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Evaluation of the Effectiveness of E-Governance and E-Democracy in Ukraine

1. Introduction

Today, in Ukraine, as part of the administrative reform, active reforms are being implemented to improve the efficiency of the provision of state public services, including their regulation, standardization, etc. An important factor in the effective provision of public services in the modern world is the use of information and communication technologies in general and e-government in particular[2].

E-government technologies are used in most countries of the world, but clear criteria for evaluating their effectiveness have not yet been developed. Of great importance is the assessment of the dynamics of the movement towards electronic management and the effectiveness of the implementation of projects for its formation. Such an analysis will allow us to answer the question whether the results correspond to the goals of such management; whether budget funds were used with due efficiency.

The problem of evaluating the effectiveness and development of e-governance and e-democracy was studied by Ukrainian scientists

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[2] On the basic principles of information society development in Ukraine for 2007–2015: Law of Ukraine: adopted on January 9, 2007 № 537-V,

A. Barikov, S. Boychun, Yu. Dovbush, O. Emelianenko, K. Kislyuk, O. Kudryavtsev, I. Kusplyak, L. Malishenko, Yu.Mazurok and others. Among the foreign researchers should be named D. Bell, E. Bernays, M. Zgurovsky, M. Castels, G. Lasswell, V. Lippmann, M. McLuhan, T. Newcomb, T. Parsons, O. Toffler, V. Shramma, Yu. Habermas and others.

The assessment of the effectiveness of electronic management is widely used in the modern practice of public authorities in relation to various objects and technologies. At the same time, the main attention is paid not so much to the concept of efficiency and the general principles of its measurement, which are well known (for example, the research of the World Bank «Worldwide Governance Indicators»), but rather to the specifics of the object that is being evaluated.

The purpose of the article is to analyze methodological approaches to assessing the effectiveness of e-governance and e-democracy in Ukraine.

Today, there is a wide range of methodologies for evaluating the effectiveness of electronic services. Their characteristic feature is the allocation of certain stages of the development of electronic interaction, criteria that allow us to attribute the services in question, which are provided by a particular state body to a certain level of development (readiness)[3].

To do this, within the framework of our article, it is worth naming the following methodological approaches:
- assessment of the readiness for e-governance of the UN member states by the UN Department of Economic and Social Affairs (e-Government Development Index, EGDI);
- Methodology of the European Union assessment of the IDABC (Interoperable Delivery of Pan-European E-Government Services to Public Administrations, Business and Citizens) program for the implementation of e-government;
- Methodology for evaluating e-government sites at Brown University, Providence, USA (Global E-Government)
- Methodology for evaluating the effectiveness of investments in

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[3] Rybalko L.P. Application of modern corporate information systems in enterprise management. Scientific Bulletin of Kherson State University. 2015 Issue 15. Part 3. P. 82–85.

electronic management of the US Civil Services Administration (General Services Administration);
– Methodology of Professor J.Stowers (University of San Francisco, USA).

Most other methods of assessing the development of e-government are less well-known than those listed above, and mainly use the already specified evaluation criteria.

2. Normative resolutions of Ukraine

Recently, one of the most important areas of activity of public authorities in Ukraine is the provision of electronic public services, including administrative ones. In order to really determine the state of affairs in the provision of such services, it is necessary to periodically evaluate them. Therefore, the introduction of an effective methodology for monitoring and quality control of the provision of electronic services into the practice of public authorities becomes relevant.

The concept of the effectiveness of electronic public services is often identified with the maturity of the electronic method of providing public services, in other words, it is characterized by the degree of readiness of the state to provide services interactively.

The main regulatory documents that define the tasks and directions of the development of e-governance and e-democracy in Ukraine are the following, namely:
– The strategy of reforming the state administration of Ukraine for the period up to 2021 (as amended by the Decree of the Cabinet of Ministers of Ukraine No. 1102-p d.d. December 18, 2018);
– The Law of Ukraine «On the procedure for covering the activities of state authorities and local self-government in Ukraine by the mass media» d.d. April 25, 2019;
– The State Strategy of regional Development for 2021–2027, approved by the Resolution of the Cabinet of Ministers of Ukraine d.d. 05.08.2019, 2020 No. 695;
– The Law of Ukraine «On basic measures for the development of the information society in Ukraine for 2007–2015» adopted on January 9, 2007 No. 537-V;

- Resolution of the Verkhovna Rada of Ukraine «On the Concept of National Information Policy», approved on April 3, 2003;
- The concept of e-government development in Ukraine, approved by the Order of the Cabinet of Ministers of Ukraine No. 649-p d.d. September 20, 2017;
- The procedure for monitoring the provision and assessment of the quality of social services, approved by the Resolution of the Cabinet of Ministers of Ukraine No. 449 d.d. June 01, 2020;
- The National system of indicators for the development of the Information Society, approved by the Resolution of the Cabinet of Ministers of Ukraine No. 1134 d.d. 28.11.2012, etc.

In order to achieve the goals set out in state documents and programs for the introduction and use of e-government, it is extremely important to analyze methodological approaches to evaluating projects for the formation of e-government, to identify the most significant elements from the point of view of their possible application in Ukraine.

It is worth emphasizing that the methodological approaches listed above in the article should not be considered as identical: some of them are focused on assessing the «readiness», «maturity» of electronic public services, others – on assessing the benefits of implemented state e-government programs[4].

3. Analysis of the main methods for evaluating the effectiveness of electronic management

The methodology for assessing the readiness for e-governance of the UN member states of the UN Department of Economic and Social Affairs (hereinafter referred to as the EGDI methodology) considers the readiness of countries for e-governance, taking into account changes in the assessments of human capital, infrastructure and access to knowledge and information. The conceptual basis of this approach is based on a holistic view of the development of such key factors as human capital, infrastructure and access to information and knowledge. During the applica-

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[4]   Shevchuk T.V., Kravchuk G.T. Status and prospects of information technology development in Ukraine.

tion of this methodology, considerable attention is paid to the interaction of G2C («state for citizens»), as well as to the degree of interaction of G2B («state for business»)[5].

This methodological approach focuses on citizens as consumers of services, and therefore takes into account the fact that often the state, having spent huge financial resources to provide citizens with the opportunity to receive a certain service in electronic form, does not actually provide it qualitatively. The objects of efficiency assessment in this case are citizens who use the means of information technologies proposed by the state to access public services. According to this methodology, experts assess the availability of electronic services, the ways of providing services (for example, via the Internet or mobile phones) and the overall ability of the country's population to consume such services.

The main indicator of the effectiveness of the development of e-government in a particular country, according to this methodological approach, is *the e-government readiness index* – an integrated indicator that includes the definition of the network index, the telecommunications infrastructure index and the human capital index[6].

The network index is a five-stage model, where each stage at which a particular object of research is located is characterized by the degree of its electronic presence. Let's consider these stages.

The first stage is called « Emerging Presence». At this stage, only basic information about state and local government bodies is provided on the Internet.

The second stage is «Enhanced presence»: at this stage, the resources available to users through the web interface become permanent, open.

Both of the above-mentioned stages are characterized by one-sided interaction «from the state to citizens» (G2C).

The third stage – «Interactive presence», provides for the interactive provision of Internet services, such as the availability for downloading a tax return form or updating a license, etc.

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[5]   Shishlov A.A. International legal regulation of electronic communications in the European Union. M., 2011.

[6]   Shevchuk T.V., Kravchuk G.T. Status and prospects of information technology development in Ukraine.

At the fourth stage – «Transactional presence», there is a two-way interactive interaction between the state and citizens. At this stage, citizens can pay taxes 24 hours a day, 7 days a week through state specialized websites, submit documents for obtaining an identity card, passport and birth certificate; renew licenses, pay fines, for example, for violating traffic rules, or services such as paying for postal services, etc. All transactions are carried out through secure communication channels.

The most difficult is the *fifth stage* – «Networked presence», which is characterized by such interactions as G2G, G2C and C2G. At this stage of the development of e-government, citizens have the opportunity to participate in decision-making processes and conduct two-way open communication with the state. With the help of various electronic forms for forums, comments, as well as various electronic consultation mechanisms, such as filling out web forms and participating in online discussions, citizens have the opportunity to directly influence the development and improvement of state policy, legislation, etc.

The network index is calculated by using a questionnaire in which the presence/absence of certain electronic options or services is expressed in binary values.

In our opinion, Ukraine is currently at the third stage of the development of the network index, which provides for the interactive provision of Internet services by state authorities. The state is actively pursuing a policy of transition to the fourth stage of e-government development.

Index of telecommunication infrastructure is the sum of five indicators, each of which has the same weight: 1) the number of Internet users per 100 people; 2) the number of personal computers per 100 persons; 3) the number of telephone lines per 100 people; 4) the number of mobile phones per 100 people; 5) number of broadband connections per 100 people.

The human capital index consists of such indicators as the literacy rate of the adult population (the share in the index is 2/3) and the number of students receiving primary, secondary and higher education (the share in the index is 1/3).

This methodology helps public authorities and local governments to assess and realize their potential to improve the transparency of public administration, providing citizens with new channels of influence and

participation in public life. The assessment is based on the following categories:

– *electronic information* – the state website contains information about the state structure, officials, policies and state programs, budget, legislation, etc.; information is provided through various Internet sources, such as blogs, forums, text messages;

– *electronic consultation* – providing an opportunity to ask a question to a civil servant and/or submit an application;

– *electronic decision-making* – involving citizens in the decision-making process using information and communication technologies.

According to the EGDI index for 2020, Ukraine ranks 69th among 193 countries (a total score of 0.7119) and is generally included in the group of countries with a high level of e-government [7].

The methodology of the assessment of the European Union of the IDABC (Interoperable Delivery of Pan-European E-Government Services to Public Administrations, Business and Citizens) program for the implementation of e – government sets the goal of compatibility of European information systems. The IDABC program helps to assess the quality and overall usefulness of the mechanisms introduced by the government that allow citizens to participate in the political life of the country. States are evaluated in accordance with their institutional capabilities and the policy of involving citizens in the decision-making process; the presence of structures that allow citizens to conduct a dialogue with the state.

The introduction of modern ICT infrastructure is aimed at solving the problems that public authorities face when exchanging information, first of all, it is about ensuring interoperability in the interaction of public authorities both in a single country and between EU member states. This approach makes it easier for citizens to search for available services (both state and interstate), to facilitate the implementation of complex services, in the provision of which a significant number of state institutions from different countries are involved.

The methodology for evaluating e-government sites developed at Brown University, Providence, USA (Global E-Government) determines the compliance of the content of official websites of public authorities with the

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[7] Balashova E.M. Evaluation of the effectiveness of e-government. Issues of state and municipal management. 2011. №2. Pp. 208–209.

provisions of regulatory legal acts regulating legal relations related to the exercise by citizens of their right to access information about the activities of public authorities, generally recognized technical requirements for websites, for a group of experts, for the needs of individuals and legal entities.

According to the methodology of Brown University, the assessment of the state of government sites is carried out according to the following criteria:

1) *information online* (the amount, total volume and variety of information available to citizens): background information about the contact phone numbers of officials; about the addresses of government bodies and their divisions, publications of explanations of laws and regulations, databases;

2) *digital services* (job search; the ability to fill out licenses and permits online; subscription to publications; payment by credit card; statements of doctor's appointments; filling out tax returns, etc.);

3) *protection of personal data during the network exchange of information with government websites*;

4) *ensuring access to information for people with disabilities;*

5) *ensuring access to information for foreign-speaking citizens;*

6) *advertising, paid access to services;*

7) availability of other interactive features.

The methodology of Brown University assumes that each country is evaluated according to a 4-point system according to the above parameters. The combination of these points provides a maximum of 72 points for each government site. Additionally, each site is assigned from 0 to 28 points for the availability of online services. The aggregate index for the country is calculated from 0 to 100 points, respectively, by determining the average score of all state sites of the country participating in the sample[8].

The main idea of the *methodology for evaluating the effectiveness of investments in e-government of the US Civil Services Administration is that e-government is considered as a long-term investment project and is evaluated in terms of the ratio of benefits that it will bring in the future (*or brings

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[8] List of indicators of information society development. Resolution of the Cabinet of Ministers of Ukraine 341134 d.d. 28.11.2012.

at the moment), and the costs of its implementation. The effects of the introduction of e-government are divided into five categories: *financial* (reduction of operating costs and / or increase in income); *economic development*; *benefits from reducing the number of civil servants* (due to the release of labor); *from strengthening the principles of democracy*; *from improving the quality of public services* provided to citizens and organizations.

Such financial methods are used as: cost-benefit analysis, NPV and IRR, assessment of the return on invested capital; indicators of public approval, such as consumer satisfaction with public services from their volume and quality and / or the growing popularity of e-government among the population; benchmarking; methods of a balanced scorecard; research of specific objects; portfolio analysis; risk management, etc. However, it is worth noting that the advantages of e-government are measured not only by financial results, but also by a full range of social, economic and cultural benefits and costs for society.

The methodology of Professor J. Stowers (University of San Francisco, USA) in contrast to the above methods, it does not include comparative monitoring of state websites with their subsequent ranking, but an analytical study of problem areas in the development of websites of state authorities and local self-government. The main attention is paid to the use of various methods for evaluating the state web infrastructure. Thus, experts conduct: data collection as a result of web monitoring, a selective telephone survey of consumer satisfaction with public services, an analysis of user reviews, an assessment of site traffic, an analysis of the costs and results of the cost of operating electronic resources. Thus, the main attention in the methodology is paid to the problem of the development of the web structure (the openness of sites is analyzed; the activity of civil servants in the online format (communication with citizens, responses to requests, appeals, etc.); the quality of services is evaluated (ease of use of services for novice users, the adequacy of the information provided to the requests of citizens, the number of navigation and other errors on the site, etc.).

As general requirements and principles for websites, experts indicate:
– the effectiveness of online information and services, the absence of which reduces the possibility of useful use of sites;

- the effectiveness of information architecture (organization of materials, structuring of the site, presentation of new material on the site);
- availability of help for users (consultations, comments);
- accessibility of information for people with disabilities;
- protection of the confidentiality of user information.

To determine the effectiveness of e-government, the websites of state authorities and local self-government are evaluated according to five groups of criteria, each of which is assigned a certain number of points, based on the completeness of the implementation of the corresponding criterion: 1) the index of public services (from 1 to 16 points); 2) the index of user assistance (from 1 to 10 points); 3) the index of navigation services (from 1 to 22 points); 4) the index of personal data protection (from 1 to 6 points); 5) the assessment of the availability of sites (in this case, sites without errors are added a score of «+1», sites with one or two errors – «0», sites where more than two errors were detected – «-1»). The total number of points was calculated by adding all the indicators.

To analyze the processes of e-government formation in Ukraine, the Institute of Telecommunications and the Global Information Space of the NAS of Ukraine, together with the former State Agency for Science, Innovation and Informatization of Ukraine, has developed a National System of Indicators for the Development of the Information Society, approved by the Cabinet of Ministers of Ukraine No. 1134 of 28.11.2012 and including 31 indicators [6]. This system is based on international approaches, but takes into account national characteristics and priorities for the development of the information society in the country. Unlike international methods that conduct analysis at the level of individual countries, the National System is focused on the regional level, which allows us to identify specific tasks for the promotion of information technologies in the life of individual regions of the country.

Based on the system of indicators, a method for calculating the integral index of information technology penetration into society was developed and tested in practice. However, this method was not used due to organizational problems, a change of government. To date, there are no unambiguous, reliable and regular statistics in Ukraine that would allow

analyzing the spread of information technologies, the development of the information society, and e-government. The shortcomings of these statistics also lead to low positions of Ukraine in the world rankings. It should be noted that the ratings are the basis for the international assessment of the country's potential on the world stage.

4. Conclusions

The analysis of methods for evaluating the effectiveness of e-governance and its impact on public administration in general requires determining the goals of the subjects of management activity – political elites and subsequent assessment of their impact on achieving these goals. The main objectives of public administration: 1) access to energy resources and retention of power (the aspect of power); and 2) solving national problems, improving the standard of living of citizens (the managerial aspect).

Improving the efficiency of power positioning using electronic management is achieved by: reducing the administrative costs of the population and business for interaction with state bodies when providing public services and performing state functions in electronic form; ensuring information transparency of public sector bodies and organizations, providing citizens and businesses with access to information about the activities of these bodies and organizations; improving the quality of feedback and participation of citizens in the development and adoption of state decisions by creating convenient and accessible electronic services for interaction between the government and society («e-democracy», «e-parliamentarism», etc.); ensuring the growth of opportunities for searching and processing information necessary for political actors; monitoring and monitoring the implementation of decisions; analysis of the domestic and foreign policy situation.

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Summary

The article analyzes the methods and criteria for evaluating the effectiveness of e-governance and e-democracy used in the countries of the European Union and the United States in the context of their implementation in the activities of state authorities and local self-government in Ukraine. It is emphasized that the main activity of the executive power is the provision of services to citizens, therefore, the concept of the effectiveness of the activities of state authorities and local self-government is inextricably linked with the effectiveness of the provision of public services. It is proved that modern information and communication technologies are an important tool for improving the efficiency of

the provision of public services, which should be able to be used correctly, because according to the results of evaluating the effectiveness of the provision of electronic public services by the executive power, it is possible to judge the effectiveness of its activities as a whole. It is noted that currently the effectiveness of e-government is evaluated in two ways: 1) assessment of the readiness of e-government and 2) assessment of the socio-economic effects of e-government. It is emphasized that for Ukraine today, one of the priority tasks in the implementation of administrative reform is the active use of the national system of indicators for evaluating the effectiveness of e-government, taking into account the methodological approaches proposed by the world community. This will allow quickly responding to problems and risks on the way to promoting reforms.

Keywords: communication technologies, accessibility of information, electronic public services, methods for assessing readiness for electronic public administration, strategy for public administration reform