

## **MANAGEMENT INFORMATION SYSTEMS AS AN INSTRUMENT FOR MAKING THE EFFECTIVE ADMINISTRATIVE DECISIONS**

Information plays an important role in management techniques and processes. The operational analysis of information helps managers to make decisions on time. Information support of administrative activity is one of the major tasks at the present stage, after all information is a source of existence any operating-operated system. By means of mechanisms of information, support conditions for development and improvement of information society are created, information technologies are stimulated and extend, the free access of the population to information is provided.

Information support is a complex process. Ukraine is facing task - to social and economic modernization on the basis of new information - communication technologies, it requires the mobilization of significant political, economic, financial, scientific and human resources.

Ukraine has made some progress in infrastructure development of informatization and information and telecommunication infrastructure. Implementation and use of information and communication technologies in all areas of life, society, economy, state, given the global trends is not sufficient to Ukraine have good place in the world.

In the development of the information society and education in Ukraine there are a number of problems that need to be addressed. It is a scientific and staffing of information and communication technologies. On the one hand, Ukraine has limited financial and human resources to ensure a rapid transition to the creation of the Information Society.

But it should be stressed that the scientific and staffing of ICT in Ukraine is traditionally quite powerful. More than 50 thousand specialists in information technology field graduated from Ukrainian universities every year.

The theoretical basis of research of information technologies as an instrument for making administrative decisions is made by works of modern Ukrainian scientists of M. Zgurovsky, A. Kolodyuka, etc. The Russian scientists V. Inozemtsev, T. Yershova and others works in this direction. Support issues of information management in the state management system is noticed by M. Ditkovska, P. Klimushyn, O. Kryukov, S. Lutsenko, O. Orlov, A. Panczuk, A. Radchenko etc.

The main task in this article is to analyse features of use of information technologies as the instrument for making effective administrative decisions.

Information plays an important role in administrative processes as specific goods and an important resource.

The market economy leads to increase in volumes and complication of the tasks solved in the field of production, processes of planning and the analysis, financial work, communications with consumers and producers of production operational management

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which is impossible without the organization of the modern information management system.

In state management which uses information as an important resource, at the profound level there is an interrelation of social and economic processes and the phenomena. Economic information is the reflection of the socioeconomic relations and processes by means of figures, the facts, data and other materials. It is organic part of system of an economic mechanism as it provides communication between elements and processes of reproduction [11, p. 87].

The content of the concept “*information in management*” consists in its use in work of heads, experts and bodies and subjects of the agrarian sphere of economy as special resource according to mission and tasks of the agrarian enterprises. Proceeding from the principles of methodology of system approach, processes of design and implementation of administrative activity in general are impossible without continuous receiving and use of information which has to be based on proper information support. Most of modern scientists follow such opinion [9, p. 10].

Clarification of the main problems of information support of management causes need of in-depth study of an essence of the concept “*information in management*”. The term “*information*” has many values. The review in philosophical sense - information is the reflected variety of the objective world, in the applied - information is data which are object of processing. Information is always connected with problems of decision-making of state management, gives the chance to the enterprise, authority adequately to react to problems and to find ways of their decision. Proceeding from it, information is identification data on world around (objects, the phenomena, events, processes etc.) which reduce available degree of uncertainty, of incompleteness of knowledge, aloof from their founder and become messages which can be reproduced by transfer by people oral, written or in a different way (by means of prearranged signals, technical means etc.) [11, p. 87].

In the course of economic activity (production) resources turn into production (services), profit. Thus, materials, energy, work are used. Resources of information are used continuously for the purpose of the organization of communication and coordination of each phase of processes of transformation. Purposeful impact of one system on another with the purpose to change his behaviour in a certain direction (according to the set purpose) is called as management. It follows from this that the system which realizes management process, consists of three components:

- The operating part (which operates);
- The operated process (with which operate);
- Information according to which communication between the operating part and the operated process of object of management is carried out.

It is obvious that information is an obligatory element in the organization of management. Functioning of all management depends on the level of the organization of information system in big degree [5].

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The information management system is the set of information, economic-mathematical methods and models, technical, programmed other technological means and experts intended for information processing and adoption of effective administrative decisions.

The information system can exist without the use of computer technology – this is the question of economic necessity. In any management information system three types of problems are solved:

- The problem of assessing the situation (sometimes referred to as pattern recognition tasks);
- Conversion tasks describe the situation (calculated tasks, tasks modelling);
- The problem of decision-making (including optimization).

As the most ancient and most widespread IS it is necessary to consider libraries. And, really, long ago in libraries books are collected (or their analogies), they are kept, following certain rules, catalogues of different function for simplification of access to book fund are created. The special magazines and handbooks informing on new receipts are issued, account of delivery is kept.

Old (in moral and in physical sense) IS completely were based on manual skills. Later they were succeeded by various mechanical devices for data processing (for example, for sorting, copying, associative search etc.). Introduction of the automated information systems (AIS) that is systems where for ensuring information needs of users the COMPUTER with the data carriers is used became the following step. Now - an era of information revolution - a large number of the most various AIS with wide range of use develops and takes root [6].

The information management system has to solve the current problems of strategic and tactical planning and operational management of the organization. Using the operational information received during functioning of an automated control system, the manager can plan and balance resources of the organization, count and estimate results of administrative decisions, adjust operational management, use of resources and so forth. Information systems allow:

- To raise degree of validity of the made decisions due to expeditious collecting, transfer and information processing;
- To provide timeliness of adoption of administrative decisions in the conditions of market economy;
- To achieve growth of management efficiency due to timely providing necessary information to heads of all levels of management from uniform information fund;

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- To coordinate the managements accepted at various levels and in different structural divisions;
  - Due to informing the administrative personnel on current state of the organization to provide growth of efficiency of each worker, reduction of non-productive losses and so forth.

Classification of information management systems depends on types of management processes, levels of management, the sphere of functioning of the organization, extent of automation of management.

Depending on extent (level) of automation allocate the manual, automated and automatic information systems:

- Manual information systems are characterized by that all operations on processing of information are carried out by the person;
- The automated information systems the part of function (subsystems) of management or data processing is carried out automatically, and part - the person.
- Automatic information systems - all functions of management and data processing are carried out by technical means without participation of the person (for example, automatic control of technological processes).

As information systems are formed for satisfaction of information requirements within concrete subject domain, each subject domain (in the sphere of appointment) corresponds the IS type. Amount of subject domains big, but it is possible to specify for example such types information systems:

- The economic information management system - information system is intended for performance of functions of management at the enterprise;
- The medical information management system - information system is intended for use in medical and treatment-and-prophylactic institution;
- The geographical information management system - the information system providing collecting, storage, processing, access, display and distribution of data;
- Administrative information management system;
- Production information management system;
- Educational information management system;
- Ecological information management system;
- Criminalistic information management system;
- Military information management system and so forth.

Among information management systems in a place of activity distinguish

- Scientific the information management system, intended for automation of activity of scientists, the analysis of statistical information, management of experiment;
- Information system of automated management, intended for automation of work of design engineers and developers of new equipment (technology). Such

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information systems help to carry out development of new products and technologies of their production; various engineering calculations (determination of technical parameters of products, account norms - labour, material, etc.); creation of graphic documentation (drawings, schemes, plannings); modelling of designed projects; creation of the operating programs for machines with numerical program control;

- Information system of organizational management, the functions of the administrative (administrative) personnel intended for automation. IS of management both industrial (enterprises), and nonindustrial objects (banks, the exchange, insurance companies, hotels etc.) belong to this class. And separate offices (office systems);
- The information management system technological processes, intended for automation of various technological processes (flexible productions, metallurgy, power, etc.).

Information system as control system, closely communicates, as with systems of storage and issue of information, and with another - with the systems providing exchange of information in management process. It covers set of the means and methods allowing the user to collect, store, transfer and process the selected information.

Depending on a functional purpose it is possible to allocate the following systems: managing directors (the PCS, ASUP), design (SAP), systems of scientific search (ASND, expert systems), the diagnostic, modelling systems, systems of preparation of decision-making [4].

Information technology which copes with essential increase in volumes of information is the cornerstone of information systems, is processed and conducts to reduction of terms of its processing. IT is the most important component of process of use of information resources in management. Information technology represents the process consisting of accurately regulated rules of performance of operations over information and depends on many factors: extents of centralization of technological process, degree of problems of management, type of the used interface, systems of creation of a network.

The choice of strategy of the organization of the automated information technology is defined by the following factors: area of functioning of the organization, to type of the organization accepted by model of management of the organization, new tasks in management and so forth. A major factor for creation of information technology according to a certain model of the organization is the type of the organization, area of its functioning; functional tasks on the basis of what the effective administrative decision is made are accurately defined.

The organization of various types and fields of activity can be presented as certain business system in which resources by means of various means and social processes turn into goods and services. Process of adoption of administrative decisions is considered as a main type of administrative activity, which is as set of the interconnected, purposeful

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and consecutive administrative actions providing realization of administrative tasks. The purpose and nature of activity of the organization define its information system, and also a type of information product on the basis of which the administrative decision is applied.

Efficiency of adoption of administrative decisions in operating conditions of information technologies in various organizations is caused by use of various tools of the analysis of the organization:

- At the solution of tasks of the external users focused on informing for the analysis statistical information and indicators are used;
- At the solution of tasks of the analysis, intended for development of strategic decisions in the organization, information base has to be broader, but within strategic indicators of the organization;
- For the solution of tactical tasks information base has to be rather wide and cover a large number of highly detailed indicators characterizing various parties of functioning of object of management;
- The current operational information about a condition of the organization and environment is used for the solution of the tasks connected with operational management of the organization.

The main functions of administrative personnel of various organizations are the analysis of a situation in the organization and environment and decision-making on strategic and short-term planning of its activity. Respectively, the realization of planned problems of decision-making is enabled on strategic, tactical and quick (operational) levels.

Each of these levels demands the certain information support realized on the basis of information technologies. According to decision-making levels in functioning of information systems allocate contours:

- Long-term strategic planning;
- Medium-term tactical planning;
- Expeditious regulation of activity of the organization [8].

Informatization of society is the third break, revolution in the information sphere of mankind. She demands creation of the relevant information structures, the industry of information.

For information technologies that they become outdated is quite natural and are replaced with the new. So, for example, the technology of batch operation of programs on the big COMPUTER in computer centre was succeeded by technology of work on the personal computer on a workplace of the user. The telegraph transferred all the functions of phone. Phone is gradually forced out by service of express delivery. The telex transferred the majority of the functions to the fax and e-mail [1].

At introduction of new information technology it is necessary to estimate risk of lag from competitors as a result of its inevitable aging as information products as any other types of material goods, have extremely high speed of removability new types or versions at the organizations. The periods of removability fluctuate from several months

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to one year. If in the course of introduction of new information technology not to pay to this factor due attention, it is possible that by the time of completion of transfer of firm on new information technology she will already become outdated and it is necessary to take measures for its modernization. Such failures with introduction of information technology usually connect with imperfection of technical means while absence or weak development of methodology of use of information technology is the main reason for failures.

Important question for information support in public administration is training of heads for receiving information skills, in administrative actions for exchange of information. They also confirm expediency of expansion of the existing directions of training of specialists in the field of management, the substantial organization of system of a vocational education, increase of the general culture and responsibility of managers.

Through training and professional development a person has an opportunity to expand options for improvement of a combination the knowledge and experience for achievement of various results of the work [10].

The knowledge of exact, exhaustive and timely information is an important condition of making of the competent decision in professional activity of the public servant. The speed of information transfer and its analysis necessary at the present stage of development of society, depend on possession of workers of perfect means, receptions and mechanisms of information securing.

In this regard the problem of training of heads for information activities, that is in administrative actions for exchange of information gained special relevance, as this type of administrative interaction connected with creation of the mode of effective exchange of information in system of the public power, between institutes and environment, directed on specification of the contents of administrative decisions etc.

Features of information activities allow to formulate one more requirement to applicants for positions of heads-analysts is an ability systemically to think, in particular to structure administrative problems. Studying of experience of world practice of management in the field of staffing allows marking out the characteristic features inherent in effective functioning of governing bodies and acceptance and implementation of administrative decisions by them: flexibility of a control system, ability it is easy to adapt to fast changes. The scheme "*it is more than powers-more responsibility*" stimulates and intensifies involvement of the high quality experts capable to solve objectives and to bear responsibility for the actions; accurate standards of an assessment of efficiency of activity of shots (control and an assessment of results and consequences of work of the expert has to become a cornerstone); material feeling of importance of work of the manager, development of the competitive environment (system of individual salaries, depending on abilities of the expert); the basic principles of management have to be based on valuable cultural factors, but not on bureaucratic rules and norms, improvement of management ethics of formation of positive image of governing body, increase of prestigiousness of work on society and the state; professionalizing of senior positions, based on continuous education and creative

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development of heads [2].

Considering processes of European integration in the state, we consider to make use expedient of the European experience of selection of the managerial personnel on their information support. It, first of all, the European standards to which it is necessary to adhere: knowledge of several languages, professional possession of information and telecommunication technologies in professional activity; communicative abilities, skills of the organizer, ability to react quickly, adequately to any situations, to control itself; diplomacy, tolerance.

Considering it, a main objective of personnel policy of Ukraine in the conditions of risks, in our opinion, is providing senior positions with the highly professional, initiative, patriotically adjusted, moral administrative experts capable to take the responsibility and successfully to solve the ripened nation-wide problems. Attraction on senior positions of young, perspective specialists, rejuvenation of an administrative board remains an actual problem in implementation of staffing in the conditions of risks.

For training and professional development of heads it is necessary to pay attention to use of information systems and technologies in administrative activity. Thus, managers have to be acquainted with the organization of information support on objects of management. Such providing is possible only by means of modern electronic computer and information facilities, networks and new information technologies. Thus, efficiency and quality of management due to possible timely preparation and adoption of effective administrative decisions will increase. The aim of each manager - to master technology of use of information systems in management, to create at managers general-theoretical and practical approach to the organization of information management systems objects of production and non-productive fields of activity and skills of making of effective administrative decisions.

That is, the special attention has to be paid general-theoretical to bases of the organization of information systems on object of management with application of modern computer technologies; the conceptual provision of control systems on objects in the conditions of their computerization; to the principles, methods and technologies of providing managers with necessary information for work with systems of support of decision-making. Heads of all levels have to put into practice the gained theoretical knowledge concerning the organization and functioning of system of information support of administrative activity; to define structure of procedures of the automated data collection and processing which belong to duties of managers; to develop the list and structures of necessary information massifs for this subject domain, and also output forms for initial information which will arrive the administrative activity manager for the analysis and decision-making; on the basis of powers, the official rights, functional duties and a measure of responsibility of the head to develop tables of the regulating information, and also structure of the respective massifs; to develop algorithms of the solution of tasks which results are embodied in output forms, to know appointment and methods of use of these forms, and also ways of delivery to their users; to define and count natural and quality indicators of system effectiveness of information support of



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administrative activity.

In a situation of crisis and risks, extension of managers has to be based on studying of information as source of existence of the organization, information streams and technical means of making administrative decisions. First of all they get acquainted with the concepts “*information*”, “*information systems*”, the principles, technology, classification of information systems are generalized. It becomes clear that it is possible to process and sort long information, issuing the mass of reports, however, as a rule, in a similar flow of information it is easier to drown, than to make the reasonable decision. More flexible appears approach at which the system not simply supports functional requirements of the processed events, but also is the production line on registration and data processing with formation of new information in the format convenient for use in administrative decisions.

By consideration of decisions as elements of administrative activity managers are convinced that the decision is made by the person: she realizes the purposes and means, estimates alternatives and is responsible for a choice of necessary information, the best option of actions. It becomes clear that a necessary condition of implementation of the decision as conscious strong-willed action of the person is existence of a set of alternatives and the purpose. From here, if there are no two alternatives at least, there is no choice, so, there is no decision as well. Administrative decisions are considered as the decisions made by heads of different level and have character of the operating influences directed on achievement of the objectives of management of the organization. It is specified that important feature of effective administrative decisions is that their consequences can influence destinies of many tens and hundreds of people who are related to functioning of the concrete organization. In this regard, responsibility of the persons making administrative decisions is extremely great. Adoption of administrative decisions is considered not as a separate stage of a cycle of management, and as important binding process which penetrates all fields of activity of the organization and all functions of management.

Main types of the systems of support of decision-making (SSDM) of various level depend on appointment, branch or functional accessory. The attention has to be focused on the state system of support of decision-making of GADS (Geo data Analysis and Display System) developed by the IBM company forms cards of territorial distribution of resources.

Technology and systems of support of decision-making of “*Solon-2*” and “*University*” intended for support of decision-making when planning the large comprehensive target programs (CTP) for justification of decisions on the intermediate purposes of the program, inclusion in the program of various political, social or economic actions (“*projects*”) and distribution of resources between them on the basis of an assessment of their influence on achievement of a main goal. In development of system of support of decision-making as new class of information systems, some “*schools*” creation of SPPR, in particular were created: analysis of decisions (Decision Analysis), subtraction of decisions (Decision Calculus), research of decisions (Decision

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Research), and process of introduction (Implementation Process) [7].

Considering importance of such question as information security of system of support of decision-making, there would be pertinent to hold short-term thematic seminars for managers on the above subject. It would give the chance to managers to improve skills of information communication that is to improve skills of administrative actions for exchange of information.

Transition to information society is difficult. In the course of growth of a role of information support of government the relations with consumers of the state services change. Information society needs change of mechanisms of information security, format of communication of managing directors - the operated system. Formation of these skills has to be promoted by seminars, advanced training courses of managers.

In modern society access to information and information bases has to be provided to a general population. Consumers of the state services demand target information, personal work with each client on a certain specific problem in any place, convenient for them, form and time. At the same time, facilitating citizens a way of receiving the state services and access to information, authorities become more transparent in their actions. Naturally, if citizens are better informed about the work of the authority, they are ready to participate in decision-making process that promotes to democratization of society.

Possibility of providing useful services is extremely important for achievement of general Internet access. Thus, a certain improvement of quality of administrative services and efficiency of administrative processes is carried out.

In information society a person is less connected with his residence, however it doesn't mean lack of communicative relations. In this case virtual communities become important, which make possible cross-cultural interactions. Only information-communication technologies in the conditions of information society can join a certain part of society because they are a part of virtual space too.

However, there is in this direction a number of the problems connected with realization of informatization of society and use of IT-technologies for making of effective administrative decisions. Undoubtedly, connections of establishment to the Internet now are a simple task for any institution. The problem is that is difficult to operate contacts with people and to expand them service. For this purpose it appears in many countries so-called control systems of the relations with citizens which allow managers to work effectively in virtual networks. The following problem is inaccessibility of information infrastructure to all citizens. It is necessary to prevent such situations when on-line services of managers are available only to certain people. These services have to be available even to those citizens who have no personal computer.

Proceeding from the aforesaid, an important question for information support in state administration there is a training of managers for receiving information skills.

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## **INFORMATION WARFARE AS A WAY OF IMPLEMENTING THE PUBLIC POLICY IN THE MODERN WORLD**

### **Problem formulation and relation to the important theoretical and practical tasks**

With regard to the unbeaten potential of information and communication processes in the globalizing world, we should pay attention to the growing volume of information which people get that is beyond control of their national governments. Today, information may have both creative and destructive power. Changes in the global economic and political spheres cause changes of the global confrontation and warfare technologies. The aim of the information warfare, also called the Sixth generation wars, is establishing control over the information resources of a potential enemy.

### **Analysis of the latest research and publications**

Numerous studies deal with the problem of consciousness formation and study of latent mechanisms of manipulation of human consciousness. Analysis of the crowd, public, civil society, civilization psychology is presented in the works of such prominent researchers as G. Le Bon [11], S. Freud [24]. The essence of manipulative effect via media, Internet can be found in works by G. Pocheptsov [17], Ya. Zoderkvist [8], technologies of influence of human masses during the election campaigns – A. Radchenko [20], M. Vari [1]. Works by I. Panarin [18], S. Rastorguyev [21] study the manipulation with information warfare.

### **Definition of unsolved tasks of the general problem**

Based on the analysis of the possibility of changing the public opinion in the specified direction, we can formulate the goal of this study as definition of the role of the information warfare in formation of the human consciousness and study of the influence of information warfare on the government and public relations at the modern global stage of the civilization development. For this purpose, based on the analysis of the researchers' statements, we will systematize their views on the information warfare. We will consider the examples and generalize the data about information operations, information weapons and methods of influence.

Objective of the article is defining the influence of information warfare on the public policy and government and public relations in the national states.

### **Presentation of the principal material**

Today, the world civilization has entered the information epoch. The mankind has gathered the significant amount of information which globally influences every sphere of our life. Scientific lexis was enriched with a number of notions which reflect a fundamentally new character of relations in the world policy, economy and social relations. The scientific term “*information warfare*” appeared denoting creation of new means of confrontation, a new kind of weapon – the information weapon – which is