

PARTICULARITIES AND TENDENCIES IN IT

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In the current global economic environment, competition is becoming acute and complex, and rapid technological changes are shortening product lifecycles and the capacity of a company to generate new goods and services, or to improve them and distribute them as quickly as possible to markets. Changes of technological nature have been so rapid lately that one can talk of a new technological revolution – if we take into account the „waves” of technological development which are based on the spectacular progresses in informatics, telecommunications, robotics, fiber optics, fine chemical products and in aerospace industry.

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Introduction

The term technology has different meanings and definitions:

- assembly of processes, methods and scientific methods applied for obtaining a product or service;
- assembly of knowledge regarding the method, the way, the experience of producing a product, creating a factory etc, together with the technique and the working facilities;
- combination between a certain technique and the knowledge necessary for using it (in which knowledge has the dominant role related to the working facilities), technology plays an essential role in the economic development of a country, determining not only an increase in production dimensions but also in its quality. In an increasingly concurential environment, technology appears to be a key element in obtaining international competitiveness for countries;
- structured assembly of the processes, methods and operations used in order to produce or commercialize a certain product or for creating a process; organized and formalized knowledge of techniques (assembly of procedures for creating a product) a pluridimensional package structured on knowledge that can be exploited from an economical point of view. In its composition we find material elements (materials, machinery), informational elements (knowing the procedures, experiences or individual or collective habits) or operational (production functions, coordination);
- at company level, technology appears as an operator that represents using resources, structures (production structures and how to manage them and the company in general), know-hows and human relationships in the process of work and not only that, for achieving objectives.

The most common way of approaching notions of technology is based on separating the notion related to defining technology as a scientific means of research or defining it as a procedure, method or process. This delimitation can be considered just partial because, even when the notion of technology is attributed to processes and procedures, they're not accompanied by the knowledge related to it. This results in the definition given by the Economic Commission for Europe, according to which the technology consists in „concretely applying scientific knowledge and techniques in the conception, development and fabrication of a product”.

The impossibility of separating scientific knowledge and techniques from the used methods, procedures and techniques becomes even more evident when the concept is had into account, that is technology is

seen as a system. Regarded as a system, technology covers, as invariable elements, scientific knowledge, technical knowledge incorporated in procedures, materials, equipment and specific informational systems (plans, programs, various documentation). Under this vision, the technology concept is not referring only to product processing, but it becomes a complex activity of a company, where it takes a number of forms: research technology, design technology, information technology, leadership and organization technology, fabrication technologies, distribution and sales technology, etc.

The place of IT in the modern company

Under the impact of scientific and technologic progress, but also under the profound and accelerated mutations to which are exposed the global economy and the national economies, the company will be the stage of fundamental changes that will affect its leadership, functionality and integration in the society as a whole:

- increasing dimensional, structural and functional flexibility
- geographical dispersion of the activities of the company
- adopting suitable dimensions for competitiveness
- harmonizing standardization with flexibility
- extending informatization
- increasing the role of intellectual technologies in the management and functioning of a company
- increasing the creative potential
- increasing the managerial ability to anticipate environment change
- increased concern for saving and a superior valorification of resources
- increased concern for environment protection
- increased professionalization of the management

On the other side, the future *characteristics of the environment* – due to general causes (such as the technico-scientific progress, the progress of society in general, perfecting economic mechanisms) or the reaction of companies that pollute the environment and are trying to adapt to its evolution, by influencing it, on their turn, in a significant way – with a major impact on the strategic management of the company will be:

- development of the knowledge society
- amplification of the inovational potential
- intensification of the entrepreneurial spirit
- increasing internationalization and globalization of the markets
- intensification of the cooperation between companies
- acceleration and deepening of changes

The metric force is the acerb struggle for increasing competitively and efficiency in the context of globalization of the economy and in this context a significant contribution was brought by the managerial revolution in IT.

In order to see the place and the role of the informatics systems in the informational management of an informatized economic organization, one starts from the structured organizational scheme on levels of management and on management domains (functions) of the organization (Figure 1).

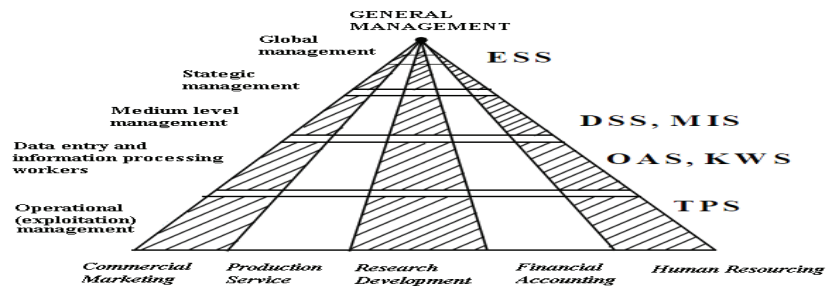


Figure 1 Level and domanins management

The categories of informational systems correspond to each layer of organizational management:

-at the level of **strategic management** – informatics systems for assisting the executive, (ESS Executive Support Systems) serve the strategic management level and are aimed at assisting decision taking not structured on elements of great synthesis, graphical presentations and advanced communications. ESS are used by general managers, address unstructured decisions and more, they create the general working and communication environment, dealing less with specific, detailed applications, necessary for the economic organization.

-for the medium level management: MIS (Management Information Systems) and informatics Decision Support Systems (DSS). MIS serve the medium management layer of the economic organization, providing managers with reports, online access to results and older records. MIS also serve the strategic management layer, by supporting the planning, control and decision taking functions through routine resumes and reports of unforeseeable situations. Normally MIS can be accessed by managers who are interested in weekly, monthly or annual results obtained by the economic organization. The IT for assisting DSS at the medium management layer, combines data and sophisticated analytical methods for helping semistructured and unstructured decisions. Although DSS uses mainly data and information coming from TPS and MIS, it often receives data and information from external sources, as for example market values of certain products or services.

-at the layer of the data and information entry workers, the knowledge informatics system is called **Knowledge Work System (KWS)** and the informatics system for the automatization of desk office, also called **Office Automation System (OAS)**.

-at the operational management layer (exploitation) – informatics systems for processing transactions, also called **Transaction Processing Systems (TPS)**.

These informatics systems are designed to incorporate, in general, data about external events as, for example, new elements about market competitors, but also receive internal data from MIS and DSS. ESS filters, compresses and follow critical data, while having an accent on shortening execution time for activities and reducing the necessary effort for obtaining useful and relevant information for the whole organizational management.

Organization management through IT

Organizations are formal entities tied with rules and procedures that have to be followed. They can also be seen as social structures, because they represent a collection of social elements. The technical definition is focused on influences that technological modifications (thus also the information and communication technologies IT&C) have on the environment in which the inputs are transformed in outputs.

In the case of behavioral definition, building or reconstructing the informatics system of an organization supposes much more than a new configuration of the workstations or a new informatics application. Organizations, in general, can have different structures - entrepreneurial, bureaucratic, bureaucratic machine with subdivisions, professional bureaucratic machine and adhocratic.

Organizations with an *entrepreneurial structure* are of a smaller dimension, usually small companies with simple structures, led by an entrepreneur.

Bureaucratic organizations are formal organizations, of medium size, with a clear division of labor, with pre-established procedures and rules and an impartial process of decision taking, where employees are promoted based on their technical qualification and their professionalism. This type of organization has the following characteristics of the management: a centralized management team, a centralized management process and a centralized decision making process.

Bureaucratic machine organizations with division's combines multiple bureaucratic machines, each achieving distinct products and services, led from a central general headquarter.

Professional bureaucratic machine organizations are based on knowledge, and the products and services depend on the knowledge of the specialists. This type of organization is dominated by department chiefs with a low central authority.

Adhocracies are act of God organizations created to solve emergency situations and which have to respond to rapid changes of the socio-economic environment. This type of organization is composed by a large number of specialists organized in multidisciplinary teams, it functions for a short period of time and have a weakly represented central management.

All organizations develop standard working procedures, policies and cultures. Standard procedures are precise rules, procedures and practices developed by the organization in order to answer to almost all possible future situations.

Organizational policies take into account the fact that people in organizations occupy different positions have different specialties, preoccupations and perspectives. Thus they represent various points of view about distributing resources, the way of rewarding work results and sanctioning ways. These different points of view affect managers as well as employees and are materialized in the existence of disputes and of a competition inside the organization.

Virtually all informatics systems that bring significant changes to the goals of the organization, in the work procedures, in productivity and personnel will raise a problem to organizational policies and in the organizational culture.

Economic organizations, according to the evolution of the socio-economic environment, are subject to several challenges related to: frequent internal reorganizations required by the evolution of the socio-economic environment; the increase in operational risks and in the direct requirements and in those related to the procedural environment; integrating all management activities of interhuman relationships, including clients: ensuring the efficiency of the organizational activities and their correlation to the evolution of the business environment and the tendencies of the modern man to use products and services suitable to his lifestyle; gaining new clients by using the economic-financial analysis and the marketing analysis.

Any economic organization functions based on 4 categories of resources: human, material, financial and informational. In the last years, the degree of informational resources used in the organization increased considerably together with the progresses of the Informational Technology and Communications (IT&C), so that currently one can say that this category of resources of the organization has become a success factor and an important vector in the overall directions of evolution specific to the informational society and the knowledge society.

The integrated informatics system of the economic organization is subject to a continuous modernization and consolidation in order to be ready to achieve continuity, coherence, opportunity, confidentiality and the security of data, information and knowledge, of all processes and transactions.

The knowledge society, through both its components, informational and durability, have a global character and is a factor of globalization, representing a new stage in the culture, in which the most important will be the culture of knowledge, which implies all forms of knowledge, including artistically, literary and personal knowledge etc. Two large classes of vectors of the knowledge society have been defined

- technological vectors;
- functional vectors.

A vector of the knowledge society represents an instrument that transforms the informational society in a society of knowledge

The category of technological vectors of the knowledge society comprises

- internet development;
- e-music and e-books technology;
- intelligent agents, which represent expert systems (from the domain of artificial intelligence), used, for example, for Data Mining or even for formal knowledge discoveries;
- intelligent environment for man's life and activity;
- nanoelectronics;

The category of functional vectors of the knowledge society comprises:

- management of the moral use of knowledge at global level;

- organizational knowledge management;
- health, physical education and sport at social and individual level;
- enhancing existential knowledge;
- implementing an education system based on methods of the informational and knowledge society (e-learning, e-library, on-line learning);
- protecting the environment and ensuring a durable society;
- generating new technological knowledge;
- developing a culture of knowledge and innovation etc.

Elements from the informational sector that's evolution affect overall the society and the businesses, and the progress of informational resources of the economic organization, in particular, are:

- enhancing knowledge in informatics for managers and a growing number of employees
- developing telecommunications through fiber optic, satellites, computer networks and global communications and databases;
- developing and proliferating personal computers; the manager and the employee have personal computers at work and at home, connected to a central computer, to a databases and to other personal computers;
- computers are perceived and used as "analytical thinkers" (analogous to the function performed by the left hemisphere of the human brain);
- creating a common front against infractionality in the computer domain (against informatics criminality);
- using laser devices for writing and reading information from various supports in various encodings;
- human-computer communication through voice;
- the evolution of technologies in the field of producing electronic micro-chips which led to decreasing power consumption

The image of this manager who is, for example, in an international meeting, anywhere in the world of the informational society is associated with a mobile phone of the last generation and with a laptop permanently connected to the organizational network of the country it represents. The manager has on his laptop all kinds of information about competitors, about the up to date legislation in the concerned fields in the form of databases which can be exploited through specific instruments.

Directions in the evolution of the IT management

The main directions in which can be anticipated the evolution of the IT management are:

- the emergence of a new type of management, based on information;
- harmonization of the managerial priorities with the level of profitability of the company;
- developing new systematic approaches;
- developing the situational perspective;
- perfecting strategic learning for modeling strategic behaviors;
- intensification of the development of the multiple capabilities of the company;
- increasing the range of strategic variables to be taken into account;
- developing new basic managerial principles;
- establishing an optimum level of complexity of the activity of the company;
- increasing organizational flexibility.

Understanding the connection between the competences (resources) of the organization and its competitive position is based on knowing the way in which the activities of the company generate added value, the link being theoretized in what is called **the analysis of the value chain**, which starts with the identification of the activities that are creating value. Thus the activities of an organization can be split into two large categories:

-primary activities – grouped into 5 main areas:

- internal logistic – receiving, storing and distributing inputs activity;
- production (operations) – the activity of transforming inputs in a final product;

- external logistic – the activity of collecting, storing and distributing;
- marketing and sales – generate means through which the consumer can be told about the existence of the product and through which it can be procured;
- service – improving and maintaining the value of the product through repair, installation, preparing the auxiliary personel etc.
- support activities** – are related to primary activities and are grouped into 4 main areas:
 - procurement – the process of acquiring the resources for the primary activities;
 - technology development – know-how related to product (research, design), process or particular resource;
 - human resource management – recruiting, training and motivating the personel of the organization;
 - infrastructure – planning, financing, quality control systems, and elements of organizational culture.

Conclusions

1. The management of an economic organization strongly implies knowledge and using the informational resources of the organization which, in the modern approach, imply managing these resources in an integrated informatics system (organizational structure) of the economic organization, a system conceived and used from a business perspective.
2. For using these informational resources, the manager has the duty to learn the general IT&C concepts and principles for creating dedicated informatics systems, as well as of informatics instruments which can assist the managerial process and the managerial decision.
3. By using the IT&C the efficiency of the organizational activities increases significantly, together with the alignment to similar practices at global level.

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