Information Logistics of Local Government: International Practice

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Abstract: *The article deals with the approaches to the use of information logistics (IL) in solving local government issues, providing municipal services, and attracting residents to the issues of self-administration. The European communication paradigm is presented as the basis for the organization of information and logistics support of local government. The authors offer a conceptual model of information logistics application in local government, as well as consider the possibilities of solving local government issues through the logistics information systems (LIS) using information and communication technologies (ICT).*

Index Terms: *information logistics, local government, logistics information systems, information and communication technologies.*

I. INTRODUCTION

Information technologies as a factor influencing the degree of openness of local governments are an indispensable means guaranteeing the rights and the actual ability of citizens to participate in solving local problems. The development of the information society in the world and Russia brings new opportunities for the fullest satisfaction of the information needs of society, including the expansion of the list of services of local governments to members of territorial communities.

Research, aimed at studying the problems of using the logistics theory is of particular importance in determining the theoretical and methodological foundations of the implementation of information and communication technologies (ICT) in the local government work [1-3].

Nevertheless, along with the increasing interest of researchers in the use of logistics in local government activities, it is necessary to emphasize the importance of continuing the search for the use of information logistics (IL). The authors believe that this research area should be given a strategic priority among the problems of local government.

Certain issues related to the use of IL in local government became the subject of research carried out by R.S. Khan [4], L.A. Myasnikova [5], N.V., Lopukhov [6], and O.A. Astafurova [7].

Among the foreign studies dealing with the problems of ICT application in terms of finding ways to improve the efficiency of management processes, one should note [8, 9], where special attention is paid to the analysis of the possibilities of using ICT in logistics. In these studies, the improvement of approaches to the use of ICT-based logistics is presented as a means of obtaining higher quality services and their compliance with customer requirements. Although the research is aimed at analyzing the use of logistics in business structures, the drawn conclusions can be applied to the problems concerning the local government functioning.

Studies [8, 9] are of particular interest in the framework of the current article, because they present a comprehensive review of the evolution of public administration in the contemporary conditions of the information society, and give detailed examples of network application of public administration (employment, education, health, law enforcement, etc.). Special attention in the works is paid to the issues of local government.

According to UN estimates, 67% of the world's population will live in cities by 2050. At the same time, municipalities are sometimes unable to cope with timely garbage collection. Besides, utilities and electricity supply from district to district is quite non-uniform, etc. To provide the population with quality urban services, administrations are increasingly implementing various LIS [10].

Russia does not remain aloof from this process. Thus, at the end of October 2018, the order of the Minister of Construction and Housing of the Russian Federation V.V. Yakushev has approved the "Smart city" departmental project of the Russian Construction Ministry, for which 13 bln rubles are planned to be allocated from the federal budget by the end of 2024 [11].

The results of the above studies make it possible to conclude that ICT is one of the options to improve local government that opens up new opportunities for the management process organization, meeting the interests and needs of the population, including improving the level of municipal services. At that, it is important that the most promising approach is to apply the logistics principles simultaneously with the use of ICT.

The authors believe that the analysis of the possibilities of using LIS in the local government work can become one of the most interesting research areas involving local government issues.

The purpose of the article consists of substantiating the use of LIS in local government based on the analysis of the European best practices. The article structurally consists of an introduction, research methods, two sections of research

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outcomes, conclusion, and references.

II. METHODS

In the course of study, the authors used theoretical methods, such as analysis, generalization, and systematization of scientific literature in order to clarify the essence of the European communication paradigm as the basis for the organization of information and logistics support of local government, as well as the main features characterizing the European model of public administration.

In addition, empirical research methods, such as an expert method to create a conceptual model for the application of IL in local government were also used.

The expert discussion involved 14 specialists (heads/managers and employees of structural subdivisions of local government bodies, whose work experience was 15-20 years). During the application of the expert method, the main emphasis was on the description of the major LIS logistics subsystems of the local government.

III. RESULT ANALYSIS

A. European communication paradigm as the basis for the organization of information and logistics support of local government activities

The analysis of scientific literature [8-10, 12] has shown that the European communicative model of state and municipal administration became widespread in Europe in the second half of the 20th century. In accordance with this model, the information support of public authorities was carried out in an integrated manner with the involvement of resources, and taking into account the needs of the whole society, as well as individual territorial communities (communes), which, affecting directly the state power, were attached to the information networks of public administration. This approach has led to significant changes in the old functions of public administration bodies and put forward requirements for the modernization of information and logistics support for these bodies.

According to the European model, the problem of finding new instruments to resolve local government issues depends on the mechanisms of democracy at the local level, which can be accessed from two standpoints: the involvement of the population in local politics, and the provision of municipal services. The practice of involving the population in the implementation of local policies in Russia is more in line with the minimalist democratic concept, which is characterized by the lack of sufficient control over the activities of the elected representatives of local authorities. Members of municipal entities are generally excluded from municipal political processes, while local authorities' attempts to involve the population are rather formal.

Meanwhile, the leading development priority of local government in European countries is the involvement of the public in the governance processes that results in the movement from consultative and participatory democracy to e-government.

Therefore, it can be stated that in a modern European city, the role of social intelligence increases in the course of expanding the communication network, which is reflected in the communicative competence of its residents, and becomes the basis for mutual understanding and interaction between the government and the citizens. Social intelligence of the inhabitants of European cities is becoming the leading tool of interpersonal communication. Social intelligence of manager involves the ability to understand correctly and timely, as well as to react adequately to the behavior of various government institutions and citizens. The presence of high social intelligence allows the individual to receive from various sources a variety of information about the possibility of expanding their participation in solving communal and everyday problems, successfully predict the reaction of vertical and horizontal networks in certain given circumstances, to show perspective thinking and foresight in relationships with others. That is, here, a connection is revealed between social intelligence and social competence.

The innovative potential of citizens and managers with a high level of social intelligence is often complemented by excellent organizational skills, as well as in-touch capabilities, openness, desire for psychological intimacy in the course of communication, strengthening the interested goodwill, tact, care, which are the moral and normative basis for positive communication of the individual in any field of activity [13]. It is exactly the factors that allow developing (first of all, at the level of local government) horizontal communications and providing their availability by means of ICT.

European practices show that due to the availability of mass communications, a single communicative space is being formed, which enhances the possibility of socialization of each individual, and the possibility of its direct "inclusion" in social integration processes, as well as political, public, and private-economic cooperation.

However, it should be taken into account that the path to the state and electronic city (e-city) or region begins with the electronic office (e-office), which cannot be imagined without the broadly informed and competent electronic employee. But creating a full-fledged electronic government (e-government) needs not only competent electronic employees but also electronic citizens prepared to work in the electronic government format [14].

According to the European model of governance, local government officials should be not so much professional officials, who perform duties under the patronage and supervision of the government and public administrations, but primarily the executors of the will and requirements of the population. They should act taking into account and using the advantages of the information society, which sets certain parameters for the functioning of public administration.

The European model of public administration is implemented in contemporary conditions due to conscious, systematic, and predictable technological progress, which significantly reduces the risks in all spheres of human life, including the public administration. After all, the new information and communication paradigm of public administration in the European space is associated with the creation of new

intelligent technologies focused on the production and implementation of innovations in public life. Management, like society in general, becomes inherently innovative.

Currently, ICT start a new paradigm of management activities, which has been gaining increasing recognition in European countries. This transition in the context of the European tradition is perceived by the management, civil, and business communities as a benefit for the individual and society. First of all, management work is changing in terms of its content. In this model, the intellectual manager, who is able to use the creative, intellectual capabilities of subordinates involved in professional horizontal communication, becomes a prime figure. For such a manager, the new society is a society of knowledge and innovative skills, and this factor is constantly taken into account in his activities. For him, the digital presentation of the object, as well as the virtual nature of the management network existence are very significant.

The very nature of management activity, which increasingly manifests itself through the network interaction of professional managers, becomes different in comparison to the industrial era. It is by means of network interaction that constant communication of all levels of management with the society and the business community is maintained. This horizontal system of mutual assistance contributes to the fact that the structures of power and society, in general, are changing dramatically, creating new opportunities for ordinary citizens.

In the context of the approval of a new communication paradigm of public administration, a convergence of three areas takes place, namely, communications, computer technology, and information and logistics data. This synthesis of information and communication support contributes to the implementation of new requirements for the modernization of administrative activities.

These aspects were pointed out for the first time by M. Castels, who focused on the fact that the modernization process of information support of public administration radically changed the paradigm of public administration at all levels: local level (in particular, the management of cities growing due to the application of technological innovations, was being modernized), state level (the author, in particular, drew attention to the dynamic restructuring of public administration in the United States and the countries called "Asian Tigers"), as well as global level [15].

IV. A CONCEPTUAL MODEL OF INFORMATION LOGISTICS APPLICATION IN LOCAL GOVERNMENT

According to experts, the concept of LIS of the local government goes back many years, however, to date, the problems concerning the effectiveness of the information flow distribution, insurance of its integrity, and the combination of the information flow of neighboring databases remain insoluble.

As a rule, LIS can be considered as an interconnected set of methods, tools, and personnel, which are used to store, process, and transmit information to the appropriate hierarchy level, as well as an issued information about the supply chain to achieve the goal [12, p. 23]. With respect to local

government bodies, one of the experts (Mikhail V., 43 years old) noted that LIS was an integral part of the process of providing the population with various municipal services and involving people in the management of the municipality.

Expert discussion allowed formulating a conclusion that LIS had the ability to organically connect all parts of the management process at the local level, which could be designated as the LIS subsystems, such as query subsystem, task distribution subsystem, production subsystem, services evaluation subsystem, reporting subsystem, communications subsystem, database subsystem, etc.

Logistics subsystem of requests is designed to collect and classify incoming requests for rendering services and controlling the content of the service for compliance with the request.

Logistics task distribution subsystem is designed to distribute tasks among employees of local government body according to their competence.

Logistics production subsystem is designed to provide directly the required service, which includes obtaining additional information from other logistics subsystems (if necessary).

Logistics subsystem of the rendered service evaluation is designed to evaluate the rendered service by the customer according to certain criteria (quality, terms, etc.).

Logistics reporting subsystem is designed to systematize requests and proper services provided according to certain criteria (social status of the customer, performance evaluation, etc.).

Logistics communications subsystem is designed to create feedback between the population and local government employees, as well as to create communications within the local government body (management - official).

Logistics subsystem of knowledge bases is designed to create a home knowledge base, which could be updated and replenished on a regular basis (normative legal acts, state programs, etc.).

The implementation of LIS in the management system of local government bodies is ensured through the use of ICT. As pointed out by one expert (Sergey A., 45 years old), local government bodies are an open system, which is connected by information flows with a significant number of subjects, namely, enterprises of all types of property, public associations, and individual citizens. Accordingly, it may be difficult to combine the information flows of local government bodies with the database systems of other institutions. In this connection, one of the important tasks of IL and ICT is to ensure the interconnection of various information flows.

According to experts, another significant problem is the timely provision of LIS with information, which becomes a factor in logistics, affecting the services timing and quality. The untimely provision of information may lead to accumulation of unfulfilled services. At that, the consumer begins to doubt about the ability of local governments to perform their duties that leads to a decrease in social activity of citizens, and distrust of the population in general.

Experts include the

following advances of using LIS in the activities of local government bodies:

− increasing the speed of information exchange between subdivisions;

− reducing the number of errors, when working on documentation;

− reducing paperwork;

− creating a single electronic database through the information flow connections;

− forming transparency of the activity process at each stage of service provision;

− reducing decision-making time;

− systematizing the needs for the provision of services according to various criteria and forecasting their number in the short and medium term;

− reducing services cost;

− expanding the general level of local governments' openness.

Timely updating of knowledge is an important component of the effective functioning of LIS organized based on the use of ICT. In this connection, the authors believe that part of the problem of knowledge replenishment and support of the proper level of competence can be imposed on the logistics subsystem of knowledge base of the general LIS, which should include an interactive database of normative legal documents with constant updating and supplementing, an interactive reference base of software and technical terms, storage and systematization of surveys and forums, organized by the logistics communications subsystem, monitoring of knowledge acquisition through regular surveys, tests, as well as ensuring preservation of results to determine the dynamics of managers' competence.

V. CONCLUSION

Summing up, one can conclude the following.

The effectiveness of using IL is confirmed by many years of experience in the field of economy. In the case of local government, the implementation of LIS and its successful operation is possible only in the case of the transfer of all structural subdivisions to LIS using ICT. The main advantages of this system include reducing the requests' processing time, coordination of documentation with related institutions in the management chain, and eliminating the problem of information flow duplication. At the same time, the implementation of LIS can be considered as a means of improving the competence of local government officials.

Contemporary society places high demands on local governments. The implementation of LIS and ICT makes it possible to improve the efficiency of activities in the provision of municipal services, ensure transparency when providing services at each stage of execution due to the removal of boundaries between the structural subdivisions of the local government. This will not only completely eliminate the emergence of corruption element, but also ensure the involvement of the public in resolving issues at the local level that will lead to an increase in the openness of local governments.

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