Tenable development (environmental pillar).

Goal of Lisboan strategy is to persevere in European model of society for present and future generations in conditions of growing global competition and ageing population.

Over national level is except EU represented also by other institutions where belong for example: Organization for economical cooperation and development (OECD), Organization of unified nations for education, science and culture (UNESCO), etc. Individual scientific and research projects can be considered as a part of over national level that are realized with EU support, finance for example from 5th frame program EU. Research results connect also with over national level and knowledge economy which had been published by World Bank in 2004 about preparation of the countries.



### 3.2.2 Knowledge economy

Knowledge has become old – new source for economical growth not only for individual and organizations, but also for individual national economies. In expert literature there are used in present time except concept *Knowledge Economy* also other expressions that are viewed by authors as certain phenomena. Such expressions are for example: knowledge-based economy, digital economy, new economy, etc.

Opinions of present experts are different, but they are equal as for the fact that till now soil was in economy of agriculture key source, in economy of industry key was natural sources, knowledge economy is based on knowledge using. Economists, politicians, and economical publicists are more and more speaking about new economy as a new forcing system of organization of financial, industrial and business activities, based on the intensive work with knowledge. The idea knowledge has important task in economy is not new. Every economy, however simple is based on knowledge, for example about protection of raw material, or in case of building construction, etc. Such knowledge obtains still bigger importance from the time of industrial revolution. But level of incorporation of information and knowledge to the economic activities is in present time so high that it instructed totally penetrating structural and qualitative changes in economical operations and it changes basic assumptions for obtaining of competition convenience (Houghton, 2000). Market environment that is created by using of revolutionary technological development and mainly by the power of personal computers, high speed communication and internet, represents economy where there is more rapid growth and lower inflation.

Opinions of individual authors in literature are different as for definition and explanation of concept Knowledge economy. For orientation we can mention several definitions of knowledge economy according Brinkley (2006):

- *Knowledge economy* means creation of value added according paying interest on knowledge, that means not only due to the manual production, where there is growing importance of education and using of scientific knowledge from the view of total competitiveness of the country,
- *Knowledge economy* is economy in which creation and using of knowledge have dominant rate on the creation of wealth. But it does not mean only spreading of existed knowledge, but mainly effective using of any knowledge in every economical activity.
- *Idea of knowledge economy* is based on the description of new sources of competition advantage that can be applied in every sectors, societies and regions, from agriculture and small trade till creation of software, etc. Economical success is still more based on effective using of not tangible assets (knowledge, skills and innovation potential) as a key source of competition advantage. Concept of *knowledge economy* is then used for description of such developing economical structure.

Knowledge society is therefore more then common liability to increase research and development, it covers every aspect of economy where knowledge is basis of value added – from production of sophisticated Technologies, information and communication Technologies, through knowledge intensive services, to creative branches as for example media or architecture.

In expert literature we can find also description of various characteristic, main features, aspects and dimensions of knowledge economy. Knowledge economy according Keleman (2007) is distinguished from classical economy mainly due to the following:

- In knowledge economy core of people or organization interest is learning, still more subjects are becoming learning organization,

- Knowledge economy consists from innovative organization that uses new Technologies for presenting of process and organization innovation. But by this way there is rising increased connection between creation, spreading and using of knowledge. Success of organization and by this way also success of national economy is based on the effectiveness of such activities,
- In knowledge economy there is existing influencing technological power that causes high and still growing intensity of information and communication Technologies using by educated knowledge workers. In present time societies producing ICT are the biggest ones and their economy reports more rapid growth,
- In knowledge economy there is growing rate of gross domestic product, orientated to the knowledge assets towards physical capital, by this way dependence of organization from the need physical sources concentration is decreasing,
- Knowledge economy is known due to the fact that it does not have fixed defined limits, knowledge are overcoming firm's, branch as well as state's boundaries, it need not to be concentrated on one place. Since work in organization can be made at various places, it decreases their dependence from the time and place. By this way phenomena of global competition and good and services production is rising. Many firms with dominant position on the market belongs to the national or over national ones,
- New Technologies enable to transform physically existed organizations to virtual ones. Their working teams can be composed from the people all over the world, and at the same time such people are able to cooperate without necessity to be at one place at certain time,
- Telecommunication and computer net penetrated to every area of human activity where they enable to work absolutely by new ways and to create new values. Computer and internet brought for individual organizations and institutions many possibilities of mutual acting, cooperation and partnership creation,
- Knowledge economy is part of every sector of national economy, not only on knowledge intensive branches. It brings also cooperation, merging and integration of formerly separated economical sectors. New industrial branches are rising that are orientated to the creation of new products,
- In knowledge economy there is existing more dynamic price creation, product prices can be similarly as individual products dynamically adapted to the needs, possibilities and claims of the clients,
- In knowledge economy business is many times realized in real time, in comparison with past time life time of the product is shorter. That force claims for speed of reaction in individual firms.

From mentioned characteristics it is obvious that knowledge economy put new demands on managerial competencies at every level of organization management that want to act successfully in new conditions. It is obvious that knowledge economy (Nonaka, 1995) and knowledge based competition (Drucker, 1993) are not inventions of present authors of publications and contributions in expert magazines, but they are reality that is influencing every one of us. Centre of the attention is still more and more such area of human activity as for example education, innovation or research and development.

During description of knowledge economy characteristics it is necessary to mention also fact that OECD created combined indicator of investment to knowledge. This is consisting from investment to research and development, higher education and information Technologies. During following the index OECD identified in 2006 three groups of economies:

1. *economy with high investment to the knowledge* (that means states of North America or Japan that invest approximately 6% of GDP),
2. *economy with medium investment to the knowledge* (that means states of North Europe or Australia that invest 3-4% of GDP),
3. *economy with low investment to the knowledge* (that means states of South Europe that invest 2-3 % of GDP).

According mentioned facts OECD concluded following conclusions about knowledge economy:

- a. Good economical basis is very important for stimulation of knowledge economy. For example it can be effective education policy of the state, securing equipment of less educated part of population by proper abilities with aim to avoid splitting of knowledge.
- b. Development of knowledge depends from four main pillars: innovation, new Technologies, human capital and firm's dynamics.
- c. Globalization is the fact that influences every four pillars of knowledge economy. It is not news, but in present time it is very strengthened by international mobility of experts, information and communication Technologies, quicker and cheaper transport, liberalization of business, global capital markets, etc.
- d. It is necessary to develop social capital of organization, new practices of knowledge management and organization innovations with regard to deepening of knowledge economy contributions,

### 3.2.3 Knowledge management and managing of knowledge

Ability of the man to transform data to information and lately to useful knowledge can change significantly character of the work, education and everyday life. Human ability to create, obtain, model, represent and actualize complex and interdisciplinary data, resp. information about new and many times very varied sources, is still growing. But these possibilities that are hidden in information transformation can be fully used only by the help of research, tools and methods for knowledge obtaining, their classification, and organization, using and further spreading. Theory and practice of knowledge management is in present time dependent from the mentioned and it is still developing.

Basic principles of knowledge management can be applied in production firm, business organization, education institution, health organization as well as offices of state administration, etc. At this level there is given increasing attention to the knowledge, system and systematic work with knowledge. Such new access presents merging of concepts from various area of human activity, where belong artistic intelligence, creation of knowledge systems, reengineering of firm's processes, and management of human sources or organization behavior.

*Knowledge management* can make at basic level in every organization more effective work with documents, mainly as for their content, but also work with people. And it is possible to contribute to natural connection of both parts. Basis of this is published limitation of the concept:

- *Knowledge management* can be characterized as systematic process of finding, choosing, organization, concentration and presentation of knowledge by such way that will help in organization to increase level of employees understanding to concrete areas. Management of knowledge helps organization to achieve deeper view and understanding of problems mainly according using of own experiences and own

intellectual ownership. Concrete activities of knowledge management help organization to orientate to the obtaining, storing, sharing and using of knowledge in such areas where there exist solution of problems, dynamic learning, strategic planning, decision and others. It protects also intellectual equity of organization before destruction; it contributes to the firm's intelligence and provides bigger flexibility for organization. (Davenport a Prusak, 2000)

- *Knowledge management* itself is not technology, neither file of best processes that organization can have and implement them in practice easily. Knowledge management is also status of the mind that means Access that must extend in the frame of whole organization, when it wants to be successful. Such access must include also culture of learning and cooperation between individuals, working groups or organization units of the firm. It means that knowledge management is connecting people and processes, where information are sharing, building knowledge accordingly and contribute to development of common, sharing firm's knowledge. (Bureš, 2007)

At such mentioned hierarchy of knowledge during every higher level measure of generality is also higher. When at the knowledge management level there are working with concrete knowledge and creating processes how to obtain, elaborate, and use such knowledge at organization level, proper environment for their obtaining, sharing, development and using is basis. Basic task of the national and over national level is creation of economical and political frame, in which lower levels will be moving. Connecting element is such individual organization or firm that is active in national as well as over national level. This can use in its activity principles of knowledge management at organization level and to use results of knowledge management for its work in the sense of proper created and maintained firm's culture.

#### **4. The context of intellectual capital and knowledge management in knowledge culture**

The first condition of building global knowledge society is building knowledge organizations and within them, building such culture which will support these intentions, hence changing it into knowledge culture. In particular it means creating such environment and conditions that will enable people doing a job they are skilled for, they enjoy and at the same time the job that satisfies them, so they can achieve results above standard. When an organization has qualified people at all working positions, the individuals, improving themselves and their working capacity, are able to enhance the efficiency of all the organization which itself, can make a profit thereout. This implies employees' motivation, their participation in strategic plans, ability and willingness to embark upon the organization, which gives them a job.

Corporate culture nowadays has to follow the rule, that it is inevitable to guide education and gaining knowledge according to the requirements of the organization with the tendency to synchronize them with the employees' personal goals. One of the ways how to improve corporate management nowadays is a project of "learning organization" - expressed in increased capacity to learn, adapt and change through people who are learning. However, individual education does not guarantee a learning organization. It depends on radical change on people's thinking and the philosophy of the management associated with the change of culture, which is defined as a set of concepts, attitudes and values in a company, broadly shared and relatively maintained in the long term. In the organization, where



knowledge gradually has to become a crucial factor, the change in people's thinking and at the same time the change of culture is inevitable. Knowledge management implementation is not possible in every environment, i.e. not only gaining and formation, but also mutual exchange, using and handling the knowledge. Not all the subjects are willing to change steady corporate culture.

Shared corporate culture is the key to the usage and development of the employees' potential in knowledge culture. It represents sharing the philosophy, concepts and values into organization's developing orientation and its employees. It is the set of relatively constant and developing concepts, attitudes and values shared in an organization, which is meant for external adaptation and internal integration of employees, expressed in the unity of common value orientations, norms, behaviour and negotiation patterns. It is mostly expressed in:

- accepting the philosophy, strategy, plan and goal of the company
- well – informed employees about the situation happening in a company
- willingness to look for new attitudes towards increasing the management efficiency
- attitudes and approaches oriented towards mutual problem solving
- employees' motivation and initiative
- participation in directing and managing the employees
- informal application of a constant improvement principle
- the support of implementing innovations in an organization
- constant individual and company's improvement in order to get the maximum
- increasing efficiency and profitability
- increasing added value
- overall flexibility and openness towards changes etc. (Barták, 2006)

Knowledge management can be effective only on condition that it does not become only a declared conception, but people – their work, habits and culture – will become its active part. Knowledge management should lead to employees' mutual exchange of gained information and knowledge. However, this is not that easy. People possess knowledge in their heads, it is the result of their education, experience and opportunities and it is their possession. A knowledge capital proprietor can be an active qualified worker as well as a creative professional or manager. It is not a thin layer of university graduates or post-graduates, but it includes people who use their knowledge in creating new products, at their production, sale, finance, company development etc. They do not leave the things around them steady, they change them, take active part in them. These are the people who ensure the competitive advantage for their company. The knowledge can not be privatized, bought or taken by any company. However, a company can enable its employees to develop and manage them in their environment. A change in people's thinking and also the change of corporate culture is inevitable at the place where knowledge becomes the crucial factor.

Tangible condition of knowledge management existence is so called knowledge-sharing culture, i.e. willingness to share own knowledge, know-how and experience and this way let the other employees make a profit in favour of the whole company. Senge's theory of learning organization (1995) appears from similar assumptions. According to him, the success of corporate culture does not depend only on employees sharing their knowledge, but also on the fact if the knowledge is contribution for other colleagues and if they are willing to admit and use the knowledge. This theory has become practical assumption of correct application of knowledge management.



Changes are a part of transition into a society based on knowledge, where a production and an exchange of nonmaterial goods and services is the economic basis. In such social environment, up-to-date information, knowledge and skills are highly appreciated. People, able to create and use new knowledge effectively, considerably and constantly, become the main agents of knowledge society.

The change of corporate culture into a knowledge culture has a strategic meaning for an organization. Its positive effect can not be quantified in a short term perspective, expected expose has a long term and strategic nature. The basic expose of the change is accepting plans, strategies, commission and goals of an organization by its employees, nevertheless the increase of resistance against negative influence and employees' orientation of the changes and new attitudes with the aim of building competitive advantages for an organization.

The real changes leading towards building knowledge culture in a knowledge organization, however, depend on managers who are initiators, proprietors and coordinators of the changes. Managers are those who are able to motivate and affect pragmatic and emotional personal side of individual employees so that they release their potential leading towards systematic learning and improving, cooperation and initiative.

## **5. Intellectual Capital Management as an attitude towards strategic management in a company**

Intellectual capital looks through the main dynamics which affect economic competition in knowledge economics from different perspectives. It must be a main moving power in a company heading towards success, while the pattern of success is a development of intellectual capital, including administrative management skills. Not to seem as general declaration, the formula must, besides administrative skills, also include knowledge, innovations and management of intellectual possession, creating correct culture for intellectual capital and synchronization of different programmes into a complex management of intellectual capital as a system.

Spreading information in knowledge economics focuses its attention on knowledge management in every organization, corporation or company. So called learning organization admits the value of knowledge, it can grow further and flourish through knowledge management. Talking about knowledge management, or learning companies, similarly about intellectual possession as a potential for ensuring competitive advantages is nowadays inevitable in intensive academic and professional discussions and that is in an academic organization and also in practice, in all levels of organizations.

### **5.1 Is ICM – Intellectual Capital Management – a new notion ?**

Approximately since 1950 managers of different majors have developed a whole row of management models and attitudes towards strategic management, e.g. in looking for a competitive advantage. Research and development of management, human resources management, ( HRM ), quality management, (TQM), just-in-time (JIT) a other discussions try to bring individual attitudes in this or that form of intellectual capital. In nowadays expressions ICM, human capital and process takes control of research and development, HRM regulates human capital and TQM a JIT manage process and structural capital. So what other things does ICM offer?

Nowadays ICM is viewed as a discipline divided among lawyers, business managers, consultants and auditors. Intellectual possession called IAM or IPM (often replaced) restricts the attention of specialists to knowledge assets which they can codify and legally protect. Lawyers and business managers focus mostly on business strategies and techniques which increase the doubts of commercial use of IP. Other experts focused on human resources with information technologies in the background, which they marked as knowledge management (KM), with the emphasis on collecting, sharing and transmitting the knowledge which an organization has in its people, generated in the procedures and saved in the databases. The research and development experts of new products focus mainly on innovation management, the research of a process in a production bringing the most effective results, whereas an accountant mainly experiments with a metrics design for measuring IC by which he allows better investment decision-making.

In present globalized business world, intellectual capital can be a base of doing business, which underlines the importance of intellectual equity or intellectual possession management (IAM/IPM). To this day, little is said or written about correlation between knowledge management (KM) and IAM/IPM and about the way an organization can use both attitudes to implement an integrated system for overall management of its intellectual capital and resources. Knowledge management and IAM/IPM aren't one and the same although they are very similar in basic theorem. The difference is mostly in the fact that knowledge management relates to gaining knowledge, collection of ideas, creating values and knowledge transformation into explicit knowledge so that an organization could codify and transmit them, whereas IAM/IPM relates to value maximization, patent licensing, know-how and trademarks, as well as using intellectual possession for gaining competitive advantage, enter new markets, to arrange strategic alliances and create incomes.

Supporters of individual approaches in management hardly admit the advantages of the other approaches and they often do not see the connection between them as well as the fact they could work together. It is true that for some industries, one of the approaches can be more important than the others, however, for every organization, if it wants to succeed in knowledge economics, it is inevitable to admit both approaches of management in certain constant, because each of them fills up strategic needs. The point some of the organizations can not see is the fact that knowledge management and IAM/IPM are the cardinal components of overall intellectual capital management in an organization.

The focus of an organization on only one approach and excluding the others would lead towards resource wasting by a management. Desynchronization between individual organs, as well as a conflict between supporters of different approaches can appear as an effect of it. Combining both approaches is not a solution either. At most, such an artificial connection might disorientate processes and malfunction the system. The reason is, that each of the management approaches has a different function and that is a production versus value revenue, when at their combination, an organization should impose a different approach negotiator towards management, e.g. innovation management.

The way how to work with intellectual capital in management (ICM) is to understand the relationship among these three management approaches (KM, IM, IAM/IPM) and distinguish how each of them affects and facilitates the management of the whole organization. It represents the approach developed for overall strategic organization management and its intellectual capital in every phase of its development. The complex approach of ICM should be suggested in a way to overcome restrictions of one discipline

and at the same time exploit what every discipline has to offer in creating and maintaining competitive advantage of an organization.

It is necessary to start understanding ICM as a universal approach towards strategic management, not only using previous approaches. The aim is to manage administrative wealth of the whole company, 75% of which is intangible. The fact that intangible capital represents such a high percentage of companies' wealth e.g. in America and other developed economies, makes ICM a unique method, thus a complex approach towards a company's management.

Understanding ICM as a coherent discipline with all its heterogeneousness can seem impossible. It requires professional knowledge of participating disciplines: Economics, Marketing, Technology, Accounting, Psychology etc. Joining all these disciplines into one model is not the main challenge ICM faces. The task is to understand the interplay among them and thus to connect them into an effective way which will enable a company to implement, manage and use its intellectual capital effectively.

Successful managers and their companies have come across intellectual capital management, either purposely or intuitively. It doesn't mean that they have ICM programme or its strategy. Intellectual capital management as a matter of common business is not enough for the ICM development. It will only happen when rational way of dealing will be used before intuitive one, when it will be a systematic process, further developed. Then it can be fundamentally changed from existing reality and become a science. As soon as it goes over into a science, it will be able to better anticipate, repeat and later measure. Organizations and managers hesitate in advance to apply ICM in practice, so this way, experts will have to take a long way of experiments, applied research and further ICM development for ICM to become a science.

Some organizations have changed a style of management, e.g. into a business model focusing on intellectual capital management and by this reaction they enabled economics dynamics based on knowledge. Many of these organizations are run without realising the fact they have admitted and applied the approach of intellectual capital management.

A complex ICM integrates three management approaches KM, IM, IAM / IPM when it acknowledges that each of them needs its own goals, procedures, strategy and tools. Higher attention has to be given to their theoretical definition as well as practical implementation. In near future, ICM is expected to represent evolutionary phase of a company strategic management in the conditions of knowledge management and knowledge society.

## 6. Conclusion

Intellectual capital looks through the main dynamics which affect economic competition in knowledge economics from different perspectives. It must be a main moving power in a company heading towards success, while the pattern of success is a development of intellectual capital, including administrative management skills. Not to seem as general declaration, the formula must, besides administrative skills, also include knowledge, innovations and management of intellectual possession, creating correct culture for intellectual capital and synchronization of different programmes into a complex management of intellectual capital as a system.

Nowadays the transition from negativistic behaviour in human resources management towards the employer's positive attitudes is inevitable, being expressed in creating favourable conditions supporting knowledge acquisition, skills improvement and universal

development of working power. Investments into human capital are long-term investments, but they must not be missed by managers just because they focus on short-term goals. It is important to create such environment in economical and political system that will favour organizations taking part in creating human capital as a basic part of intellectual capital and thus enhance the motivation to invest in it.

The development of business in competitive environment depends, to a great extent, on the ability to identify with the knowledge of people and use their skills, experience and knowledge faster and in a better way than competition. It is a strategy of gaining competitive advantage as a basic condition of success just by managing the knowledge. Effective knowledge management requires the knowledge, contributing for the key processes development and organization's activities, to be available for the right people at immediate practical use in time.

Knowledge management thus represents a systematic approach towards searching and using the knowledge on behalf of creating values. It includes the origin, choice, processing, formalization, transformation but also saving the knowledge, however, its sharing, dissemination, further development and effective use with the purpose to gain the highest efficiency of a company is the centre of it. Knowledge management expects and at the same time use the ability of people to gain, share and develop the knowledge, this way creating added value reflecting in performance and qualitative characteristics, increasing the value of a final product for a customer. It is knowledge economics management and knowledge society, i.e. the society based primarily on intellectual capital production, the characteristics of which are:

- producing crucial amount of goods (i.e. knowledge services served to satisfy the needs)
- it influences needs satisfaction and creating their structure the most (i.e. the needs satisfied by knowledge and skills development and realisation are the most significant human needs)
- it supports intensive innovative processes
- it is the centre of economic storage ( i.e. fixed capital, human abilities and relationships are gathered here )
- clear surplus, which becomes the source of intellectual capital storage, originates here

Market economy focuses on expressing immediate finance revenue, but increasingly the pressure on expressing nonmaterial forms of capital, which are a part of market value in every organization, grows. Nowadays it is important that expressing the value is focused more on forming and maintaining the key employees, using their knowledge, creativity support and innovative skills, as well as on underlining the image, trademark, and company's fixed assets growth. The companies, which will use the ability of searching and developing human capital, necessary for gaining competitive advantage in maximum possible extent, will get into spotlight in near future. Such a positive routing supports the process of transformation into a knowledge company in which knowledge and intellectual capital will not only be a competitive advantage, but also its successful behaviour in a knowledge society.

If a process of building a society based on knowledge economics advances, immediate commercial effects from knowledge production, its dissemination through educational processes and results application in a whole complex of economic processes will originate. It will be possible to appreciate, promptly and universally, what science, knowledge and education bring. Centralizing the academic and professional capacities will allow achieving,



based on customer approach and corporate order, real economic effects, which are also acknowledged by market economy influence. By implementation and exercitation of knowledge management practically, in strategic meaning, we can expect from organizations :

- return on investment into human capital (qualification, capability, ... ),
- assessing human capital (sharing the vision, philosophy, the goals of an organization ...),
- management of self-development by an individual / team,
- higher working onset,
- better productivity, efficiency ,
- the growth of added value orientation,
- higher quality products which will satisfy constantly more demanding customers,
- gaining a competitive advantage, increasing a company's competitiveness
- improving the image and occupational reputation of a company,
- long-term perspective of employing individuals as well as an organization

The changes that happen in economics in a globalized environment nowadays require a new approach towards the assessment of an enterprise organizations activity. Knowledge becomes the most important factor and effectiveness in the area of added value production is the most appropriate benchmark of assessing the activity in economics based on knowledge. The value is formed by knowledge, skills and abilities of people, individuals. This is the reason why it is important to focus on the tools of luring, stabilizing, development and care of human capital, which is represented by these individuals, but the efficiency of an organization depends mainly on the correct use of knowledge, which is inevitable to underpin, develop and mutually exchange, in order to create organizational capital.

The beginning of 3rd millenium means an era in which the character of business enterprise changes. Management has to cope with new methods using present possibilities. A new time period brings new hopes as well as hidden threats. One of them is a careless attitude towards the recognition of an unusually fast-progressing development. Markets, customers, technology and competition constantly change. If a company wants to be successful, it has to change itself, otherwise the key competence can easily become the key inconvenience, which might lead into a setback.

Globalization has brought a new view of the world, which is markedly transformed by information and communication technologies. Nowadays, there are organizations and companies in all parts of the planet, as they dinamically use cheaper raw material sources, lower production costs, the most flexible markets and thus increase the extent of their prosperity. However, globalization brings more complex and more difficult competitive environment. If organizations want to compete successfully in such an environment and join the European economic field in full-value, it is inevitable for them to capture incoming trends of transition into knowledge economy.

Present period of new millenium is famous for constantly accelerating changes and the economics based on knowledge, which is important to underpin and efficiently manage. Knowledge is the priority. It is considered on a global, national and corporate level. Knowledge management is a challenge of a present period. Looking for possibilities and ways of quantitative measurements of the return on investment into human resources development as well as an effort in strategic management in the way of ICM (Intellectual Capital Management) should be a part of it.



The article is a partial output of a research task VEGA No 1/0124/10 - Strategical managing of the region with regard to environmental and social aspect of permanent maintainable development and VEGA No 1/0270/08 - A model proposal of knowledge management in a company and assessment of investment into a human capital as a condition to increase a company's competitiveness.

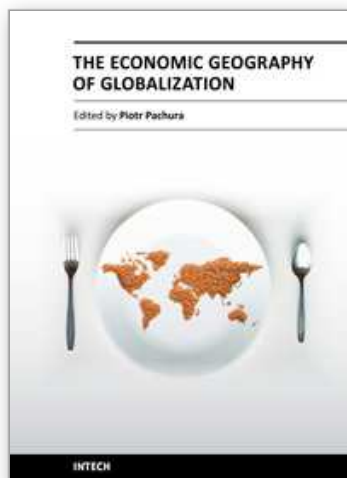
## 7. References

- Antošová, M.: Manažment ľudských zdrojov a organizačný rozvoj ako východisko znalostného manažmentu/ Human resources management and organizational development as a basis for the knowledge management. In: *Acta Montanistica Slovaca*, Roč. 15, č. 1, 2010, p. 90-95, ISSN 1335-1788
- Antošová, M.: Manažment v teórii a praxi / *Management in theory and practice*. Košice: ES FBERG TU v Košiciach, 2010, ISBN 978-80-553-0516-5
- Antošová, M.: Manažment ľudských zdrojov v praxi / *Human resources management in theory and practice*. Košice: ES FBERG TU v Košiciach, 2008, ISBN 978-80-553-00177
- Antošová, M.: Co podnik očekáva od manažera znalostí? In: *Moderní řízení*, č. 6/2007, p.50-52, ISSN 0026-8720
- Antošová, M. a Csikósová, A.: Kedy sa podnikové vzdelávanie na Slovensku vyrovná trendom rozvoja zamestnancov v globalizujúcej sa Európe? In: *E+M Ekonomie a management*, roč. 9, č.2, 2006, p. 25-32, ISSN-121-3609
- Antošová, M.: Znalostný manažment a možnosť jeho aplikácie v podniku / Knowledge management and possibility of his application in company. In: *Vzdelávanie dospelých*, roč. 8, č. 3/2003, p. 13-20, ISSN 1335-2350
- Armstrong, M.: Řízení lidských zdrojů. Nejnovější trendy a postupy. Praha: Grada, 2007, ISBN 978-80-247-1407-3
- Armstrong, M.: Řízení lidských zdrojů / Human resources management. Praha: Grada, 2002, ISBN 80-247-0469-2
- Barták, J.: Od znalostí k inovacím. Alfa Publishing, Praha 2008, ISBN 978-80-87197-03-5
- Barták, J.: Skryté bohatstvo firmy. Alfa Publishing, Praha 2006, ISBN 80-86851-17-6
- Bánoci, D. a Mečár, M.: Intelektuálny kapitál a konkurencieschopnosť firmy. In: Zborník – Personálny manažment – trendy, výzvy, inšpirácie. Trenčín: Trenčianska univerzita A. Dubčeka, 2005, p. 24-25, ISBN-80-8075-052-1
- Becker, G. S.: Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education. Chicago: University of Chicago Press, 1993, ISBN 978-0-226-04120-9
- Bontis, N.: Intellectual capital: an exploratory study that develops measures and models. *Management Decision*, 1998
- Bureš, V.: Znalostní management a proces jeho zavádění. Grada, Praha 2007, ISBN 978-80-247-1978-8
- Bureš, V.: Konceptuální perspektiva znalostního managementu. In: *E+M Ekonomie a management*, č. 2/2009, p. 84-96, ISSN-1212-3609
- Csikósová, A.: Modelový prístup k tvorbe marketingovej stratégie / The model approach of the marketing strategy creation. In: *Acta Montanistica Slovaca*. Roč. 10, č. 1, 2005, p. 52-56, ISSN 1335-1788
- Čarnický, Š. a Mesároš, P.: Potreba implementácie manažmentu znalostí v slovenských podnikoch. In: *Ekonomický časopis*, roč. 54, 2006, č. 4, p. 386-402, ISSN 0013-3035

- Čulková, K. a Teplická, K.: Evaluation of the health care from the view of quality management system. In: *Kvalita Inovácia Prosperita*. Roč. 12, č. 1 (2008), s. 45-52. ISSN 1335-1745
- Davenport, T. H.: Human Capital. San Francisco: Jossey Bass, 1999
- Edvinsson, L. a Malone, M. S: Models of Intellectual capital valuation: A comparative Evaluation, 2002
- Hrehová, D. a Frenová, J.: Zákon ekonomiky dnešných dní. In: *Zborník - Manažment ľudského potenciálu v podniku*. Žilina, Žilinská univerzita, 2009, p. 30-34, ISBN 978-80-554-0013-6
- Kameníček, J.: Lidský kapitál – úvod do ekonomie chování. Praha: Karolinum, 2003
- Koubek, J.: Řízení lidských zdrojů / Human resources management. Praha: Management Press, 2001, ISBN 80-7261-033-3
- Kravčáková, G.: Knowledge management – nový prístup k vzdelávaniu v organizácii. In: *Zborník - Kvalita života a rovnosť príležitostí z aspektu vzdelávania dospelých a sociálnej práce*, Prešov: Prešovská univerzita, 2005, p. 597-604, ISBN 80-8068-425-1
- Krauszová, A. a Szombathyová, E.: Ľudský kapitál ako faktor ovplyvňujúci racionalizáciu pracovných procesov. In: *Manažment v teórii a praxi*. roč. 4, č. 3-4 (2008), p. 54-58, ISSN 1336-7137
- Lukášová, R., Nový, I. a kol.: Organizační kultura. Grada Publishing, Praha 2004, ISBN 80-247-0648-2
- Mesároš, P.: Znalostná kultúra v podniku – predpoklad implementácie manažmentu znalostí. In: *Manažment v teórii a praxi*, roč. 1/2005, č. 3, p. 55-59, ISSN 1336-7137
- Míhok, J., Rakušan, K.: Podniková kultúra ako súčasť znalostného manažmentu. In: *Trendy v systémoch riadenia podnikov*, SJF TU v Košiciach 2007, ISBN 978-80-8073-885-3
- Míhalčová, B. a Pružinský, M.: O manažmente a manažovaní. Katolícka univerzita Ružomberok, 2006, ISBN 80-8084-122-5
- Míhalčová, B. a Gavurová, B.: Organizačná kultúra ako faktor úspešnosti organizácie. In: *Manažment v teórii a praxi*, roč. 3/2007, č. 4, p. 64-72, ISSN 1336-7137
- Pachura, P.: Regional Cohesion. Effectiveness of Network Structures. Springer-Verlag Berlin Heidelberg, 2010. ISBN 978-3-7908-2363-9
- Pulic, A.: Measuring the Performance of Intellectual Potential in Knowledge Economy. [on-line]: <<http://www.measuring-ip.at>>
- Řezáč, J. : Moderní management. *Manažer pro 21. století*. Computer Press, Brno, 2009, ISBN 978-80-251-1954-4
- Senge, P. M.: The Fifth Discipline. New York. The Art & Practice of The Learning Organization. C – Century Business 1992, ISBN 0-7126-5687-1
- Seňová, A. a Repaská, P.: Úloha manažérského vzdelávania pri rozvíjaní a využívaní kreatívneho potenciálu zamestnancov. In: *Zborník - Manažment - teória, výučba a prax 2006*, Liptovský Mikuláš, 2006, p. 131-137, ISBN 80-8040-299-X
- Schneider, U.: The Austrian Approach to the Measurement of Intellectual Potential. [on-line]: <<http://www.measuring-ip.com>>
- Starovic, D. a Marr, B.: Understanding corporate value: managing and reporting intellectual capital. Cranfield University, School of Management. [on-line]: <<http://www.valuebasedmanagement.net>>

- Seňová, A., Teplická, K. a Čulková, K.: Utilization models of machines renovation in mining company. In: *SGEM 2010 10th international multidisciplinary scientific geoconference* : Volume 1, 2010, Bulgaria, Sofia, p. 943-950, ISBN 954-91818-1-2
- Teplická K. a Kameníková K.: Duševní zdraví především. In: *Moderní řízení*. Vol. 39, no. 7 (2004), p. 58-59. ISSN 0026-8720
- Truneček, J.: Znalostní podnik ve znalostní společnosti. Profesional Publishing, Praha 2003, ISBN 80-86419-35-5
- Vodák, J.: An approach to measuring the return on investment in the area of human resources. In: *E+M Ekonomie a management*, č. 1/2006, p. 41-48, ISSN-1212-3609
- Vodák, J. a Kucharčíková, A.: Efektivní vzdělávání zaměstnanců. Praha: Grada, 2007, ISBN 978-80-247-1904-7

IntechOpen



## **The Economic Geography of Globalization**

Edited by Prof. Piotr Pachura

ISBN 978-953-307-502-0

Hard cover, 264 pages

**Publisher** InTech

**Published online** 27, July, 2011

**Published in print edition** July, 2011

Very often the process of globalization is referred the word economy evolution. Often we measure and study globalization in the economic relevance. The economy is possibly the most recognized dimension of globalization. That is why we see many new phenomena and processes on economic macro levels and economic sectoral horizons as well as on specific “geography of globalization”. The book The Economic Geography of Globalization consists of 13 chapters divided into two sections: Globalization and Macro Process and Globalization and Sectoral Process. The Authors of respective chapters represent the great diversity of disciplines and methodological approaches as well as a variety of academic culture. This book is a valuable contribution and it will certainly be appreciated by a global community of scholars.

### **How to reference**

In order to correctly reference this scholarly work, feel free to copy and paste the following:

Maria Antosova and Adriana Csikosova (2011). Intellectual Capital in Context of Knowledge Management, The Economic Geography of Globalization, Prof. Piotr Pachura (Ed.), ISBN: 978-953-307-502-0, InTech, Available from: <http://www.intechopen.com/books/the-economic-geography-of-globalization/intellectual-capital-in-context-of-knowledge-management>

**INTECH**  
open science | open minds

### **InTech Europe**

University Campus STeP Ri  
Slavka Krautzeka 83/A  
51000 Rijeka, Croatia  
Phone: +385 (51) 770 447  
Fax: +385 (51) 686 166  
[www.intechopen.com](http://www.intechopen.com)

### **InTech China**

Unit 405, Office Block, Hotel Equatorial Shanghai  
No.65, Yan An Road (West), Shanghai, 200040, China  
中国上海市延安西路65号上海国际贵都大饭店办公楼405单元  
Phone: +86-21-62489820  
Fax: +86-21-62489821

© 2011 The Author(s). Licensee IntechOpen. This chapter is distributed under the terms of the [Creative Commons Attribution-NonCommercial-ShareAlike-3.0 License](https://creativecommons.org/licenses/by-nc-sa/3.0/), which permits use, distribution and reproduction for non-commercial purposes, provided the original is properly cited and derivative works building on this content are distributed under the same license.

IntechOpen

IntechOpen