



Economics Education Finance Information Management Marketing Tourism  
Technology

**7th International Conference  
An Enterprise Odyssey:  
Leadership, Innovation and Development for Responsible  
Economy**

**Faculty of Economics and Business  
University of Zagreb**



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# KNOWLEDGE AS A RESOURCE AND REVIEW OF KNOWLEDGE MANAGEMENT CONCEPTS

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## **Abstract**

*Every organization has a system in which knowledge is stored and which can be managed more or less successful. The purpose of this paper is to point out knowledge as a resource alongside with the review of known concepts of knowledge management which significantly facilitate and accelerate the process of existing business processes, and emphasize the importance of resources – most of all the "knowledge stored in the enterprise", as the main factor of strategic competitive advantage of an enterprise (organization). Such an approach takes internal competitive advantages as a basis of successful growth of the company. They are to be regarded as the potential that can be used and developed. The result of this approach is distinctive knowledge in terms of the perception of intellectual capital in which an important role is given to human resources with the fundamental characteristic of the possibility of using knowledge in business operations. Based on an overview of the concepts of knowledge management it is concluded that modern industry rests on the foundations of knowledge exchange and collaboration among its employees in order to remain competitive in the increasingly challenging market environment.*

**Keywords:** knowledge, resources, knowledge management, intellectual capital, business processes

## 1. Introduction

Knowledge is indisputably important, if not the most important part of the business. Nowadays of modern economy, organization's growth is based on knowledge and knowledge production. The concept of the "new economy" binds with the knowledge as well. The "new economy" is based on ideas and knowledge, while knowledge as part of the total capital of the company, especially intellectual capital, also becomes the most important economic resource for achieving competitive advantage. The term intellectual capital refers to the creative use of knowledge in production and in any other creative activity, as well as refers to the ability where knowledge, considered as invisible asset, is converted into products and services which bring value. The interdependence and the importance of resources, and management processes of the same, puts the spotlight on the importance of these two components for the normal functioning of the entire business system. Therefore, it can be claimed that resources are necessary for quality business. Modern industry rests on a foundation of knowledge exchange and collaboration between its employees in order to remain competitive in the increasingly challenging market environment. The aim of this paper is to analyze the characteristics, significance and importance of the term resource/knowledge and to determine the impact and the need for attributing importance to resource management/knowledge through quality of business management. This paper researches and provides a comparative overview of concepts of knowledge management in organizational structures where knowledge management can be a carrier of trust, mutual respect and progress.

### ***Importance and role of knowledge as a resource in organization***

The essence of the term "resource" is its necessity, and that companies could perform their tasks and achieve its set objectives they must adapt certain resources. In terms of the use of certain resources, it is important to define which aspects and areas are they defined from and observed. Some authors made the following classification of resources (Buble, 2005, p.57): *tangible assets* (physical and financial assets that the company uses to ensure value for its customers, such as facility, equipment, real estate, etc.), *intangible assets* (this part is considered to refer mainly to human and information resources or knowledge), *organizational skills* (ability to combine the assets, people and processes that a company is using in transforming inputs into outputs). The classical division of resources would be however on physical, human, information and financial resources (table 1).

*Table 1: The classification of resources*

COMPANY RESOURCES			
PHYSICAL RESOURCES	HUMAN RESOURCES	INFORMATION RESOURCES	FINANCIAL RESOURCES
Facility (eg buildings, office premises), equipment (eg computer equipment), real estate	Knowledge, abilities, skills, competencies	data, information, knowledge base	money, purchasing power, net assets

*Source: original copyright*

Human resources, often considered as intellectual capital, or knowledge, is one of the most important resources of today, since knowledge, competencies, and skills of people are nowadays a source of competitive advantage in the market which is used to produce a new value on the market. Intellectual capital includes four areas (Buntak, 2010, p.23): human capital, structural (organizational) capital, relational (consumer) capital, and intellectual property. Intellectual capital is one of the elements that determine the value of the company. It includes and emphasizes the importance of people and their knowledge as a creative potential for company business success, as well as organization of business and innovation, and is certainly in function of creating added value.

*Knowledge as a key resource of organization*

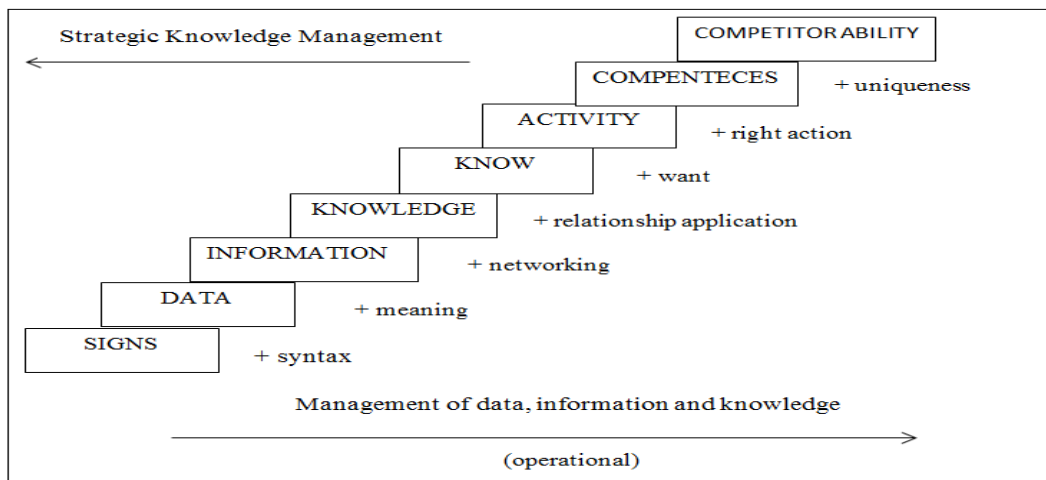
Nowadays, a key resource for managing the company is knowledge, or the ability to collect, develop, share and apply knowledge. Knowledge stems from the foundation of experience, especially cognition of past on whose foundations can be observed in new events and situations. As an economic resource, knowledge while used is not wasted, in fact its value continues to increase. Recently the role of knowledge is increasingly emphasized, which resulted in significant structural changes in the developing economies. In addition, the role of

knowledge completely changes in its importance, and with the transition from an industrial to a modern information economy today, the main resources are no longer material goods. A new factor of economic activity becomes a knowledge economy. Knowledge is a unique resource that has no limits and therefore provides endless opportunities for development, and with its successful management a sustainable competitive advantage can be achieved. Business seeks to increase the intellectual capital and thus to increase productivity and profits, because the knowledge of modern business is its major and lasting source of competitive advantage. Knowledge in organizations is often stored not only in documents but also in organizational procedures, practices and standards. Knowledge is necessary for good conclusion, particularly for the identification and understanding of the relation of cause and effects, as well as its impact on business activities of the organization, and thus on possibility of future predictions. Better use of knowledge in many places in the company can lead to a significant increase of productivity and quality (North, 2008, p.10).The impact of globalization and technological change has launched a new era of economic development. Variable that gives the biggest incentive is knowledge - the pace of its development and how it can effectively be learn to use (Miles, Miles, Perrone, Edvinsson, 1998, p.281). Contemporary knowledge emphasizes that the education, research and development are becoming increasingly important factors in the development of the new economy. Education, knowledge and skills are components of many companies, regardless of size and its activity.

#### The stairs of knowledge

Leading companies oriented towards knowledge means applying knowledge resources to maximize efficiency and changed the quality competitiveness. The company focused toward knowledge aims to generate knowledge from information and converting this knowledge into long-term competitive advantages that are measurable as business success. The stairs of knowledge clarifies mutual connections between information, knowledge and skills competitions. Basic concepts that are important for the stairs of knowledge are signs, data, information, knowledge, understanding, action, competences and competitive ability (North, 2008, p.38)

*Figure 1: The stairs of knowledge*



*Source: North, K. (2008), Upravljanje znanjem; Naklada Slap, Jastrebarsko*

The stairs of knowledge begin with the signs. Signs that include letters, numbers and special signs by the rules are converted into data. Data are symbols that have not yet been interpreted, and these data become information only when the relation is established. Information is as a basis from which knowledge is generated, and form in which knowledge is communicated and stored. Core competencies of an organization are considered to be particularly important for competitiveness. They generate value for clients, and they are unique among the competitors. Core competencies also provide access to new markets, and they can not be easily imitated. From this point of view, the core competencies are competitive capabilities of one company. Competency can be defined at two levels. One is related to the competencies of the individual, ie employees, while other with organizations competencies'. Organizational competencies occur as a logical response to the demands of the environment that are complex. They are seeking integration competencies of employees and the organization's ability for timely response to the impact of dynamic environment. It must certainly be added to the impact of the invisible (intellectual) capital on competitiveness and sustainable success of the organization. Leading companies which are oriented towards knowledge means forming all stairs. If the stairs are not formed, such as incomplete availability of information, the implementation of operations are prevented. Strategic knowledge management is based on knowledge stairs from top to bottom, while the operational management of knowledge includes networking information into knowledge, skills and actions. The basis of knowledge management is managing information and data (North, 2008, p.42).

## Defining knowledge

Many authors point out that many companies often do not notice the difference between the content of the terms data, information and knowledge. Simply distinguishing between these three concepts, understanding which form is required at which point, which of these forms organization possesses, and what can or can not to do with them, can lead an organization either to a success or a failure. Accordingly, below are analyzed basic concepts related to knowledge. Data can be defined as "a collection of separate, objective facts about an event" (Davenport, Prusak, 2000, p.1). Data provides only an objective view of events, and does not give answers to questions such as why something happened, what were the consequences or whether to repeat this event or not (Davenport, Prusak, 2000, p.2). For this reason, companies must be careful because gathering large number of data does not provide a sufficient basis for good decision making. On the other hand, the great advantage of data is that the data is the basic input for the creation of information, or "information is data enriched with meaning and importance". Information can be defined as a message, usually in the form of a document or personal communication, which has its sender and receiver (Davenport, Prusak, 2000, p.2). Also, it can be said that the information is actually data that has some meaning. Defining knowledge is, however, somewhat demanding job (Meyer, Sugiyama, 2007, p.18). Meyer and Sugiyama (Meyer, Sugiyama, 2007, p.18) point out that there is no single, universally accepted definition of knowledge. Thus, for example, knowledge can be briefly defined as the use of information (Kermally, 2002, p.47,48). Also, knowledge can be defined as the current mix of experience, values, information within some context and expert cognition that provides a framework for the evaluation and use of new experiences and information, allowing greater emphasis on the characteristics of knowledge that make it so unique and at the same time so ungrateful for management. What is important to emphasize is that knowledge is essentially different from the information and therefore requires different tools and approaches for its transfer. So Van Beveren (Van Beveren, 2002, p. 19.) differentiates the data and information as only forms of messages which can be recorded, transmitted or stored outside of the human brain, while knowledge exists only in the mind of individuals. McDermott (McDermott, 1999, p.105) specifies six characteristics of knowledge that distinguish it from the information:

knowledge is the result of a human act

knowledge stems from thinking

knowledge is created in real time

knowledge belongs to communities

knowledge circulates through the community in many ways  
new knowledge is created at the border where the old knowledge ceases

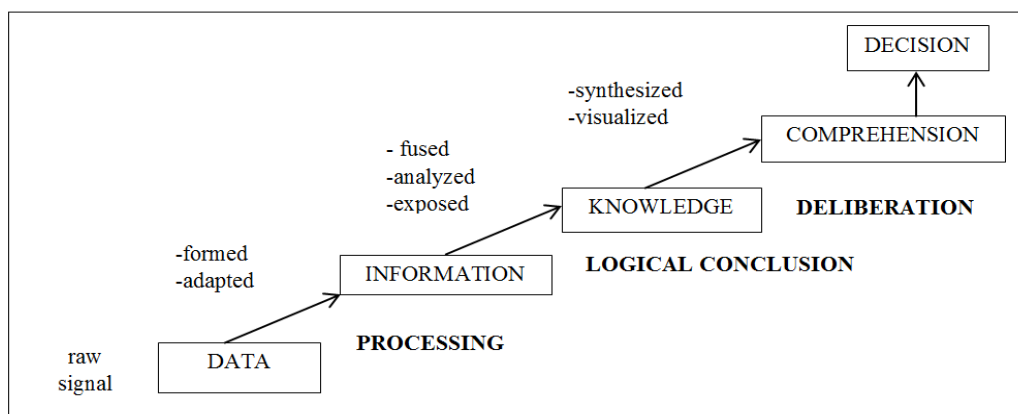
In its circle of use an information in the head of individual is transformed into knowledge to be re-treated only as information when it turns into a text, graphs, words and tables. The circle continues again when the same information, for example, stored on your computer in the form of text or charts, is brought to an individual and becomes his/hers knowledge (Hicks, Dattero, Galup, 2006, p.20). In addition, as Lee and Yang (Lee, Yang, 2000, p.783) observed mentioned relationship, "one man's knowledge may be information for another man". In accordance with this statement, Clemmons Rumizen (Clemmons Rumizen, 2002, p.7.) warns against the trap of classifying all in category of data, information or knowledge. It reminds us of the fact that something that is knowledge for one person can only be information for another can only be information and vice versa.

#### Categories of knowledge

Knowledge can be categorized in continuum where one extreme is the implicit and the other extreme is explicit knowledge (Edmondson, Winslow, Bohmer, Pisano, 2003, p. 199), where the boundary between them is not entirely clear (Mooradian, 2006, p.104). Implicit knowledge is referred to as subjective, closed, personal, tacit, silent or procedural knowledge, while explicit knowledge is used to express objective, open, clear and declarative knowledge. Implicit knowledge is invisible, and it is hard to express. It is also very personal, hard to formalize and transfer to others. Each component of tacit knowledge is a combination of experience, education, technical knowledge and cultural values (Mulder, Whiteley, 2007, p.72). Implicit knowledge is used in almost everything we do, even though we may not be aware, such as in application of the language rules while talking or initiating parts of the body while walking (Tsoukas, 2005, p.416). Explicit knowledge is knowledge that is expressed, and which in explicit form is expressed in numbers and letters. This type of a knowledge can be stored and easily searched with the help of information technology. Implicit knowledge can be transferred, however, it must be transformed into explicit knowledge first, which then, by using it and modifying, becomes again implicit knowledge. Explicit knowledge is relatively easy to transmit and collect through listening or reading, while implicit knowledge is complicated for understanding and handling (Hafeez, Abdelmeguid, 2003., p.154). Japanese companies believe that knowledge is largely invisible, implicit, and that explicit

knowledge, shown in figures and letters, symbolically represents only the tip of the iceberg of knowledge. Such a relation is confirmed with the fact that individuals for work, decision making, thinking, innovation and similar mental activity mostly use their implicit knowledge, and that "an individual can have all the necessary implicit knowledge to solve a problem without having any explicit knowledge" ( Hicks, Dattero, Galup, 2006, p.11). Categories of knowledge depending on its contribution to organizational success can be seen through a model that gives Hicks, Datter and Galup. (Hicks, Dattero, Galup, 2006, p.22). This model consists of five different levels in the hierarchy of knowledge: individual knowledge, located in the minds of individuals; facts, which are saved in documents, databases and data warehouses; influences, referring to the fact that the data are prepared for the presentation, which comes to the fore in decision-making support systems, learning systems, yellow pages and reports, solutions, and clear instructions how to perform a specific task, which is present, for example through the transfer of best practices, and innovations that involve the use of resources that are based on knowledge. Graphic of this model is shown in the following figure:

*Figure 2: Knowledge management hierarchy*

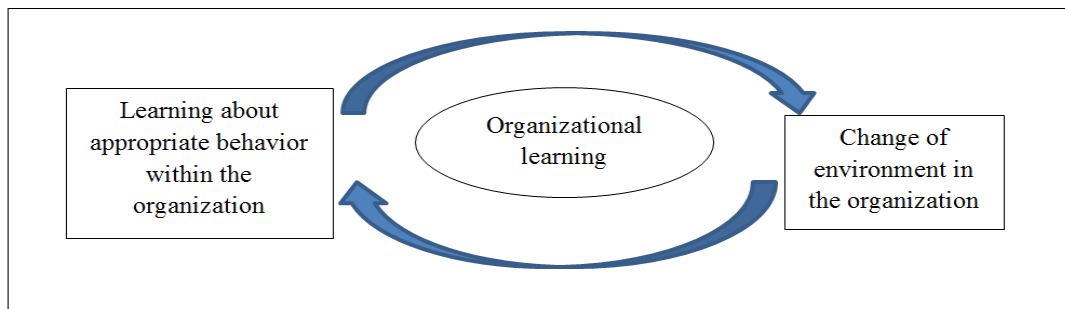


*Source: Miles, C., Miles, R.E., Perrone, V., Edvinsson, L., (1998), Managing customer interaction with information processing, Sanjib Chowdhury, Eastern Michigan University*

### *Importance of managing (resources) knowledge for business companies*

The modern business world is characterized by dynamism, changes, and with the constant progress of technology. To be up to date with changes, organizations must become more flexible, and one way to do that is by increasing the potential of learning as a group.

*Figure 3: Circle of organizational learning*



*Source: Schatten, M.(2011), Upravljanje znanjem, FOI, Varaždin*

Business brings every day new obstacles, ups and downs. To successfully overcome these obstacles and to solve problems, sufficient knowledge and perseverance must be obtained. Knowledge management can be defined as a series of interrelated activities of the organization and management that is focused on the tactics and strategy of human capital, ie the development of knowledge, skills and competencies of employees in general (<https://groups.google.com/forum/#!topic/timinfoteh2/KONy85zUv88>, april, 2013).

Knowledge management (abbreviated KM) can be understood as an integrated approach in achieving organizational goals, which sets the focus on knowledge. Furthermore, it supports and coordinates the creation, transfer and application of the individual knowledge in the process of creating a value (figure 3). Knowledge management emerged as a scientific discipline in the early nineties of the last century. It combines a series of strategies and practices used in an organization to identify, create, display, distribute and accept perceptions and experiences. This discipline refers to an individual as a specialist who can share his/her knowledge with other group members. Knowledge is the appropriate collection of information, and its primary purpose is to be useful. Knowledge is acquired through a learning process in which information is converted into knowledge to be useful to us, in order to serve us for something.

#### *Comparative review of knowledge management concepts*

Knowledge management is engaged in the processes of creation or recognition of knowledge, its collection and application, in order to achieve the ultimate goals of the organization and find the best ways to maintain the competitiveness of the organization in conditions of constant changes. The purpose of knowledge management is reflected in the ability of an organization to create a value by effective use of knowledge. It should be monitoring,

encouraging and facilitating all activities that are related to knowledge, constantly improving and working on knowledge, creating, updating and organizing knowledge. In today's world knowledge and innovations are the main initiators of the economy. Knowledge management enables identification of the most important strategic knowledge for the advancement of any organization, in order to organize the most efficient flow of knowledge and information, thus increasing the efficiency of the organization. Knowledge management is a systematic way to organize, store and share the knowledge acquired for the purpose of achieving the objectives of an organization. It aims to optimally utilize existing knowledge by continuing to develop and implement new products and processes. Knowledge management is focused on the organization of goals, such as improving performance, competitive advantages, innovations and continuous improvement of the organization. Knowledge management is not a new idea, as the organization has been managing the "human resources" for years. What is new is the focus on knowledge that is the result of accelerated changes in the organization and society. Knowledge management is based on the idea that knowledge is the most valuable resource of the organization. Knowledge management is the application of the collective knowledge of all the people within the organization with the intent to achieve a particular goal of the organization. However, the purpose of knowledge management is not managing of all knowledge, but only the knowledge that is important for the organization. The task of knowledge management is to ensure needed knowledge, where is needed and at the time when it is needed. Such approach, based on the successful growth of companies, takes internally competitive advantages, which are needed to be seen as a potential that should be used and developed. The area of knowledge management is a broad, complex and it is continuously developing. It includes management, business processes, technology, strategy and human resources. Professional literature contains a large number of definitions of knowledge management, and bellow few of them are singled out to see different views of this area.

*"Knowledge management is a critical process of manipulating knowledge in order to satisfy existing needs, identify and utilize the existing resources of knowledge and develop new business opportunities."* *"Knowledge management is an activity that is engaged in the strategy and tactics of managing human capabilities."* *"Knowledge management is a systematic attempt to create, to collect, to organize, to distribute and to use the knowledge with the help of appropriate technology."* *"Knowledge management is the process of creating, coordinating and storing, transferring and applying (re-useing) of knowledge in order to increase the efficiency of the organization."* *"Knowledge management is efficient connectivity of employees who possess knowledge with those employees to whom the same knowledge is*

needed, but also by collecting obtained knowledge, in order to facilitate future learning in the company” (Suresh, R.: Knowledge management – An Overview, online [http://www.knowledgeboard.com/library/km\\_an\\_overview.pdf](http://www.knowledgeboard.com/library/km_an_overview.pdf))

From the mentioned definitions it is implied that knowledge management can be viewed from different points of view. The four most important points of view of knowledge management, based on which a comparative review of the knowledge management concepts are performed are as follows:

Knowledge management as a technology

Knowledge management as a discipline

Knowledge management as a philosophy

Knowledge management as an entrepreneurial venture

*Table 1: Comparative review of the knowledge management concepts*

COMPARATIVE REVIEW OF THE KNOWLEDGE MANAGEMENT CONCEPTS	
<p>Knowledge management as a technology</p> <p>- consists of a large number of practical methods, training, systems and approaches for managing processes within the organization relating to knowledge</p>	<p>Knowledge management as a discipline</p> <p>knowledge management as a discipline is concerned with the phenomena, mechanisms and processes that influence the knowledge management</p>
<p>Knowledge management as a philosophy</p> <p>it concerns the managers who use the knowledge management with introducing new business strategies or improving companies results</p>	<p>Knowledge management as an entrepreneurial venture</p> <p>focuses on strategies, policies and allocation of resources to build the necessary intellectual capital</p>

*Source: Baksa, V. (2013.), Upravljanje znanjem u organizaciji, seminarski rad, Veleučilište u Varaždinu, Varaždin*

a) Knowledge management as a technology

Technology is often considered as a knowledge management. Thus, the knowledge management consists of a large number of practical methods, trainings, systems and accesses to manage processes within the organization related to the knowledge. Knowledge management as a technology also includes an offer of well-defined approach based on information technology. This perspective is mainly oriented to the application of the concept of knowledge in terms of how to do something for a variety of business purposes. Known technologies used in the knowledge management, but not exclusively, in that context are semantic web, ontologies, knowledge base, knowledge-based systems, warehousing and data mining, mind maps, various types of collaborative tools, etc.

#### b) Knowledge management as a business discipline

Business disciplines enable the basis for performing research, provide education and training or it develops new effective teaching methods and approaches which are present more and more. This view is connected with many other areas of philosophy and cognitive science all the way to the management, economy, social science, information technology and artificial intelligence. Knowledge management as a discipline is concerned with the phenomena, mechanisms and processes that influence on the knowledge management.

#### c) Knowledge management as a philosophy

This perspective concerns the managers who use the knowledge management while introducing new business strategies or for improving companies results. Leadership companies form perspectives, plans and actions that are based on their own beliefs and understanding of why and how they will be lead by knowledge management to the desired goals. This perspective is focused on the business perception of how to use and apply knowledge management.

#### d) Knowledge management as an entrepreneurial venture

Last point of view of knowledge management is that globalization makes knowledge management activities necessary for the maintenance or improvement of the position. This has caused social and entrepreneurial movement which is based on the notion that globalization in 21st century leads to the so-called knowledge era. The main competitive

factor becomes intellectual capital if it is used in an adequate way. This perspective focuses on strategies, policies and allocation of resources to build the necessary intellectual capital.

### Generations of knowledge management

The area of knowledge management is very young and has started to develop at a time when changes in the business world took place rapidly and constantly, so the characteristics of the knowledge management concept have also rapidly changed and have adapted to the business environment. Today, these changes in the field of knowledge management are spoken of as generations or phases of knowledge management, and are divided into the three generations of knowledge management that have been replacing each other relatively quickly.

*The first generation of knowledge management* begins with the observation of the company and its capabilities through the resources it possesses, or with the acceptance of the theory of resource strategies of companies that actually led to the development of the field of knowledge management. In particular, the area of knowledge management began to evolve with the development of consciousness as a modern economic era - the era of knowledge, which also carries a new resource as the key to success - knowledge. So the companies began to wonder who possesses this knowledge that can provide the basis for competitive advantage, and they began to write down the key knowledge, which included detailed descriptions of business processes as well as the creation of a database containing important explicitly expressed knowledge for company.

*The second generation of knowledge management* is a result of needs for resolving the one of the fundamental problems that appeared in the first generation - inadequate organizational culture that does not support knowledge management activities, and has focused on human and cultural dimension. More attention is given to "soft" variables, unlike the first generation in which the main focus was on "hard" variables led by significant investments in information technology. The main objectives of the second phase were motivating employees to participate in the activities of knowledge management, defining the infrastructure that supports them, building a systematic knowledge management process that permeates the entire company, and it is outlined in its business philosophy. Important participant in the second generation was the top management, which is with the increasing in its importance in

a role of knowledge in the modern business world started to invest more resources in quality management. Problems that have appeared in the second generation are related to the huge amount of information and knowledge that have begun to circulate throughout the company. Employees were often overloaded with information, which led to the lower productivity. This problem has moved the whole area of knowledge management to the next level, referred to as third generation of knowledge management.

*The third generation of knowledge management* focuses on simplifying the process of coding knowledge and information, and its storage in a manner that the required knowledge is easily accessible when needed. This generation is the least mentioned due to its recent identification. The characteristics of the third generation of knowledge management are:

- 1) the company optimally takes care of all the factors that influence the success of knowledge management, and it can be said that the company effectively manages knowledge,
- 2) special care is paid to coding and storing of information and knowledge for the sake of simplicity in accessing and using the same (Vidović, 2008, p.23)

### *Conclusion*

Today's trends in the area of the global economy confirm predictions of many economists who have claimed that knowledge is a fundamental factor for the growth and development of the economy in the future. Indeed, there has been a shift from an economy that is based on very limited material resources to an economy that is based on the knowledge. Nowadays, intellectual capital is becoming the most important factor of production that runs all the other factors of production. The synergy of all the components of intellectual capital (human, structural, relational, and intellectual property) is the base in creating an added value in the company and building up competitive advantage in the market. Knowledge is undoubtedly important - if not the most important part of the business. To be competitive, efficient and effective in today's business environment, it is required that organization knows how to manage its resources and knowledge in optimal and quality manner in order to obtain quality management of business systems. That is optimally and quality used in function of quality. The key is to know the proper way of using the resources or knowledge, managing them and using them to create added value. Therefore, today the intellectual capital has become a key factor for competitive advantage. Intellectual capital is one of the elements that determine the

value of the companies. It covers and highlights the importance of people and their knowledge as a creative potential for business success of company, it organizes business and innovation, and it is certainly in function of creating an added value.

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