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Iryna Dul'ska¹

BUDGET SUPPORT FOR DIGITIZATION WITHIN THE E-GOVERNMENT IN UKRAINE

The paper deals with the issue of the budget financing of digitalization in Ukraine through e-governance.

It was shown that it is very difficult to estimate the real volume of public expenditures on digitalization (informatization) through e-government program at all budget levels and directions, since its components (national, sectoral, regional) are being implemented by many executive bodies and local governments. According to international organizations, the public access to information on budget spending in Ukraine is limited, and transparency level is insufficient, while the level of e-governance is high. However, the interfaces of e-government and e-budgets of the central and local government bodies are not unified, and are mostly inconvenient to users. The official websites provide outdated and limited information. The lack of transparency of the budget resources using reduces the trust of the general public in governmental institutions.

The organizational and institutional mechanism of budget financing of e-governance is studied based on the results of audits conducted by the authorized state bodies.

It is revealed that the main contractor of the subprograms implementation of the National Informatization Program – the State Agency for E-Governance of Ukraine – has not ensured a proper level of coordination, control, and systemic and consistent action, therefore important goals of the program have not been achieved. While the goals of digitalization of public services are declared as priority in Ukraine, the level of budget financing does not correspond to them. In case of the implementation of regional programs of informatization, insufficient control of the main spending units leads to poor performance or failures in their execution. Still unsolved remains the issue of determining the sources of financial support for the basic sectors of the social sphere, in particular, regarding measures for their digitization, within the framework of regional decentralization.

To deal with the above mentioned problems and challenges, it is recommended to establish a single coordinating body in the field of digitalization, including e-government, which should have ministry status and be built up on experience of countries, where similar bodies exist.

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K e y w o r d s : digitalization, informatization, budget expenditures for informatization, executive bodies, local governments, budget programs, audit, e-government, interface of state electronic services, electronic budget, regional programs of informatization

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In Ukraine, the process of digitization is intensifying (the same phenomenon is also referred to as "informatization", which differs from digitalization by only a weaker technological gradient and stronger organizational one) in the form of saturation of the socio-economic system with information and communication (digital) technologies (ICTs), which essentially change all spheres of the life of human and society. In this process, all subjects of the socio-economic system are involved: society, state, and business in their corresponding areas of responsibility, since the digitalization greatly contributes to the increase in the intensity of social production, and the quality of life.

In digitization, an extremely important function is performed by the state, which, through the introduction of digital technologies into the work of public authorities, helps establish a more effective interaction between its units, with citizens and business, and, provides the development of basic industries. However, it is practically impossible for an average e-government user to estimate the real amount of budget expenditures on the digitization of these spheres at all budget levels and directions, because the level of disclosure of the information about them and coordination of these costs by the central executive bodies (CEBs) still remains insufficient.

In recent years, a powerful and progressive policy on the digitization of all spheres has been conducted in the world, as there is an understanding of considerable benefits of digitization in ensuring the revival of socio-economic development. This is largely facilitated by the digitization of public administration (e-government) and the areas of state responsibility. These issues are subject matters in a number of foreign studies by the UN [1], the European Commission [2], and so forth. Ukraine has also adopted a number of digitization guidelines, such as the Concept for the Development of Digital Economy and Society of Ukraine for 2018-2020 [3], the plan of its implementation "Digital Agenda 2020" [4], etc.

The officially declared priority character of the e-governance sphere slightly contradicts the fact that its funding is carried out by a large number of CEBs, regional (oblast) state administrations, and local government bodies: both directly (referred to as "digitization" or "informatization") and indirectly (within the framework of their main specialization). There are also serious gaps in organizational and institutional provision of the state with all components of digitization of e-governance. Lack of transparency in budget financing of this important guideline reduces the trust of citizens in many state institutions. In addition, with the revival of regional decentralization, the question arises about the sources of financial support for digitization of basic regional.

The purpose of this article is to assess the degree of priority and transparency of the budgetary funding of e-government implementation in Ukraine at different levels and areas (national, regional, sectoral) and to find gaps in the state's organizational and institutional provision of the implementation e-government at the state and regional levels and to develop proposals about their elimination.

The important functions of the state in the digital transformation of social production in accordance with the Concept of e-Governance Development in Ukraine

[5] include the modernization of public services; development of effective interaction between power, citizens and businesses with the help of digital technologies and e-governance in the basic branches (Fig. 1).

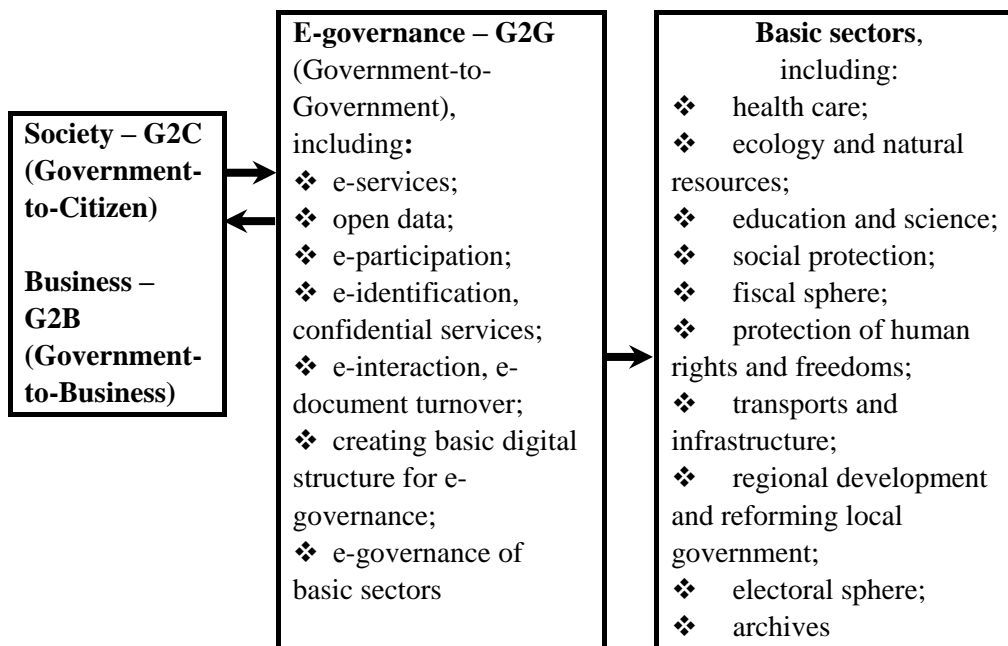


Fig. 1. State functions in the digitalization of the e-governance

Source: [5].

However, despite the state's attention to solving e-government problems in Ukraine, and considerable volumes of the financial resources that the state allocates to these purposes, the actions of all government branches often remain fragmented, and insufficiently systematic and effective. This is confirmed by this country's lagging behind in a number of international ratings, especially those their parts, which characterize the state's role in the creation of necessary conditions both for the digitalization and for its use.

Thus, in the World Economic Forum (WEF) Network Technological Preparedness Index (2016-2017), Ukraine ranked 64th out of 139 countries with the following indicators: 1) environment (94th place): political and regulatory (113th), business and innovation (67th); 2) preparedness (30th): infrastructure (51st), accessibility (6th), skills (33rd); 3) use (88-th): individual (76th), business (63th), government (114th); 4) influence (69th): economic (59th), social (75th) [6].

According to the International Telecommunication Union's (ITU's) ICT Development Index, which measures ICT access, use and skills, Ukraine ranked 79th out of 140 countries in 2017-2018 [7]. This has a negative impact on this country's global competitiveness, despite certain positive dynamics (81st place in the WEF rating of 2018 against the 85th in 2017 [8]). Ukraine has worsened its position in the UN's E-Government Development Index (EGDI) in 2016-2018, while a number

of post-Soviet countries are among the leaders in developing e-Government with various dynamics (Table 1).

Table 1

**E-Government Development Index (EGDI) of post-Soviet countries,
out of 193 countries (maximum = 1)**

| rating | | country | EGDI-2018 | EGDI | including by components: | | | income level | Per capita GDP in USD |
|-----------|-----------|--------------------|-------------|-------------|--------------------------|-------------|-------------|--------------------|-----------------------|
| 2018 | 2016 | | | | OSI | TII | HCI | | |
| 16 | 13 | Estonia | very high | 0,85 | 0,90 | 0,76 | 0,88 | high | 19840 |
| 32 | 35 | Russian Federation | very high | 0,80 | 0,92 | 0,62 | 0,85 | average high | 10608 |
| 38 | 49 | Bilorus | very high | 0,76 | 0,74 | 0,69 | 0,87 | average high | 5760 |
| 39 | 33 | Kazakhstan | high | 0,76 | 0,87 | 0,57 | 0,84 | average high | 8840 |
| 57 | 45 | Latvia | high | 0,70 | 0,67 | 0,62 | 0,81 | high | 15547 |
| 40 | 23 | Lithuania | very high | 0,75 | 0,80 | 0,63 | 0,83 | high | 16730 |
| 60 | 61 | Georgia | high | 0,69 | 0,69 | 0,54 | 0,83 | average low | 4098 |
| 69 | 65 | Moldova | high | 0,66 | 0,77 | 0,48 | 0,73 | average low | 2279 |
| 70 | 56 | Azerbaijan | high | 0,66 | 0,73 | 0,51 | 0,74 | average low | 4140 |
| 81 | 80 | Uzbekistan | high | 0,62 | 0,79 | 0,33 | 0,74 | average low | 1490 |
| 82 | 62 | Ukraine | high | 0,62 | 0,57 | 0,44 | 0,84 | average low | 2582 |
| 87 | 87 | Armenia | high | 0,59 | 0,56 | 0,47 | 0,75 | average low | 3860 |
| 91 | 97 | Kyrgyzstan | high | 0,58 | 0,65 | 0,34 | 0,76 | average low | 1143 |
| 131 | 139 | Tajikistan | average | 0,42 | 0,34 | 0,23 | 0,70 | average low | 823 |
| 147 | 140 | Turkmenistan | average | 0,37 | 0,13 | 0,30 | 0,66 | average low | 6642 |

Note. Calculated on UN, ITU and UNESCO data bases. Including:

OSI (online-service) – quality index of online servicing of the state service portals, and the websites of ministries of education, labor, social security, health care, finance, and environmental protection;

TII (telecommunication infrastructure) – telecommunication infrastructure quality index: number of Internet users; subscribers of fixed, mobile telephone networks; active subscribers of mobile and fixed broadband Internet access (ISD);

HCI (human capital) – Human Capital Quality Index: Adult Literacy; students of educational institutions; duration of study at school.

Source: [1].

And this is when e-governance is set a priority guideline in the Association Agreement between Ukraine and the EU on Ukraine's commitments on the cooperation in the development of information society (Chapter 14) in the area of ICT use by individuals, business and administrative bodies between them (G2C, G2B, G2G) through the development of local Internet resources and the introduction of online services, including e-business, e-government, e-health, e-education, etc.

The National Informatization Program (NIP) [9] and its components (the government, industry, regional programs and information projects) are important e-government tools. Their task is the formation of legal, organizational, scientific and



technical, economic, financial, methodological and humanitarian prerequisites for the development of the sector's informatization; application and development of modern ICT in all spheres of this country's public life; creation of the system of national information resources; creation of a nation-wide network of information support for science, education, culture, health care, etc.; creation of nation-wide systems for informational and analytical support of the activity of executive bodies and local governments; increasing the efficiency of domestic production on the basis of widespread use of ICT; formation and support of the market of ICT products and services; and Ukraine's integration into the global information space.

The State Agency for E-Governance (SAEG), which is the NIP's General Customer, is responsible for coordinating the implementation of the NIP's components, monitoring in the field of informatization, providing methodological, regulatory, informational and organizational support of the processes of the NIP organization and implementation. However, due to chronic under-financing, out of 96 planned for 2008-2010 informatization projects of, only 38 (40%) [10] were fulfilled.

Analysis of the implementation of 13 budget programs of the ten central executive agencies as NIP customers, showed a lack of modern computer equipment, licensed software, typical e-document management systems, and interfaces. As a consequence, the central executive agencies' activities were not adequately transparent, and some of their websites do not meet the content requirements. In addition, none of the measures of the Third Stage of the Concept of e-Government Development in Ukraine [5], (which were due to be completed by 2015), were fulfilled. That is, the united web portals of central executive agencies, the unified information and telecommunication infrastructure of central executive agencies and URCs, the single e-government web portal, and the National Depository of e-Information Resources were all uncompleted.

In 2012, The State Audit Service identified a number of reasons why informatization in Ukraine in 2008-2011 has turned into a largely unsystematic process. Among them are:

- 1) untimely updating of the regulatory framework, inconsistency in the preparation of the central executive agencies' bills on informatization without the consent of the SAEG, with the result that various important issues of cooperation between the public and private sectors remained without due attention, including those related to investment, the competitive environment for the development of open source software, etc.;

- 2) Limited financing of the NIP led to incomplete implementation of important projects, did not produce the expected effect: the system of indicators for the development of the information society and ICT standards was not developed and implemented; and the central executive agencies failed to introduce the unified e-document and e-digital signature systems;

- 3) budget funds managers for informatization purposes often carried out projects beyond the NIP scope, which worsened their coordination;

- 4) the main role in determining the informatization BPs affiliation during the formation of NIP projects is played by the Ministry of Finance, which analyzes the

informatization related budget requests submitted by the budget funds administrators, after which it reports to the SAEG the list of BPs (which are NIP components). However, within the non-NIP BPs, not all funds are directed to informatization. Thus, most of the informatization projects are executed without the consent of the SAEG, their funding may exceed the NIP related amount. This leads to uneven sectoral funding for informatization purposes thus putting different central executive bodies in unequal conditions. In this way, various pseudo-systems of document circulation were developed at the central executive bodies and local governments.

However, even after that, budget allocations for SAEG continued to be transferred to other performers by the Cabinet of Minister's commands. In addition, according to conclusions by the Accounting Chamber on the results of audit of the effectiveness of the use of State Budget funds for SAEG purposes (on e-governance and NIP) for 2015 - 9 months of 2018 [11], expenditures on budget programs for SAEG and NIP purposes were performed with numerous violations of the budget legislation: the main administrators did not provide reasonable planning of funds and their effective management; the indicators in the budget requests for budget programs were not substantiated, and the expenditures were not under proper control.

In 2017-2018, SAEG failed to spend 200.5 million hryvnias of scheduled in the budget programs budget funds, which amounts were transferred to other executive agencies without proper justification. On the other hand, a 115.7 million UAH worth of expenditures was not covered by thematic plans. Government contractors failed to submit, to the SAEG, their reports on project implementation worth 19.2 million UAH for 2017. Inefficiently spent 62.9 million UAH, of which 53.7 million UAH - due to the failure to reach the results specified in the budget program passports for 2015-2017, and 9.2 million UAH – due to the failure to launch of the system of e-interaction between state e-information resources.

As a result of the failure to approve applied R&D project subjects and violations of the rules of their formation, 19.7 million UAH was spent unreasonably. Due to the SAEU's illegal management decisions, 8.3 million UAH was spent on contracts concluded with violated legislation on public procurement. Copyright on intellectual property objects worth 38.0 million UAH were not passed to the customer. This audit report was sent to the Verkhovna Rada, the Cabinet of Ministers, and the Prosecutor General's Office of Ukraine. A consequence of the above mentioned shortcomings in the SAEU activities was a significant reduction in its financing in the State Budget 2019 (Table 2).

It should be noted that the share of government expenditures through the central executive agencies directly concerned with digitization is insignificant compared to those central executive agencies that are responsible for sectors that have priority budget financing, such as culture, servicing for the central executive agencies, and agrarian and infrastructure sectors (see Table 2).

At the same time, almost all central executive agencies and united rural communities implement digitalization budget programs within the scope of their responsibility. Thus, in 2018, the Ministry of Health performed the BP of "Guidance



in the field of state financial guarantees of medical services", whose passport was repeatedly revised. As of 27.10.2018, it was planned to procure 530 computers and peripheral equipment units for 211.0 million UAH, as of 21.12.2018 – 552 units of office equipment, 22 server platforms, 150 office packages, and 980 user licenses for 148.0 million UAH, with respective average costs of 21.5; 34.2; 9.7 and 1.7 thousand UAH for the National Health Service within the framework of the first stage of the medical reform [13]. At the regional level, for example, the oblast-level program "Health of Kyiv Region" for 2018-2022 is under way worth UAH 1.9 billion with elements of digitalization. On that program, it is planned to spend from the state, oblast and other local budgets respectively 510.0; 1189.5 and 161.5 million UAH [14].

Table 2

**Volume and structure of the State Budget expenditures
on central executive agencies in 2017-2019**

| Central executive agencies | mln UAH | | | % | | |
|--|--------------|--------------|-------------|-------------|-------------|-------------|
| | 2017 | 2018 | 2019 | 2017 | 2018 | 2019 |
| State budget, out of which: | 841402.8 | 991930.7 | 1112130.0 | 100.0 | 100.0 | 100.0 |
| State Agency for e-Governance | 249.0 | 151.5 | 48.4 | 0.03 | 0.02 | 0.00 |
| National Commission, which performs state regulation in the field of communication and informatization | 61.6 | 97.3 | 86.6 | 0.01 | 0.01 | 0.01 |
| Administration of the State Service for Special Communications and Information Protection | 2027.9 | 2338.5 | 2925.4 | 0.24 | 0.24 | 0.26 |
| Ministry of Information Policy | 261.8 | 862.1 | 5456.4 | 0.03 | 0.1 | 0.5 |
| Ministry of Culture | 4282.8 | 6420.8 | 6989.8 | 0.5 | 0.6 | 0.6 |
| State Committee for Television and Radio Broadcasting | 1473.5 | 863.0 | 1097.9 | 0.2 | 0.1 | 0.1 |
| National Council on Television and Radio Broadcasting | 47.6 | 104.9 | 124.9 | 0.01 | 0.01 | 0.01 |
| State Cinema Agency | 516.0 | 520.7 | 521.2 | 0.06 | 0.05 | 0.05 |
| Ukrainian Institute of National Remembrance | 26.7 | 62.9 | 127.3 | 0.00 | 0.01 | 0.01 |
| State Special Transport Service | 498.0 | 564.7 | 801.3 | 0.06 | 0.06 | 0.07 |
| Ministry of Agrarian Policy and Food | 9442.3 | 12075.7 | 13858.1 | 1.1 | 1.2 | 1.3 |
| Ministry of Infrastructure | 916.9 | 3234.4 | 3050.6 | 0.1 | 0.3 | 0.3 |
| State Agency for Infrastructure Projects | 2.0 | 10.6 | 2106.6 | 0.00 | 0.00 | 0.2 |
| State Service for Geodesy, Cartography and Cadaster | 1108.8 | 1902.3 | 1705.3 | 0.1 | 0.2 | 0.2 |

Source: [12].

The State Service of Ukraine for Geodesy, Cartography and Cadaster, in 2016 (this is the most recent available report on budget programs implementation of this central executive agency's website) performed the budget program on "Land

Reform Implementation" [15] worth 44.8 million UAH, out of which 23.7 million UAH was spent to keep the State Land Cadastre (creation, software maintenance, and data storage and protection), etc. At the regional level, the "Program for inventory and normative monetary valuation of land in the Kyiv oblast for 2017-2020" is under way with elements of digitalization. The financing of this program from the regional budget amounts to 7.5 million UAH [14]. Given that, according to the statistics at the agency's website, less than 20% of all state lands are presently registered in the land cadastre, while the funds allocated for digitalization of this are not sufficient.

Information about the budget programs is available at the official sites of the Central Bank of Ukraine, central executive agencies, state administrations and united rural communities. Their interfaces are not unified, and most of them are inconvenient. The websites often post scanned copies of poor quality, several variants of BP passports, often having outdated information. The original documents (with seals and/or signatures) of album format are often placed vertically, so they are difficult to study without being downloaded. Consolidated lists of the central executive agencies' budget programs are often missing, the files' names are often misleading and there are no archives. Information on the procurement transparency is unsystematized and may include hundreds of pages from the e-procurement system. The official websites of individual central executive agencies lack the information about the budget programs they are performing (State Fiscal Service, Ministry of Internal Affairs, and the National Police).

While the national, regional, and district (rayon) levels of the budget process is sufficiently transparent, that is not the case at the level of community councils and almost 900 united rural communities, in particular due to the insufficient level of broadband availability, especially in rural areas (Figures 2a, 2b). At the same time, the broadband speed is not specified, since the State Statistics Service (Derzhkomstat) classifies broadband as the Internet access within the whole speed range of 10-100 Mbit/s without separating it in smaller ranges, as is the case in the EU.

True, some united rural communities already have their own websites, for example, Glybotsky UTC in Chernivtsi oblast. On its website, you can get acquainted with the types of local business, BPs, energy efficiency measures, socio-economic development, and to see a real-time picture from nine webcams located in the village.

Thus, despite the fact that the Ministry of Finance has launched the portal Spending.gov.ua to make transparent the information on the actual condition state of spending by public funds managers and their counterparties (contracts, additional agreements, specifications, bills, items of public contracts, and their value), for example, to analyze the demand of budgetary institutions, contracts, transactions, budget expenditures classifier, this does not allow monitoring the funding for digitalization purposes (purchase of office equipment is included in the section "Purchase of equipment, items of long-term use"). This situation needs to be corrected. However, negative practices still prevail.

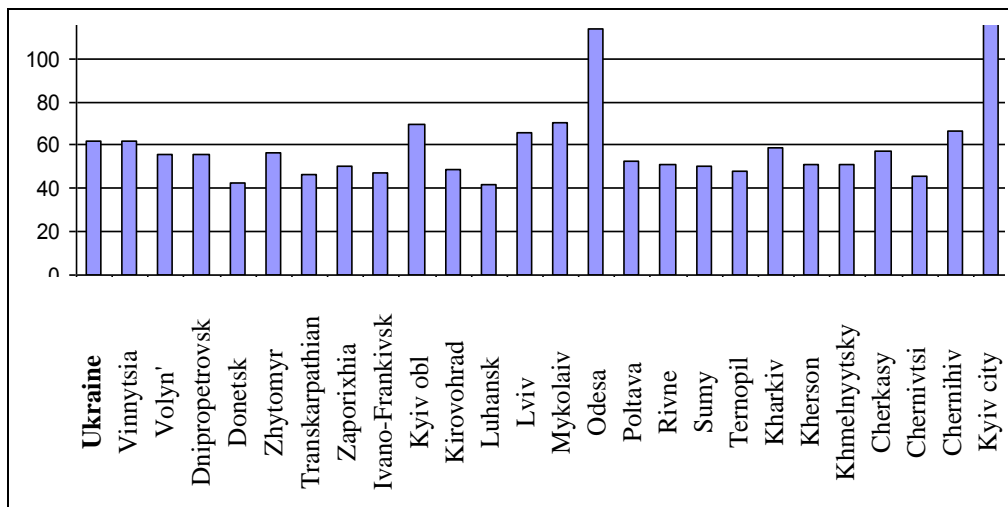


Fig. 2a. Number of broadband subscribers in Ukraine for 9 months of 2018 per 100 persons

Source: [16].

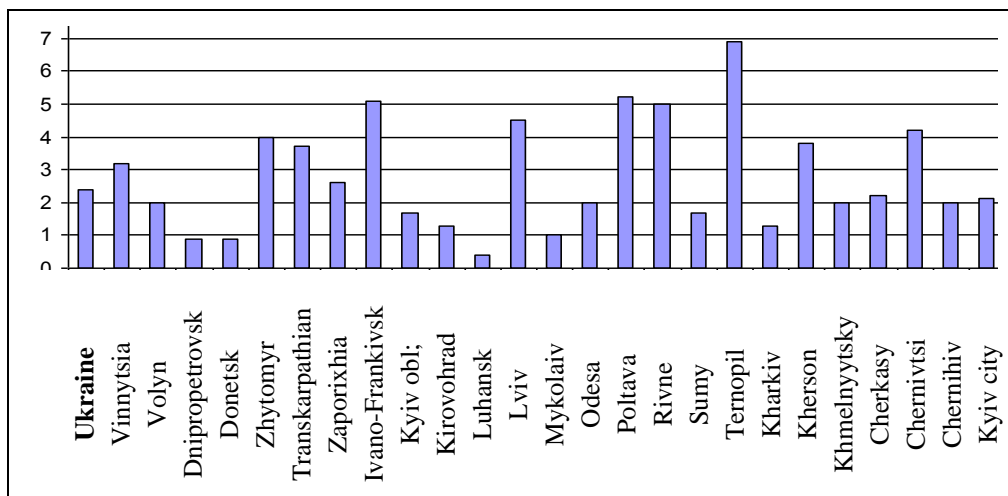


Fig. 2b. Number of broadband subscribers in Ukraine in rural areas for 9 months of 2018 per 100 persons

Source: [16].

Thus, various types of budget programs, which in one way or another relate to digitalization, are performed by a significant number of central and local executive bodies, state administrations, local government authorities and URCs. Therefore, in order to obtain a complete picture, it is necessary to perform a professional hard work on their current inventory, collect information from relevant agencies for its analysis and forecasting. Also, it is advisable to professionally study the degree of availability of official websites for local government authorities of different levels, including URCs, as well as the interface quality and the content of such websites.

E-budget services are an important component of e-governance. The independent International Budget Partnership group explores their quality and completeness in terms of OBI (Open Budget Index) indicator based on the IMF and OECD methodology as to public availability of eight key budget documents, the degree of completeness and relevancy of their data, and evaluates them by a 100-point scale. In Ukraine, in 2015, OBI was 46, including by the following components: 1) participation of civil society in the budget process is low (23), 2) legislative budget regulation is significant (79), and 3) the control by the highest audit bodies is high (83). The dynamics of the OBI of Ukraine in 2008-2017 is presented in Table. 3 [17].

Table 3

Dynamics of Open Budget Index (OBI) for Ukraine in 2008–2017

| Transparency of budget information | | Budget transparency | OBI for Ukraine, 100 point scale | | | | |
|------------------------------------|--------------|---------------------|----------------------------------|------|------|------|------|
| 81–100 | High | Sufficient | | | | | |
| 61–80 | Considerable | | | | | | |
| 41–60 | Limited | Insufficient | 2008 | 2010 | 2012 | 2015 | 2017 |
| 21–40 | Low | | 55 | 62 | 54 | 46 | 54 |

Source: [17].

Digitalization measures within e-governance are partially financed by government loans. Thus, in 2017-2018, the IBRD credited several important social projects with elements of digitalization (Table 4).

Table 4

Separate social projects with elements of digitalization, funded by the IBRD loan, UAH million

| Projects | 2015 | 2016 | 2017 | 2018 |
|--|-------|-------|--------|--------|
| "Improving health at the service of people" , the total loan: \$ 214.7 million USD. The contract came into force on June 15, 2015 | | | | |
| 1. Improving health at the service of people | 33,0 | 33,2 | 150,0 | 235,0 |
| 2. Subvention from the state budget to local authorities for the reform of regional health systems | 129,7 | 179,7 | 1500,0 | 1745,8 |
| "Modernization of the system of social support of Ukraine's population" , total loan amount: 300 million USD. The contract came into force on 10.09.2014, completion date: 01.10.2020 | | | | |
| Modernization of the system of social support of Ukraine's population | 274,7 | 274,7 | 471,1 | 151,5 |

Source: [18, 19]

Thus, the project "Improving health at the service of people" partially funded measures to implement the e-health system in eight pilot regions (Dnipropetrovsk, Poltava, Rivne, Vinnytsia, Volyn, Lviv, Transcarpatia and Zaporizhzhia regions).

The charts in Fig. 3a, 3b show the share and cost of digitalization in the cost structure [18].

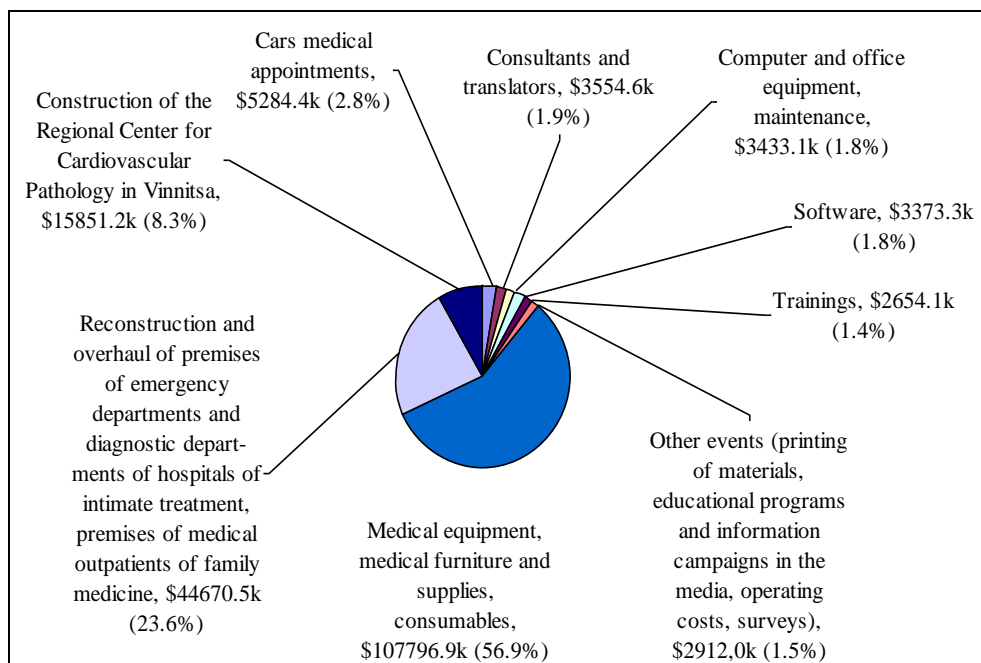


Fig. 3a. The structure of the use of subvention funds within the joint, with the IBRD, project "Improving health at the service for people" in 2015-2017 and January-September 2018 by spending purposes, *ths. USD*

Source: [18].

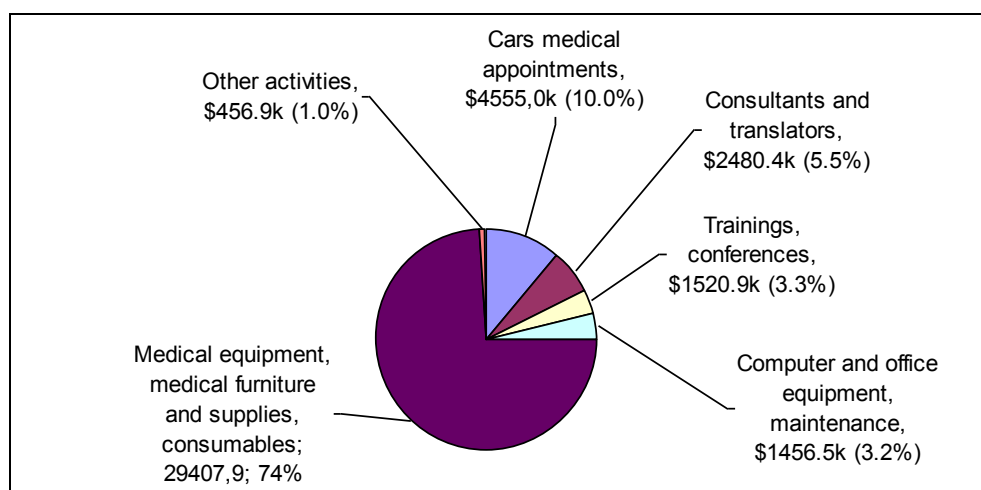


Fig. 3b. The structure of the use of subvention funds within the joint, with the IBRD, project "Improving health at the service for people" via local budgets in 2015-2017 and January-September 2018 by spending purposes, *ths. USD*

Source: [18].

The purpose of the project "Modernization of the system of social support of Ukraine's population", which is being carried out by the Ministry of Social Policy with the IBRD assistance, in particular as to the digitalization within the e-governance effort, is to increase the efficiency of administering social benefits and services through the introduction of an information management system and integration of payment data and services in the Single Informational and Analytical System of Social Protection of the Population (SIASSP), which will cover all local authorities and institutions of the social sphere (see Table 4, Figure 4) [19].

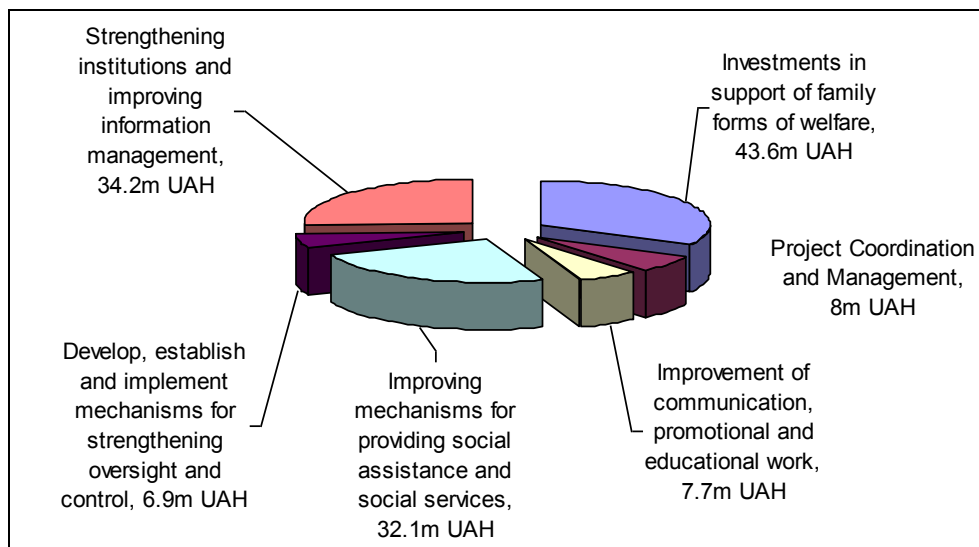


Fig. 4. Use of the loan funds by purposes of the joint, with the IBRD, project "Modernization of the system of social support of Ukraine's population" in 2016-2017

Source: [19].

An audit on the program audit revealed the following problems: 1) At the time of the audit (5.07.2018), the level of use of funds amounted to 31.5% of the loan amount, being the largest share of actual expenditures spent on the informatization efforts (in 2016-2017 the share was 38.3-38,5%). While the cash expenses (financed via the State Treasury system) were the smallest (1.8 to 14.7% in 2016-2017); 2) failed the implementation of the tasks within the guideline of "Improving the Administration of Assistance and Services" for SIASSP worth 52.0 million USD (including equipment and standard software: 35 million USD).

The equipment is on preservation, on the request for its use in the regions' information about the availability of equipment without information on its use was received from eight regions (it should be pointed out that, within the framework of the World Bank's previous project, \$ 52 million was already inefficiently spent of the SIASSP); 3) equipment of data centers does not comply with the project documentation, their service and operation is impossible, because the servers do not have a valid service contract from the manufacturer, and the term of the software



licenses has expired. 22.1 million UAH worth of equipment and 3.1 million UAH worth of intangible assets by (SIASSP software), "E-queue", and "Information Terminals" all were not put into operation [19].

Individual e-government structures were created at the expense of foreign investors or donors. Thus, in 2015, the State Enterprise "Foreign Trade of Ukraine" at the Ministry of Economic Development and Trade (MEDT) were granted for use, from the State Enterprise Public Association "Transparency International Ukraine", various facilities of the information-analytical system (IAS) Prozorro in accordance with the agreement on the granting of a non-exclusive software license and trademark rights.

That is, the property rights to the IAS, its modified facilities and the finalization, were transferred by the Public Association in 2016 (its central database (CDB) interface) to ensure the work of the modules of the appeal body, on the work with contracts, the negotiation procedure for defense procurements, competitive dialogue, negotiation procedure, Document Service and integration of the Single State Register; changes in the software code, architecture and archiving functions of the Prozorro IAS, and open bidding procedures for procurement of the energy service) all are in its property.

Besides, until March 2018, Prozorro's CDB and its components were posted on the servers of Amazon Web Services in the United States, which contradicts the requirements for the protection of such systems in Ukraine. The critically necessary, for the IAS, telecom are covered by the Eurasia Foundation, which is accredited in Ukraine as executor of the international technical assistance project "Transparency and Accountability in Public Administration and Services (TAPAS)" in accordance with the Agreement between the Governments of Ukraine and the United States on Humanitarian and Technical-Economic Cooperation.

While in 2015 the state programs made losses of 2.9 million UAH, in 2016-2017 and in the first half of 2018, it made net profit, respectively, of 23.6; 11.2 and 1.9 million UAH. During that period, 76.7 million UAH of tax and non-tax payments (income tax, VAT, 75% of net profit, environmental tax, personal income tax, military fee, etc.) were paid to the State Budget, respectively, 23.4; 41.3 and 12 million UAH [20]. The state could have spent the corresponding non-obtained proceeds from e-government purchases, on further digitalization of the sector.

In addition to ministries and departments, digitalization projects at the regional level are co-funded by the State Fund for Regional Development (SFRD), whose budgets for 2017-2019 were respectfully 3.5; 6.0 and 1.0 billion UAH. Thus, in 2018, out of 559 submitted to the SFRP healthcare projects, of which eight were devoted to digitalization and introduction of e-health in health care institutions, only one was co-financed in the amount of 787.5 thousand UAH (337,5 thousand UAH was covered by the local budget). The rest of the projects were rejected. In 2019, out of 491 projects, only six projects were accepted, of which none was co-funded.

In 2015-2019, 136 requests were submitted to the SFRD for the establishment of Centers for the Provision of Administrative Services (CPAS), including 36 from

the URCs. Out of the total, 33 were selected by the Regional Commission and approved by the Cabinet of Ministers, with the amount of financing from the SFRD equal to 326.6 million UAH, and that from local budgets, including the URCs, equal to 63.6 million UAH. That is, the mechanism of project selection by the SFRD is not sufficiently transparent

Ukrainian regions mostly develop and implement three-year informatization programs (at the oblast, rayon, and URC levels) that are co-financed within the funds from the State Budget and corresponding local budgets, as well as from other legal sources (like donor funds, technical assistance funds, etc.). The indicators of the programs are either approved immediately or defined depending on the budgetary situation (Table 5).

Table 5

**Amount of financing of regional informatization programs
in 2017-2019, mln UAH**

| Region | 2017 | 2018 | 2019. | 2020 | Total |
|-----------------|-------------------------|------|-------|------|-------|
| Vinnitsia | Approved at rayon level | | | | |
| Volyn | 3,8 | 2,0 | 2,0 | | 7,9 |
| Dnipropetrovsk | 70,4 | 71,0 | 64,5 | | 205,9 |
| Donetsk | - | - | - | - | - |
| Zhytomyr | 1,8 | 1,7 | 0,5 | | 4,0 |
| Transcarpatia | - | 2,6 | 3,1 | 3,3 | 8,9 |
| Zaporizhia | Approved at rayon level | | | | |
| Ivano-Frankivsk | Approved at rayon level | | | | |
| Kyiv oblast | 5,3 | 5,0 | 5,0 | 5,0 | 20,4 |
| Kirovohrad | 2,3 | * | * | | * |
| Luhansk | ... | - | - | - | - |
| Lviv | | 10,0 | * | * | * |
| Mykolaiv | Approved at rayon level | | | | |
| Odesa | ... | 4,4 | 7,6 | 5,6 | 37,5 |
| Poltava | Approved at rayon level | | | | |
| Rivne | 1,6 | 2,1 | 1,1 | | 4,8 |
| Sumy | Approved at rayon level | | | | |
| Ternopil | 0,5 | 0,5 | | | 1,5 |
| Kharkiv | ... | 33,8 | 32,0 | 32,8 | 98,7 |
| Kherson | Approved at rayon level | | | | |
| Khmelnysky | 1,5 | * | * | * | * |
| Cherkasy | Approved at rayon level | | | | |
| Chernivtsi | Approved at rayon level | | | | |
| Hernihiv | ... | 2,2 | 2,2 | 2,5 | 6,9 |
| Kyiv city | 22,5 | 11,0 | 26,5 | * | |

Note * – implementation efforts, and financing volumes and sources of informatization programs are specified annually when approving or making changes to the state and local budgets for the relevant year.

Source: open information from official websites of oblast and rayon state administrations, oblast and rayon councils, URCs.



Regional programs are approved by URCs and executive bodies and are by their nature legislative documents, so their non-compliance due to inadequate control by the main budget entities is unacceptable. For example, in the report on the results of the implementation of the regional (oblast) informatization program for 2017-2020 "E-Kyivshchyna" in 2017, its implementation level was ascertained at 0% of the planned, for the first half of 2018 at 3%, and in 2018 at 59.9% (overall budget of Kyiv oblast - at 63.9%).

A high level of implementation was observed in the regional programs of physical culture development, sports, national patriotic education, theater, musical art, and mass media. Further development of e-governance is promoted by a high degree of implementation, in 2018, of Kyiv regional programs of inventory and normative monetary valuation of land (99.3%), the creation of GIS of urban construction cadaster and monitoring (99.5%), and smart transports (intelligent transport system) (99.6%). At the same time, the Kyiv Oblast Target Program "Implementation of the Uniform Social Card for the Kyiv Region" was not implemented, and the Kyiv Oblast Integrated Program "Health of Kyiv Region" was implemented only at 34.3%, as a result of which the corresponding medical subvention was largely unused and returned.

According to the audit report of the State Audit Office [14], the balance of unused subventions in the budget of Kyiv region as of January 1, 2018 amounted to 552.2 million UAH, and for nine months of 2018 - UAH 937.8 million, or 9.1% of received subventions including the balance at the beginning of the year. The largest balances of the unused subvention in the general fund in 2017 were those for the educational subvention (172.1 million UAH), the subvention's special fund for the development of the health care system in rural areas (200.5 million UAH). In 2016, expenditures were not fully executed on the FAPs' maintenance (62.4% of the plan). At the same time, local budgets, for the nine months of 2018, placed 890.9 million UAH worth of deposits.

The structure of expenditures, for example, in the "Health sector" item, according to the current economic classification, in 2016-2017, registered labor costs (68-73%), medicines, dressings materials (12-10%), utilities, energy (11-9%), food (2-2,1%), and others (7,0-5,9%).

However, currently, it is necessary to reflect the costs of digitalization, because without them it is impossible to create modern health care or educational sectors, nor to provide adequate subventions for these purposes and the mechanism for their funding with the flow of unused subventions. Because, according to the data by the Ministry of Economic Development and Trade, as of January 1, 2018, 99.1% of the health care institutions and 53.3% of schools lacked broadband services.[4].

It is necessary to develop mechanisms for the co-financing of the government's digitalization of the levels local communities and URCs is as the case in the EU in building so called "last mile" broadband networks to connect even the economically depressive communities. [2].

The SAEG Chairman has submitted to the Verkhovna Rada a draft law "On amendments to the Law of Ukraine "On the National Program of Informatiza-

tion"" of October 4, 2018, No. 9166, which actualizes the terminology of the sphere's concepts, and defines the priority directions of the informatization policy in Ukraine. Also, it is proposed to legally assign to the General State Customer of NIP (which is the SAEG) such coordinating functions as agreement, planning, expert examination of all subprogrammes (sectoral, regional programs and informatization projects, programs and informatization projects for municipalities, and informatization programs and projects to be implemented in the interests of the regional state administrations and local government). The question arises, what has prevented the SAEG from promoting such coordination under the current legislation?

In July 2018, in Ukraine, another state agency for the coordination of digitalization progress in Ukraine was added to the existing ones, which is the Coordinating Council for the Digital Economy at the MEDT, which is to include a few sectoral working groups to develop of legislative initiatives, analytical researches on ICT, telecom, digital infrastructure, public safety, digital finance, cashless payments, smart-city development, creative industries, ICT services exports, digitalization of education, healthcare, and science, Internet of things, industry 4.0, and digital agriculture. As a connecting link between state and business, it will play a useful role. However, nobody releases the state from its obligations regarding the budget provision of digitization in the field of e-governance.

Conclusions. In order to raise the efficiency of budget expenditures on digitalization within the framework of e-government in Ukraine, it is necessary to create from all the existing co-ordinating and regulatory bodies in the field of digitalization a single one (as is the practice in foreign countries, for example, in Australia, Poland, Thailand, Sri Lanka, etc.) of a ministry level, to avoid duplication of some functions and non-fulfillment of others.

This agency should be delegated authority regarding to the inventory of programs and projects of all entities that are directly and indirectly involved in the informatization (digitization) efforts. It is also necessary to organize public discussions on the related problems, to monitor the parallelism of individual sectoral developments of different executive bodies, to develop and introduce new classifiers of budget expenditures that separately reflect the costs of informatization, and to unify the structures and interfaces of e-government and e-budget services.

In addition, it is necessary to: raise the issues of amending the legislation on the transfer of unused subventions to local budgets for their further use for the purpose of digitalization and introduce purpose oriented subventions for the digitization of regional development, divide the responsibility areas between the state, communities and business in determining the sources of financing the digitalization measures in the regions, and to raise the responsibility of budget funds' managers for regional digitalization.

As to the prospects for further research, it is needed to develop scientific and methodological support for a single coordinating government institution on digitalization.



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БЮДЖЕТНЕ ЗАБЕЗПЕЧЕННЯ ЦИФРОВІЗАЦІЇ У РАМКАХ Е-УРЯДУВАННЯ В УКРАЇНІ

Досліджується бюджетне забезпечення цифровізації в рамках е-урядування в Україні. Встановлено, що оцінити реальний масштаб державних витрат на цифровізацію (інформатизацію) в рамках е-урядування на всіх бюджетних рівнях і напрямках досить складно, оскільки складові програми (загальнодержавні, галузеві, регіональні) виконуються багатьма органами виконавчої влади і місцевого самоврядування поряд із основними завданнями їхньої діяльності. Рівень



доступності інформації для громадськості про витрачання бюджетних коштів в Україні міжнародні організації оцінюють як обмежений, прозорість – як недостатню, рівень е-урядування – як високий. Інтерфейси е-урядування та е-бюджету органів виконавчої влади та місцевого самоврядування не уніфіковані, здебільшого незручні для користувача, на офіційних сайтах подається обмежена, застаріла інформація. Брак прозорості витрачання бюджетних коштів знижує довіру широкої громадськості до державних інститутів.

Розглянуто вади організаційно-інституційного механізму забезпечення бюджетного фінансування е-урядування на підставі аудиторських висновків уповноважених державних органів. Встановлено, що Генеральний замовник виконання підпрограм Національної програми інформатизації – Державне агентство з питань е-урядування – не забезпечило належний рівень координації, контролю, системності і послідовності своєї діяльності, внаслідок чого важливих цілей щодо цифровізації не досягнуто. Хоча цілі цифровізації в рамках е-урядування в Україні декларуються як пріоритетні, це не підтверджується пріоритетним рівнем бюджетного фінансування. При реалізації регіональних програм інформатизації через недостатній контроль головних розпорядників бюджетних коштів допускається їх часткове виконання або навіть невиконання. Не вирішеним є питання визначення джерел фінансового забезпечення базових галузей соціальної сфери, зокрема щодо заходів з їх цифровізації, в рамках регіональної децентралізації.

Запропоновано створити єдиний координуючий орган у сфері цифровізації, в тому числі е-урядування, рівня міністерства за прикладом багатьох зарубіжних країн.

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Ключові слова: цифровізація, інформатизація, витрати бюджету на інформатизацію, органи виконавчої влади, органи місцевого самоврядування, бюджетні програми, аудит, електронне урядування, інтерфейс державних електронних сервісів, електронний бюджет, регіональні програми інформатизації

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БЮДЖЕТНОЕ ОБЕСПЕЧЕНИЕ ЦИФРОВИЗАЦИИ В РАМКАХ Е-ПРАВИТЕЛЬСТВА В УКРАИНЕ

Исследуется бюджетное обеспечение цифровизации в рамках е-правительства в Украине.

Установлено, что оценить реальный масштаб государственных расходов на цифровизацию (информатизацию) в рамках е-правительства на всех бюд-

жетных уровнях и направлениях сложно, поскольку составляющие ее программы (общегосударственные, отраслевые, региональные) осуществляются многими органами исполнительной власти и местного самоуправления наряду с основными задачами их деятельности. Уровень доступности для общественности информации о расходовании бюджетных средств в Украине международные организации оценивают как ограниченный, прозрачность – как недостаточную, уровень е-правительства – как высокий. Интерфейсы е-правительства и е-бюджета органов исполнительной власти и местного самоуправления не унифицированы, в основном неудобны для пользователя, на официальных сайтах подается ограниченная, устаревшая информация. Недостаток прозрачности расходования бюджетных средств снижает доверие широкой общественности к государственным институтам.

Рассмотрены недостатки организационно-институционального механизма обеспечения бюджетного финансирования е-правительства на основании аудиторских заключений уполномоченных государственных органов.

Установлено, что Генеральный заказчик выполнения подпрограмм Национальной программы информатизации – Государственное агентство по вопросам е-правительства – не обеспечило надлежащий уровень координации, контроля, системности и последовательности своей деятельности, в результате чего не достигнуты важные цели. Хотя цели цифровизации в рамках е-правительства в Украине декларируются как приоритетные, это не подтверждается приоритетным уровнем бюджетного финансирования. При реализации региональных программ информатизации из-за недостаточного контроля главных распорядителей бюджетных средств допускается их частичное выполнение или даже невыполнение. Не решен вопрос определения источников финансового обеспечения базовых отраслей социальной сферы, в частности относительно их цифровизации, в рамках региональной децентрализации.

Предложено создать единый координирующий орган в сфере цифровизации, в том числе е-правительства, уровня министерства по примеру многих зарубежных стран.

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Ключевые слова: цифровизация, информатизация, расходы бюджета на информатизацию, органы исполнительной власти, органы местного самоуправления, бюджетные программы, аудит, электронное правительство, интерфейс государственных электронных сервисов, электронный бюджет, региональные программы информатизации