INFORMATICS SYSTEMS IN MODERN MANAGEMENT

Daniela OBREJA

"Henri Coandă" Air Force Academy, Brasov

Abstract: Informatics systems play an important role in modern organisations. Their existence may represent an important coercion for organisations. Appears a constant rise of interdependence between strategies, rules, procedures and the informatics systems consist of computer programmes, data bases and telecommunications equipment. A change in any of these components leads often to significant alteration of the others. This relation becomes critical when the organisation's management realise long and medium term panning.

Keywords: information, informatics system, management, decisions.

1. INFORMATICS SYSTEMS - COMPONENTS OF THE INFORMATIONAL SYSTEM

Informational systems based on computers technologies use are named, in European terminology, informatics systems and they represent the ensemble of connected equipments, working together, using specific techniques and procedures to collect, stock and disseminate information, with the view of sustaining the decision taken process, coordination, control, analyze and monitoring organizational activities [2]. The American vocabulary uses the term Management Information System.

Computers technologies increased the data processing speed, enlarged the stocking capacities and realized better printing methods, so the managers are often flooded by data. Information is the basic material for management [1]. An efficient decisional and operational process realized by using the information is necessary to respect several quality criteria: to be timely, clear, complete, exact and relevant.

Information may be grouped in three categories, based on information type necessary for managers: information for strategic planning, information for managerial control and operational information.

Information for strategic planning refers to strategic management's tasks to decide about the organization's strategic objectives and about how those will be realized, including the acquisitions politics and resources utilizations.

Information necessary in executing manager's coordination and control functions helps them to initiate the actions which better contribute to organization's interest achievement. Three types of main information specific to coordination and control may be identified: information about costs on responsibility centers (profit), information about direct costs of projects and complete costs of project. The information for managerial coordination and control are interdepartmental, proceeding form different segments of the organization.

Operational information is tied to organization's daily activities and contribute efficient to the specific tasks. They content mainly routine information about production, accounting, payment, human resources, logistics and equipment evidence. Operational information may be well definite and easy to reduce to a series of routine instructions, strategically information is difficult to define and those of coordination and control are situated between as level of definition.

Cleary definite information can be reduced to series of written instructions, so they can

be programmed. Programming informatics systems consists of defining specific elements, which stand without modifications and can be used for different combinations and calculations. Information for strategic planning is more difficult to program, but the new achievements in computers domain and computers programmes reduced considerably that effort.

The managers have clear options: they learn the base concepts in informatics domain or they delegate those responsibilities to the IT experts in projecting informatics systems. Yet, the second way is deficitary because of the difficulty to understand managers' informational needs and the informatics system realized by experts may not correspond to those needs.

2. INFORMATICS SYSTEMS TYPES

The new managerial strategies based on implementation of informatics systems may realise profound changes in organisation's structure and working. From among these changes the most important are: documents flux organisation (with costs reduction by replacing the paper and routine activities with electronically medium), increase of organisations flexibility, decrease of distances in many organisations, appearance of the virtual organisations, electronic commerce (interorganisational informatics systems, creating in this way an electronic market).

To construct, operate and maintain in function the informatics systems are daily problems for the managers. The most important problems for the organizations' leaders are the necessity of changes produced at the strategic level of the company and the informatics architecture of the organisation.

The necessity of changes produced at the strategic level of the company must be carefully analysed because the investments in information technologies have an important part in annual expenses of the organisation. The calculation power of the computers increased faster like the abilities of workers to use this technology. In order that organisation remain competitive they needed a reorganisation and reprojection. Organisations

are forced to use informational technology to simplify communication and control, eliminating in this way not necessary activities. To sell their products abroad firms should be part in multinational integrated informatics systems.

Informatical structure of the enterprise has major influence in development of its activities. Also, by connecting equipments in strong communication networks, major changes may appear at the organisational level, like: social relations rearranging, in offices and at the employees working places, changes of the reporting models and redefining the businesses objectives. By informatical architecture we understand the way how the data and processes of data analyse are centralised and distributed, including the mode of integrating data and their analyse. The systems are operated by technical personal, but the organisation's management must decide the proportion of funds allocated for hardware, software and telecommunications equipment acquisition. A good construction of the infrastructure may determinate later the identification of optimal solution for the informatics system.

The organisations have informatics systems for every of its functions and for every level of its operational management, tactic, knowledge level and strategic management.

Informatics systems can be differentiating considering firm's functions. The main functions are: research and development, production, commercial (sales and marketing), finances-accounting and human resources. Any of these functions have it own informatics system. Commercial function, generally, has a selling system at operational level, used to register the daily volume of sales and to process the orders, a system at knowledge level, projected to promote firm's products, another one at the tactic level, to supervise the monthly volume of sales depending of different market segments where the firm's products are saled, and a system at strategic level to analyse prognoses of sales and to identify the main tendencies of sales on long term [3].

Reported to the four levels of the organization appeared six types of informatics

systems, with an essential role in organization's achievement of planned objectives. The systems are:

- Executive Support Systems (ESS)
- Management Information Systems (MIS)
- Decision Support Systems (DSS)
- Knowledge Work Systems (KWS)
- Office Automation Systems (OAS)
- Transaction Processing Systems (TPS)

Every level system is specialized to serve each of the functional subdivision of an organisation. The main features of information processing systems are shown in table 1. [2]

TPS can be found at the operational level of an organisation.

That type of system is characterized by daily executing or accomplishing the ordinary transactions typical of the business run by the organisations.

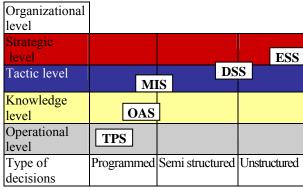Table 1 Features of information processing systems

System type	Input data	Processing	Output data	Users
ESS	Aggregated (internal, external) data	Graphics, simulations interactive processing	Analyses, projections, question replies	High level (strategic) managers
DSS	Analytic models, TPS, MIS and KWS data	Processing by analysis models	Special reports, decisional analyses, questions replies	Professionals leadership personnel
MIS	Data (TPS, KWS), information on transactions easy models	Routine processing easy models, partial analyses	Reports, synthetic situations	Medium level (tactic) managers
KWS	Indications for projection, knowledge bases	Modelling, simulations	Graphic models, projects, drafts	Professionals technical staff
OAS	Documents, primary data, including video and audio data	Document processing, planning. communications	Documents plans, mail, electronic mail, messages	Clerks
TPS	Primary data relate to transactions	Sorting, listing, merging, updating	Detailed reports, lists, summaries synthetic situation	Operating personnel, monitoring

TPS are specialized in taking, stoking and prelucrate data corresponding to daily, routine, transactions, assuring current actualisation of database.

MIS are used at the organisation's management level and used for the planning functions, control and decisions taken by supplying periodical synthesizing reports or express reports according to circumstances. These systems are orientated to reports and control, disposing of reduced analytic capacities, are relative inflexible and based on existing data flux. MIS are dependent of TPS because TPS provide the necessary data.

DSS are informatics systems that combine the available data and information according to some complex analysis models in order to assist an organisation's management in the decision-making process (programmed, semi structured or unstructured). DSS utilise internal information provided by TPS and MIS, but it often access external sources of information (fiscal rules, the cost of the capital in different sources of founds, prices from competition). DSS allow to their users to initiate and control the input and output data. DSS may operate with minimum assistance from programmers.

Table 2 Correlations between types of decisions and informatics systems types

Organizational level			
Strategic level			ESS
Tactic level		DSS	
	MIS		
Knowledge level	OAS		
Operational level	TPS		
Type of decisions	Programmed	Semi structured	Unstructured

Decision Support Systems are characterized by flexibility, adaptability and a quickly answering. These systems use sophisticated instruments to modelate and analyse data.

KWS helps specialists (engineers, doctors, scientists) to create and integrate new knowledge within the organization.

OAS ensures communication with clients, suppliers, and other partner organisations. The

main applications specific to this type of informatics systems are: text processors, table processors, presentation creating systems, communication software for Internet and teleconferences, image processing systems and the applications in planning office activities.

Informatics systems that offer assistance in administration of business portfolio, Executive Support Systems, operate at the strategic level of the organisation. ESS is projected by incorporated data referring at external events, but it obtains also information from organisation's internal systems, MIS and DSS. ESS filter, compress and study the important data for organisation by reducing the time and effort necessary for obtaining the information used by organisation's leaders.

3. CONCLUSIONS

Informatics systems may become strong instruments for organisation's competitivity and efficiency.

Managers consider information as a strategic resource, like capital and work factor.

The efficiency of manager's actions depends on the quality of information used in decision-making. Thus, is the information is incomplete or delayed, the decisional process is affected and the manager's actions may lead to results that were not wanted. Information Technology may be used to reproject and modelate organisations, to transform their structure, their mechanisms of report and control, the documents flux, the way how products and services are realized.

Organisations have Informatics Systems for every of their functions and for every level of their management, operational, tactic, knowledge level and strategic level. These systems don't function isolated. Between them exists a system of relations which determinate multiple interactions.

Projecting and developing the informatics systems of the organisation is a difficult problem, systems integration necessitate founds and time. Every organisation, based on its financial possibilities and advantages, could decide the optimal degree of systems integration.

All types of Informatics Systems are valuable because it support the organisation to solve their problems and to obtain advantages on competition.

Informatics Systems used in modern management are strong instruments, strategic informatics systems, which allowed to the organisations to survive in a difficult time and to progress and develop.

REFERENCES

1. Druckner, P., *The new society of organizations*, Harvard Business Review, 1992, p. 95-100;
2. Militaru, Gh., *Sisteme informatice pentru management*, Editura BIC ALL, 2004, p. 17-30;
3. Radu, I., *Informatică pentru managementul firmei*, Editura Tribuna economică, 2008, p. 65-80.