

The New Economy- Knowledge Based Economy

Carmen MARIN

Faculty of Economics

"Constantin Brancoveanu" University of Brăila

Abstract. The aim of this paper is to emphasize the importance of knowledge based economy, in this time characterized by fast changes and sometimes radical changes, it is impossible to resist without adapting, both people and the organizations too. The matter of the paper develops knowledge based economy concept: elements, definitions of the knowledge based economy, stages and the main knowledge codification. In the end of the paper, the author presents the importance of economy knowledge, in Romanian organizations.

Keywords: knowledge based economy, knowledge society, knowledge based organization, longlife learning, learning organization

1. Introduction

The phenomena of knowledge, considered "the miracle of the human universe" which has a long and complex history but a future just the same, it is of present interest. In the new society, the information society, the basically economic resource it is not anymore neither the capital, the land nor the physical labor, it is and it will be the knowledge.

Vision about management tend to became old. The knowledge is the new resourse and all companies are information company based on knowledge, and all managers are knowledge managers. Management models are from the industry age. In this days, we step on post industrial or knowledge and informantion. In present, we are perhaps where from the half transition between old and new economy, so we can begin to see how is our future.

Many firms have come to understand that they require more than a casual (and even unconscious) approach to corporate knowledge if they are to succeed in today's and tomorrow's economies. A company truly is a collection of people organised to produce goods, services or some combination of the two. Their ability to produce depends on what they currently know and on the knowledge that has become embedded in the routines and machinery of production. The material assets of a firm are of limited worth unless people know what to do with them.

2. Elements of the knowledge based economy

Alan Burton Jones, in his paper "Knowledge Capitalism –Business, Work and Learning in New Economy", consider that are three concepts about the economy based on knowledge-**data, information and knowledge** (figure nr. 1)

- **Data** is a set of discrete, objective facts about events. In an organisational context, data is most usefully described as structured records of transactions. Gather enough data, the argument goes, and objectively correct decisions will automatically suggest themselves. But gathering too much data can make it harder to identify and make sense of the data that matters. Second, there is no inherent meaning in data. Data provides no judgment or interpretation or basis of action.

- **Information** is a message, usually in the form of a document or an audible or visible communication. It has a sender and a receiver. Information is meant to change the way the receiver perceives something information moves around organisations through hard and soft networks.

Unlike data, information has meaning. Data becomes information when its creator adds meaning, for example by contextualising, condensing or categorising it. It should be noted, though, that information (or knowledge) should not be confused with the technology that delivers it: The medium is *not* the message.

- The word **knowledge** is very difficult to define comprehensively, as one should first understand what it means to know something. Thus, Davenport and Prusak do not even try to give us a definition of knowledge but focus instead on a "working definition" more suitable for the purposes of their book- *Knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information.* It originates and is applied in the minds of knowers. In organisations, it often becomes embedded not only in documents or repositories but also in organisational routines, processes, practices, and norms. Knowledge derives from information as information derives from data. The transformation happens for example through connecting, conversating or comparing information.

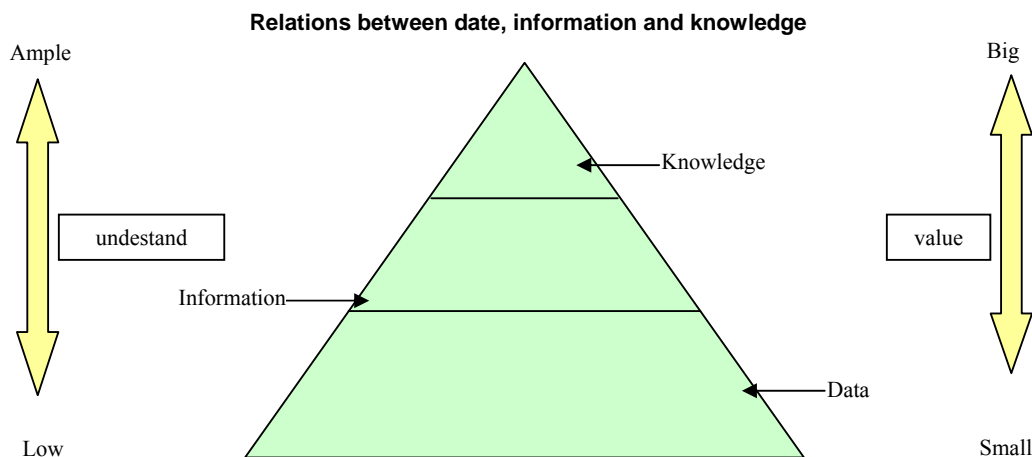


Figure nr.1

3. Definitions of the notion "knowledge based economy" and its characteristics

The knowledge based economy, can be defined differently from specialists:

- **Peter F. Drucker** says in his paper "The post- capitalistic society" that: "The new society – and it already exists – it is a post-capitalistic society, that this new society,... will use the free market as a checked mechanism of economic integration. It will be an "anti – capitalistic society"... The basically economic resources, "the mean of production" it is not anymore the capital and nor the natural resources and nor the "labor". It is and it will be the knowledge."
- **The specialists from OECD** say that the "knowledge based on economy- economy which are directly based on production, distribution and use of knowledge and information".
- **Daniela Archibugi and Bengt Ake Lundvall**, in paper "The Globalizing Learning Economy", says that the new economy is dominate economy more global influence and the speed of communication and information, doesn't matter the distance".

The new society, the specialists say, that will be an era of information and advanced technology, a world of the specialists, a knowledge worker – the one who own, disseminate, protect and use information and the knowledge absolutely necessary for the new society- the society based on knowledge. In this society is cumulated more and more knowledge, knowledge which represents one of the most important power sources.

In a society that is totally dependent on information but as well on the growth of the number of organizations, knowledge seems to be the only power which guarantees the social, economic and democratic progress, progress that does not eradicate in time.

In the present time, knowledge has gained new, complex meanings and significance in comparison to classical and modern philosophies of knowledge. It is not considered anymore just „a human mental process, but also a process of the artificial intelligence systems, of industrial, economical and social organizations, of organizations that include people who collaborate with software agents, intelligent robots and the internet, a process of intelligent and conscious intelligent artefacts” which manifests itself with or without human contribution.

In the past, wellness and power were determined by the capacity of controlling physical resources and the production factors were predominantly of physical nature. All these contributed to a reduced necessity of holding, developing and using knowledge. In the third millennium richness and power will be surely and mainly generated by intangible intellectual resources and by knowledge capital. Specialists define knowledge as „cumulative stockpiles of information and abilities generated through the usage of information by the receptor. Knowledge always incorporates information that constitute the input for the development of knowledge, but also the form through which these circulate...” , and knowledge „as the power of understanding and getting the essence of the facts, evaluation of certitude and information, obtained under the form of experiences or teachings.”

The table 1 show perspectives over the managerial apply to the paradigms submitted to contrasts, comparison criteria and characteristic elements for each type of organization.

Table 1. The characteristics of the managerial apply to the alternative organizational paradigms

The criteria of comparison	PARADIGMS	
	The organization based on control and authority	The organization based on knowledge
The object of action	Classic resources, tangible actives, scheduled activities	Systems and processes based mainly on tangible actives
Dominant logic	The logic of the place of work and the formal organization	The logic focused on organizational competence as performance resources
Time orientation	Retospective	Prospective
The nature of appliance	Good possibility of improvement being focused on the existent systems continuity	Constructive being focused on the concept and the management of changes that take place
The way of practicing	Routine, impersonal; focused on facts	Creative, personal; focused on the concept and strategic aspects
The way of becoming reality	Intervention for fixing the deviations, reactive behaviors	Intervention for transformation based on projects; proactive behavior

Although the organizational theories have only been recently formulated, at this time these are very numerous. Some of the most frequently used by specialists refer to the issues as follows:

- **The theory of transactional costs** – formulated by Ronald Coase, in 1937, has brought a Nobel Prize for its author and stipulates that the main reason for the establishing of a company is that of avoiding the costs involved by using the market mechanisms in order to find the most profitable prices for the company products. Achieving of this objective

requires a set of elements focusing upon costs diminishing, quality improvement and maximizing of the acquisition capacity of the organization.

- **The agents' theory** – formulated during the eighth decade of the last century, considers the organization as a mechanism meant to combine and co-ordinate the inputs of a group of persons interested in achieving of a common economical goal. According to this theory, the organization is considered a contractual structure focusing on the legal aspects, a kind of "collection" of stakeholders' contracts.
- **The theory of the resources based organization** – is considering the organization as a "sumum" of productive resources, either tangible or intangible. The growth and the performance of the organization are provided by proper use of the existent resources, the competitive advantage being the result of exploitation of resources unavailable to competitors.
- **The theory of the knowledge-based organization** – recently formulated, the theory considers the previous theories, and especially the theory of the resources based organization as well as the knowledge revolution developing in the present. Specialists are developing the theory and it considers the premises as follows:
 - Knowledge is acquired by the members of the organization who also deposit implicit knowledge;
 - Due to the limited cognitive abilities as well as to the temporal limitations the members of the organization have to specialize in acquiring and use of certain knowledge
 - Production is usually obtained by using numerous types of specialized knowledge.

Considering these as a starting point, the main role of the organization will be to protect and integrate specialized knowledge. In order to provide this, special mechanisms are to be developed, order to obtain, integrate and protect knowledge that will provide competitive force to the organization. The extent to what the organization will be able to use knowledge will depend on the relationship established between the organization and its products and processes. Explicit and implicit knowledge must be differently as well as complementary considered. The management will have the delicate task of integrating the two categories of knowledge. These distinct categories of knowledge have to be balanced as figure nr. 2 shows. It is generally considered that on the long run only implicit knowledge - either accompanied by explicit knowledge or not – can provide competitive advantage to the organization.

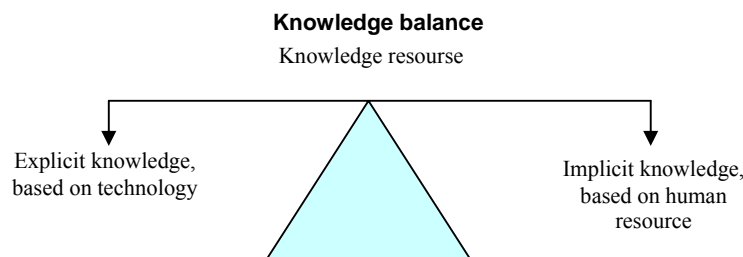


Figure nr. 2

4. Knowledge codification

In order to facilitate economic analysis, distinctions can be made between different types of knowledge which are important in the knowledge-based economy: **know-what, know-why, know-how and know-who.** (Figure nr. 3)

- **Know-what** refers to knowledge about "facts". Here, knowledge is close to what is normally called information – it can be broken down into bits. In some complex areas,

experts must have a lot of this kind of knowledge in order to fulfil their jobs. Practitioners of law and medicine belong to this category.

- **Know-why** refers to scientific knowledge of the principles and laws of nature. This kind of knowledge underlies technological development and product and process advances in most industries. The production and reproduction of know-why is often organised in specialised organisations, such as research laboratories and universities. To get access to this kind of knowledge, firms have to interact with these organisations either through recruiting scientifically-trained labour or directly through contacts and joint activities.
- **Know-how** refers to skills or the capability to do something. Businessmen judging market prospects for a new product or a personnel manager selecting and training staff have to use their know-how. The same is true for the skilled worker operating complicated machine tools. Know-how is typically a kind of knowledge developed and kept within the border of an individual firm. One of the most important reasons for the formation of industrial networks is the need for firms to be able to share and combine elements of know-how.
- This is why **know-who** becomes increasingly important. Know-who involves information about who knows what and who knows how to do what. It involves the formation of special social relationships which make it possible to get access to experts and use their knowledge efficiently. It is significant in economies where skills are widely dispersed because of a highly developed division of labour among organisations and experts. For the modern manager and organisation, it is important to use this kind of knowledge in response to the acceleration in the rate of change. The know-who kind of knowledge is internal to the organisation to a higher degree than any other kind of knowledge.

Learning to master the four kinds of knowledge takes place through different channels. While know-what and know-why can be obtained through reading books, attending lectures and accessing databases, the other two kinds of knowledge are rooted primarily in practical experience. Know-how will typically be learned in situations where an apprentice follows a master and relies upon him as the authority. Know-who is learned in social practice and sometimes in specialised educational environments. It also develops in day-to-day dealings with customers, sub-contractors and independent institutes. One reason why firms engage in basic research is to acquire access to networks of academic experts crucial for their innovative capability. Know-who is socially embedded knowledge which cannot easily be transferred through formal channels of information. Knowledge is a much broader concept than information, which is generally the "know-what" and "know-why" components of knowledge. These are also the types of knowledge which come closest to being market commodities or economic resources to be fitted into economic production functions. Other types of knowledge – particularly know-how and know-who – are more "tacit knowledge" and are more difficult to codify and measure .

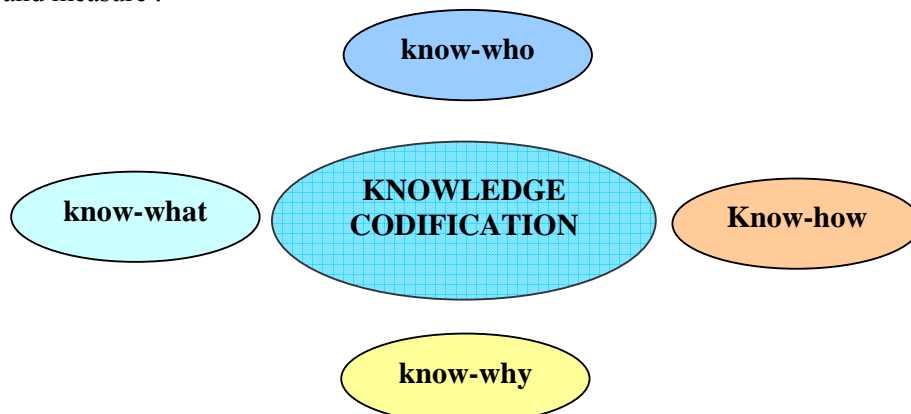


Figure nr. 3

5. Knowledge based organization and learning organization

To conclude it can be assigned that the theory of the knowledge-based organization considers the company as a market structure whose main resource is knowledge, the main activities of such a structure focusing on protection and integration of knowledge, in order to provide economic performance. In order to define the knowledge-based organization it is required to highlight its main distinctive characteristics. According to Burton Jones, these main defining characteristics might be:

- Diminishing of the organization in terms of tangible assets, activities to be performed and workforce as well as the development of the internal knowledge of the company and expanding relations – customers, suppliers and external workforce
- External providing for the activities which are not vital for the company, while emphasizing on the intern use and development of the activities which are strongly complementary to the vital knowledge of the organization
- Altering the relationship with external workforce in order to use it mainly for bureaucratic and maintenance activities which are to be provided by small companies and individuals
- Strategic development of the organization is to be oriented towards deepening or/and enlarging of the organization knowledge which implies that the organization is able to develop its own knowledge and to recognize synergetic co-operation opportunities in this area
- The internal model of organizing the knowledge-based unit is similar to the human cognitive model characterized by less structured networks, partially independent teams formed by members possessing adequate knowledge, organizational capabilities and individual ability for learning
- Maximizing of the efficiency is based on team structures characterized by minimum connections and maximum cohesion
- Diminishing in number and role of the middle management and gradual externalization of the peripheral activities while integrating of the specialized managers who frequently start their activity as agents or consultants for the changing process of the organization
- Reshaping of the managerial and economic capabilities of the organization in order to value knowledge by options, decisions and activities chosen
- Directing investments towards training while using external workforce for replacement of the own workforce which fails in progressing.
- Diminishing of training resources and promoting policies for peripheral areas, which have own responsibilities in training and professional development

Reconsidering of the motivational policies according to the principles as follows:

- Increasing of stimulants for the entire workforce of the organization, according to performance and achievements
- Increasing the use of personnel awarding in the peripheral areas on an individual performance basis
- Intensification of global stimulating for team-work as well as individual, for the main workforce of the organization
- Expanding the promoting policies inside the company and outside the company

These characteristics have been determined by the tendencies shown in the complex and dynamic process of transition from the traditional economics to the knowledge-based economics, such as:

- Main functions of the organization become coordination, protection and integration of knowledge
- Transactions and activities involving high levels of specialization and implicit knowledge are internalized
- Transaction and activities involving explicit knowledge are externalized

- Ownership and management of the organization become convergent
- Links established between educational systems, economic activity and training of the workforce are re-defined

Thus, the knowledge-based organization will become simpler, more flexible, will need less management levels the flexibility and intelligence provided by this new functional structure allowing the company better protection against risk. This does not mean that acquiring performance will become a simpler process. The knowledge-based organization will not be able to reach performance without the correct approach of knowledge and the development of a new system, which often proves to be difficult to implement. The adapting process required by the new model of knowledge-based organization cannot be directly accomplished, but only by means of dynamic stages: the necessity of re-evaluating and re-structuring of the entire system, prior to the change intended is vital. During this first stage viability of the next stages is provided, a correct founding of the knowledge-based development being followed by the development of the organization according to the principles of the new concept. Each stage will provide consolidation for the preceding stage – errors that might occur in a superior stage will have worst impact upon company performance as well as the achievement of the objectives of an initial preparing stage will prove better impact upon performance acquired in final stages. This is why periodic and careful evaluating, followed by prompt correction is required, in every aspect of the organizational contact. Team- work being very recommended, developing the “thinking groups” might result in better performance. The “route” of the development stages reached by improving knowledge inside the organization is shown by *Appendix 1*. The study of the stage reached by leader organizations from powerful economies leads to conclusions referring to the evolution of the knowledge-based organizations. Thus, the most of these organizations have already reached stages of developing knowledge networks and of knowledge-based motivation. The most advanced of these organizations are the top companies in hi-tech and highest qualification professional services – consulting firms, law firms – some of these companies having already reached superior stages such as knowledge intensification or even the final stage of knowledge-based organizations.

Transformation is difficult, requires hard work and it is often cause of real problems - knowledge-based economy is inevitably the final destination, but knowing the final destinations does not ease the route, which is often risky, unpredictable. The intended final structure of a knowledge-based organization is, as previously shown, a simpler thus more flexible structure, more adaptable to the market volatility and the more dramatic competition, which provide better protection against major risks. Changes required in order to reach such a structure, completely different from the traditional organizational structure make the route towards the aimed structure to be itself a major source of risk, if not rigorously respected and correctly managed.

The result of this fundamental transformation is benefic, considering multiple aspects of the organization activity. This final structure will satisfy not only the competitiveness requirements but also the flexibility and adaptability of the company to the dynamic conditions of its evolution and a better risk protection. It will also comply with the needs of current operating such as modeling the abilities of the workforce, elaborating strategies for internalization or/and externalization of the organization activities, correct forecasts for investments in workforce, easier identification of weaknesses and strengths of the organization. Extending the approach to a wider area, this model of increasing knowledge, at any of its levels, can offer valuable elements not only for brechnmaking but also for focusing the support of central and local authorities in the area of human resources development. As previously shown, the fundamental transforming of the traditional organization into the knowledge-based organization is the required route for adaptation. It is not only desirable, and it involves difficult transforming – even if it is gradual – requiring continuous training for the employees

as for the organization, considered as an entity. The route illustrated by the six stages of the model of developing knowledge involves extremely laborious processes, not only managerial but also economical, technical and human. The process also involves vision in implementing and operation and a permanent training for all those who are part in the process.

All of these requirements cannot be achieved without transforming the company into a "*learning organization*" which obviously is not a spontaneous process. This transformation has to be decided by the organization management which will establish the reach of the stage of "learning organization" as a strategic objective for the organization and will define the set of required actions. Not only management involvement is a required premise for this difficult project, but also employees' involvement will be necessary in providing success for this difficult project. Organizational learning is not referring only to accumulating of knowledge but it also aims to using this knowledge in current operating of the organizational activities, thus generating new knowledge. Organizational learning is knowledge-centered not in the quantitative approach of raising intangible assets but in the productive approach of valuing the information and the abilities generated by use of this information. The foundation of the learning organization consists of the pragmatic finality of knowledge reported to information (the starting cognitive element).

Organizational learning can thus be considered a very complex process that must be conceived, starting even with its preliminary stages, as a complex entity. The classical training means still remain valuable, these do not have to be replaced so discursive methods and active methods such as case studies and simulations still have an important role that will have to be completed by innovative training methods of participative management such as delegation, managerial teams. The main source of personal development will remain participating in research-development activities either technical and economical or even managerial. The new learning techniques, such as *thinking groups* or *semi-autonomous creative teams* are specific for the knowledge-based organization, but any training methods used must aim to develop the interest for new information, for achieving knowledge, for communication, career development and result-centered co-operation.

According to these, the learning organization will finally be based on the people who are learning. Therefore, the main objective will be adapting the human capital to the requirements of thinking and acting focused on a learning process. This goal is not likely to be achieved without open, intensive communication between all the employees and superior motivation for obtaining, using, protecting and integrating knowledge inside the organization. The option for personal development by learning and employees' motivation will never reach expected levels without relevant personal example of managers, especially top managers, and without their total involvement in this major project. Individual learning effort is benefic but not sufficient due to the complexity of the process. A great utility prove the collective organizational learning processes referring to the company as a whole. Learning processes approaches refer to:

- ***Adaptative learning*** – refers to changing of the working environment of all the employees of the organization and it only considers knowledge required for the organization to adapt to the contextual evolutions.
- ***Transformation learning*** – is based on cognitive processes and it achieves a high information transfer between the organization and the economical environment, providing not only simple adaptation but essential transformation within structures and processes involved, knowledge and behavior included. This essential transformation is based on permanent interaction between organization and its economical environment.
- ***Learning how to learn*** – is the most evolved training system and it focuses on learning inside the system, by means of concentrating upon learning processes, generating and using new knowledge permanently and not only while certain changes are in course.

Learning processes cannot be properly conducted without providing certain favorable conditions. In order to provide adequate conditions for learning and transformation evolution of the favoring factors will be checked continuously. An adequate environment for developing by learning is strongly dependent of the inner organizational culture and the organizational structure. These are the areas requiring adaptation or even transformation in order to cope with this general learning process. Organizational strategy and, most of all, the employees of the company are the key factors that can provide success of this fundamental transformation.

Appendix 1

THE KNOWLEDGE GROWTH STAGES

- Identification of essential knowledge resources - Knowledge auditing - Awareness of the role of knowledge as a production factor	- Re- drawing systems and processes - Internalizing of essential activities - Externalizing of secondary activities	- Development of collaboration within organization - Development of inter- department work- teams - Spreading of competences and decisional responsibilities	- Offering buying options to the associates - Promoting workforce, including also external workforce - Salary pays based on results	- Improvement of congruence of knowledge and organization products -Growth of investments in research and development -Increasing training for essential employees	-Management of integrated knowledge -Competitive strategies based on knowledge -Growth of the knowledge- based organization
Stage 1 <i>Identifying reengineering</i>	Stage 2 <i>Knowledge reengineering</i>	Stage 3 <i>Knowledge networking</i>	Stage 4 <i>Knowledge based motivation</i>	Stage 5 <i>Knowledge intensification</i>	Stage 6 <i>Knowledge based organization</i>

Conclusions

In such a world in continuous change we need organizations able to adapt rapidly, organizations which reinvent themselves, organizations which permanently renew themselves. In our country the transition toward a society based on knowledge supposes to develop a radical transformation of the institutions from the politic, economic, educational field. "The institutions of the society of knowledge have to become flexible structures, lead and served by high moral professionals who will place the public wellbeing before its own. The biggest need of change is demanded in the educational system.

In Romania, the importance of the concept of organization based on knowledge comes from the engagement made by our country to the informational society – the society of knowledge, the first condition of durable development and our European and Euro-Atlantic integration. The Romanian organizational environment could not make any exception from the trends of orientation recorded at a world wide level towards knowledge, but, "having no strategy, it has been manifested unsystematically, being localized especially at the informal level; interpersonal informational mediation, the informal transactions with knowledge in and between organizations, professional assistance, local improvisations in the management of knowledge are examples which confirm such a finding ". At the national level, to create the organization based on knowledge remains the first condition for the development of an economy of knowledge, important for the Romanian creativity as "the main source for competition and identity in an international environment with clear trends of globalization." In the third millennium, the organizations from our country has to emphasize and to encourage the staff to get involved, underlining the personal contributions inside the organization, the use of all means for growing the potential values of the human resources in an organization, the development of the modern forms of investment in education: training, professional and special qualification, the activities linked of knowledge and development of some skills linked to the development of some activities. Today it is sure that knowledge means power and profits. Building a new kind of organization, the organization based on knowledge represents an institutional innovation characteristic for an emergent society of knowledge what gives a new relevance to the higher education and the scientific research. Adopting a pro-active attitude, based on an approach of "leap" type it is able, say the specialists to favor the diminished differences which are found in Romanian to the present moment and in the

developed countries and also to avoid the negative experiences recorded by those. It is also appreciated that for our country to fulfill the criteria established for the integration in the EU assures achieving some adequate level of potential and performance in essential fields of the society based on knowledge. All this suppose the development of a vision which should define a Romanian pattern for the society based on knowledge and in the same time to allow to formulate solutions, priorities and ways of action for stimulating developments of type "leap" of the economy, education, science and for preparing the population for the evolution towards a society based on knowledge till 2010.

The govern, the govern's institutions and the public sector, has to have the decisive role in this action so through the adopted politics, to realize the frames of rules necessary for the society based on knowledge, the development of the informational national infrastructure and of communication, the un – discriminatory access at public information and to offer a pattern of efficient use of technology of information and communication in its own institutions and public services (health, education culture, transport, etc.)

References

1. Archibugi, D., Lundval, B.A.- "The Globalizing Learning Economy", Oxford University Press, Oxford, 2001
2. Davenport, H. T., Prusak, L.- "Working Knowledge- How Organizations Manage What They Know", Harvard Business School Press, 1998
3. Dragomirescu, H.- "Organizatia bazata pe cunoastere", studiu tematic elaborat in cadrul proiectului prioritar Societatea informationala-societatea cunoasterii, al Academiei Romane, Bucuresti, 2001
4. Drucker, P.- "Societatea postcapitalista", Ed. Image, Bucuresti, 1999
5. Drucker, P.- "The next society: a survey of the near future", Economist (online edition), November 3, 2001
6. Drucker, P.- "Managementul viitorului", Ed. ASAB, Bucuresti, 2004
7. Jones, A.B.- "Knowledge Capitalism Business, Work and Learning in the New Economy", Oxford University Press, Oxford, 1999
8. Mazilescu, V.- "Modelarea proceselor de afaceri bazate pe managementul de cunostinte", Ed. Europlus, Galati, 2006
9. Nicolescu, O., Nicolescu, L.- "Economia, firma si managementul bazate pe cunostinte", Ed. Economica, Bucuresti, 2005
10. Nicolescu, O.- "Sistemul informational managerial al organizatiei", Ed. Economica, Bucuresti, 2001
11. Schultze, U.- "Studying knowledge management in information systems research: discourses and theoretical assumptions", MIS Quarterly Vol. 26 No. 3, 2002
12. Spinuzzi, C.- "What do we need to teach about Knowledge Work?", MIT Press, Cambridge, 2003
13. Zeckhauser, R.- "Investing in the Unknown and Unknowable", Working Paper, Harvard University.
14. Zuboff, S.- "In The Age of the Smart Machine", Heinemann Professional, New York, 1989
15. ***A New Paradim for Knowledge Based Economy: vision and Strategy for the 21 st Century, RDI, Seul, 1998
16. ***The Knowledge Based Economy, OCDE, Paris, 1996
17. ***<http://mpra.ub.uni-muenchen.de/7088>
18. ***<http://mpra.ub.uni-muenchen.de/9643/>
19. ***<http://mpra.ub.uni-muenchen.de/7940/>
20. ***<http://mpra.ub.uni-muenchen.de/8942/>