Information Technology In Supporting Knowledge Management

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Abstract: - In a stable economic environment, the change could be slow, and the organization would have time to react and to maintain the competitive advantage through these reactions. In exchange, within a knowledge based economy, the economic environment changes rapidly and the reaction is not the best alternative; in order to succeed, the organizations must be proactive, to anticipate, to be oriented towards continuous learning and development. Due to the transition to information society, the knowledge is regarded worldwide as a necessary development to ensure sustainable development in the context of "new economy" based mainly on product and intellectual-intensive activities and to achieve a socio-human civilization advanced.

Key-Words: - knowledge management, e-government, information, information technology.

1 Introduction

Every few years a new technological development draws attention Thinker strategic organization and business practice. In this context, organizations have realized that their main values which are known and the ability to use this knowledge on organizational processes and technologies in order to achieve competitive advantage. If industrial society there were different types of organization, coordination, planning of technological resources, processes and financial resources in the information society based on knowledge is to find principles, methods and techniques of investigation, planning, organizing resource-critical knowledge.

The concept of knowledge management is not new, in the 1950 Peter Drucker introduced the concept of "knowledge workers" [1] for workers able to use knowledge for the organization of intangible products.

Many organizations using knowledge management techniques in an informal manner for decision-making or production of goods or services. What's new in knowledge management is the act of being aware of the existence of a process of knowledge management. The term knowledge is one of the most confusing aspects of the theory of knowledge management because of the confusion between knowledge, information and data. While the data reflect written or numeral descriptions of actions, processes, facts, events, information brought a growth of knowledge reflecting a set of data grouped in certain patterns and forms, and knowledge of a complex grouping of information with a strong and decisive human context. In this sense, knowledge describing a set of information acquired or applied in a certain context through human thought. A significant difference between information and knowledge is determined by the transfer. While the information can be transferred easily from person to person, have knowledge of a lower degree of transferability, which has a content and psycho-social context reflecting the intuition, creativity and experience of the person who possesses such knowledge.

The author [9] put in evidence the characteristics of knowledge which distinguishes information:

- Knowledge is human acts;
- Knowledge is outcome of thinking;
- Knowledge belonging to communities;
- Knowledge circulating in the community in various ways.

While some knowledge is only active multiply as they are used, knowledge management is set of tools and skills that organizations need to develop knowledge to use as some comprehensive resource that allows the generation of new knowledge. This definition of knowledge management that exceeds the scope of a computer system, integrating in a
whole culture, technology and talents of the individual within an organization to produce and improve the knowledge generated in time.

1 Approaches in the field of knowledge management
As the market became more competitive, less predictable, organizations have realized that their main values which are known and the ability to use this knowledge to achieve competitive advantage. If industrial society there were different types of organization, coordination, planning and technological resources of financial resources in the information society is to find principles, methods and techniques of investigation, planning and organization represented a critical resource of knowledge.

Transitioning to a knowledge-based economy, and in particular the construction and operation of knowledge-based companies, cannot be achieved without an efficient management of knowledge. A clear distinction must be drawn between the concepts that form close and content "knowledge management" and "knowledge management" [6]. The distinction between the two concepts is that knowledge management as subdivision a new concept of knowledge economy, is a method and a new concept of management that relates to the acquisition, creation, preservation and application or reuse of knowledge, its fundamental objective is exploiting resources and capabilities intelligent knowledge of the organization to give it the opportunity to learn and adapt to changing environment, while defining the knowledge management tools, techniques and processes used by different sectors, organizations and individuals to achieve the same things.

Starting from the previous types of approaches existing in the world vision of Romanian specialists [6] on this subject is characterized by the following premises:

• transition to a new kind of economy, profoundly influencing the content and mode of manifestation of management in all its components and all levels of society;
• prime location in the knowledge management plan, as they simultaneously become a vital resource, a major asset, a principal and a strategic advantage for organizations, therefore a new type of management;
• treat knowledge as an object of management, in their completeness, given the sources, types, dimensions, characteristics, and their specificity on multiple plans;
• management remains to be rational, its organizational structure, represented by ensuring the functionality and high performance, competitive for business.

All these features listed above were put into practice through information and communication technology to facilitate and enrich the work of the organizations future.

2. The content of knowledge management
Knowledge management is a set of tools associated with IT, communication and methodologies that enable structuring, recovery and information availability in the form of knowledge.

According to the authors [5] knowledge management can be split into three levels:

✓ Level 1 - knowledge management;
✓ Level 2 - creating information and sharing it;
✓ Level 3 - enterprise intelligence.

Graphic representation of these levels is achieved in figure 1

Fig. 1 - Pyramid of Knowledge Management

Steps taken during the crystallization process of knowledge management are:

• Phase I - knowledge began to be recovered through databases and working groups;
• Phase II - the use of data warehousing concepts (data in different formats are stored in one place to allow easy integration of their own) and data mining (the analysis of the database which can be identified information with future potential to be used in the substantiation of business decisions).
• Phase III - associated with e-commerce (electronic commerce) and the opportunity to learn more about interactions with customers via web forms and online purchases.

Fundamental elements for crystallization of knowledge management according to the authors [3] include: the human factor, technology and processes.

2.1 Human factor
Developing an organizational culture suited for knowledge management is the most important and most difficult challenge in knowledge management. Successful knowledge management initiatives depend on the motivation, readiness and ability of employees to disseminate and exchange information.

Employees in an organization, processes and technology can act as an incentive or barrier to practice knowledge management. Therefore should be identified and eliminated potential barriers and encourage stimulating factors. The traditional structure of public sector organizations is "partitioned". In such an environment, information and knowledge are scattered with bodies and weight between the different organizational levels. Employees share their knowledge for reasons such as reciprocity, reputation, prestige and sometimes altruistic reasons [8]. This suggests that knowledge transfer is a natural act in an organization. To change attitudes and behavior and reduce the barriers people have created a culture of spreading knowledge.

To achieve this it is necessary:

 ✓ awareness of the benefits of knowledge management
 ✓ creating an environment of trust [2];
 ✓ emergence of leaders who promote the activities of knowledge transfer;
 ✓ A system of reward for those who share their knowledge to others, but for those who are willing to use others;
 ✓ Developing of centers where groups of individuals who have similar responsibilities, but are not part of the team, share their mutual knowledge.

2.2 Processes
As regards the processes and techniques for knowledge management can be identified following steps:

 ✓ Identification. Determination of key skills, recognition of areas of knowledge and recognition of strategic capabilities, setting the level of expertise for each domain of knowledge and focus on creating links between existing knowledge and the necessary;
 ✓ Capture. Attempts to obtain the necessary knowledge from internal sources and external formalizing their knowledge and the ranking obtained;
 ✓ Selection. Average amount of knowledge collected and formalized and filtering to obtain appropriate knowledge;
 ✓ Storage. Classification filtered knowledge, organizing them into a standard format, added to the organizational memory, updating them regularly;
 ✓ Transfer. Classification and retrieval of knowledge from the organizational and presentation so as to be available to as many users;
 ✓ Implementation. Using knowledge in problem solving, decision making, find ideas, learning;
 ✓ Creation. Discovering new knowledge through a variety of processes such as: education, practice, research, pilot studies.

2.3 Technology
Technology is an important factor used in the management of knowledge. Currently, there are countless marketing technology solutions for knowledge management. For choosing an appropriate technology would be required the following actions:

 ✓ Identify hardware and software solutions suitable for knowledge management and ensuring that the technologies used to match employees and processes of the organization;
 ✓ Creation of a technological infrastructure by identifying employee needs in terms of resources, knowledge and processes;
 ✓ Implement the organization intranet technologies and communication processes to encourage the spread of knowledge;
 ✓ Creation of a knowledge portal accessible through intranet;
 ✓ Organizing and storing knowledge in the electronic media to enable their access and retrieval fast and efficient;
 ✓ Provide access to knowledge resources to facilitate interaction with customers, suppliers and partners.

Requirements that the public / private must meet for knowledge management to a successful project are:

 ✓ 20% technological change;
 ✓ 80% cultural change which implies transformation in: the leadership, the type of learning considered, informal structure of the
company, the treatment of errors, the sharing of information [4].

Like any process occurring within the scope of activities in an organization is necessary to show the human element and that he manages. Thus about knowledge management has emerged following professions:

✓ Knowledge Manager with responsibility to the person named, CKO (Chief Knowledge Officer) leads the department that deals with management and capitalization of knowledge explicit.

✓ Expert knowledge transfer: people who extract knowledge from various sources, organize them so that they can use anyone and updated regularly.

✓ Strategy for knowledge management: people who draw up strategies for the knowledge base - knowledge audit sources, the requirements deriving from the mission, purpose and objectives assumed knowledge of strategic planning necessary to implement the procedures, etc.

✓ Designers of knowledge: people with similar concerns specialists have developed over two decade’s facts and rules for expert systems. In the new profession, designers seek knowledge of design rules and knowledge throughout the organization.

✓ Officer’s knowledge management: responsible for creating the infrastructure of knowledge, structures and related processes and organizational culture-oriented learning and knowledge accumulation.

3 Information technology and communications used to support knowledge management

The process of knowledge management includes several levels, from their acquisition, storage and reuse their contribution of information technology is different in each of these stages and adapted according to the particular operations that are subject knowledge in an organization. We distinguish [7] the following stages of a process of managing this strategic resource, supported more or less of IT instruments:

✓ Role of IT in knowledge acquisition and representation can be approached in two ways: on one hand in terms of extracting knowledge from employees for the purpose of placing them into a system of knowledge management, and on the other hand through the acquisition of knowledge by the employees from the existing level of knowledge organization. In the first case, the contribution of information technology is limited, the emphasis being placed primarily on the participation of specialists who have the power to collect and transcribe the knowledge workers in a knowledge base. In the second case, various information tools constitute an important support in the capitalized acquisition of knowledge within the organization, for their subsequent use by employees. This technology creates a "context of organizational knowledge in line", which is available to users. In addition, an increasingly important one is to use techniques of "groupware" and the electronic board, which will promote exchanges and creative interpretations of information between users of a system of knowledge management in the organization.

✓ Role in IT storage knowledge. The process of archiving is that knowledge is a means by which they may perpetuate in time within the organization. If the storage operation is important by what it represents in itself is far more significant knowledge to identify what they want to be accepted and adopting a proper structure of their subject that will be integrated into a management system. In terms of storage capacity, the potential of current technology is practically unlimited, but for the formation of a relevant knowledge base they must meet criteria related to: their ability to be shared (and understood by others), consensual (accepted throughout the organization in terms of their validity and usefulness), integrated (of a conceptual framework, interrelated with a more general context) and in this situation, the use of groupware technology enables the creation of an intra-organizational memoranda and at the same time, in sharing time and space.

✓ Role of IT in reuse and sharing knowledge. Possibility of reusing knowledge in the organizational memory is conditioned by its quality and structure, held in storage time. There are currently a number of technologies able to support the reuse of knowledge, when one wishes to use them in a new organizational context, similar to some extent with the original of which generated a one-time given. By way of example mention TOPIC technology (created by Verity Inc.). The knowledge is represented as a conceptual tree, in which links between concepts (similar to keywords) are weighted according to their degree of relevance, taking into account the scope and terms of the human expert. Search consciousness is achieved in relation to one or more concepts (related to intrinsic meaning and context of the original), and the user being given a list of potential responses, presented
in descending order of relevance knowledge extracted by the system [10].

The contribution of information technology in the organization and capitalization of knowledge in the establishment of a performing system KMS (Knowledge Management System) generates a series of positive effects related to: the ability of the adoption of decisions more efficient, reduce cycle time in decision making, capacity building and innovation and learning employees, etc.

Several types of useful information tools for knowledge management, indicating that a good part of them are already implemented at many organizations, but mainly used in the operation of databases classical (operational):

1. **Tools for creating an infrastructure for knowledge management:**
   - electronic messaging systems;
   - Internet systems, Intranet, Extranet;
   - systems management workflows.

2. **Tools capitalization of knowledge and their structure:**
   - servers for knowledge;
   - systems management of electronic documents, coupled with techniques for automation of office;
   - system for establishing data warehouses.

3. **Tools for knowledge exploitation:**
   - systems including Data Mining tools;
   - analysis systems from known cases (shown in the past);
   - groupware systems that allow job sharing.

4 Conclusions

“A knowledge based company is that where the main source is represented by knowledge and is based on its creation, acquisition, learning, usage, sharing, integration, valorization and protection in order to obtain the social and economic performance.”[6]

Knowledge management is a set of tools associated with IT, communication and methodologies that enable structuring, recovery and information availability in the form of knowledge. The individuals from the organization, regardless of their position in the structural organization of the enterprise, come with ideas and have access to knowledge and information, which are disseminated at all levels and applied in everybody’s work for a higher performance.

References: