

Research Paper

Public Administration System in the Field of Finance Under the Influence of Digitalization

Inna Zhuk^{1*}, Alina Khaletska², Tetiana Stepura³, Eduard Shchepanskiy⁴,
Uliana Sadova³ and Vasyl Pyla⁴

¹Department of Finance, Banking and Insurance, Interregional Academy of Personnel Management, Kyiv, Ukraine

²Department of Management, University of State Fiscal Service of Ukraine, Irpin, Kyiv oblast, Ukraine

³Department of Theoretical and Applied Economics, Lviv Polytechnic National University, Lviv, Ukraine

⁴Department of Public Administration, Leonid Yuzkov Khmelnytskyi University of Management and Law, Khmelnytskyi, Ukraine

*Corresponding author: inna.zhuk@ukr.net (ORCID ID: 0000-0003-4998-1818)

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ABSTRACT

The effectiveness of the functioning of the state's monetary system and the implementation of targeted economic policies with the help of the financial management mechanism depends on the organization of the management of the state's funds. The study aims to find effective digitalization tools to improve public administration in the financial sector. To achieve the goal, the authors analyzed which countries are the most advanced in the use of digitalization tools in the public administration system, identified the most effective tools in terms of the feasibility of their implementation, and developed recommendations for improving the digitalization of the public administration system in the field of finance. Digitalization of public administration processes can potentially lead to a reduction in the number of officials, an increase in the efficiency of administration (by increasing the objectivity of decisions made and eliminating the possibility of technical errors when making legal decisions), an increase in the quality and accessibility of public services by transferring them to a digital format, as well as increasing their security level. The use of blockchain technology in the system of public financial management will help to cope with corruption, strengthen the state apparatus, increase citizens' confidence in the authorities and thereby indirectly increase investment activity in the country.

HIGHLIGHTS

- ① Digitalization of public administration processes can potentially lead to a reduction in the number of officials, an increase in the efficiency of administration (by increasing the objectivity of decisions made and eliminating the possibility of technical errors when making standard decisions), an increase in the quality and accessibility of public services by transferring them to a digital format, as well as increasing the level of security of their receipt;
- ② Using blockchain technology to track public data and finances ensures accountability, traceability, and security; helps deal with corruption, and improves public confidence in the public administration system.

Keywords: Blockchain, Digitalization, Finance, Public Administration System

Digital technologies in modern conditions actively penetrate all socio-economic system areas. Public administration is no exception. The sphere of providing administrative services is undergoing fundamental changes due to the rapid development of technologies, the digitalization of society, the

processes of decentralization of power, and changes in society's communications. The community needs

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fast services of a wide range. The development of the “digital economy” is taking place, which entails the digitalization of communication processes, a change in emphasis and forms of management, in particular, in the provision of administrative services.

In the 1990s, the concept of e-government (E-governance) was formulated (Khan 2018; Khawan 2021), introducing advanced digital and computer technologies into the practice of public administration. The digitalization of public administration aims to increase efficiency and improve service quality. In the public sector, digital technologies have begun to be applied relatively recently. Nevertheless, for more than twenty years in many developed countries, a digital-based public administration system has become an integral part of the practical work of governments.

According to World Bank reports, governments today face a dilemma (Kostiukevych *et al.* 2020; World Bank 2021). On the one hand, citizens are becoming more demanding regarding the quality of public services, the speed of their provision, and availability. On the other hand, governments should always be guided by the principles of finding optimal financial and economic solutions to various public issues. Thus, the digitalization of state and municipal government in the XXI century acquired very high importance. This is especially applicable to the local level of government since it is this level closest to the everyday life of citizens and, accordingly, includes a wide range of services provided.

The need for systemic digitalization of the public administration system is caused by:

- ♦ the growing practice of introducing digital technologies and the increasing number of citizens with digital skills;
- ♦ a significant digital divide;
- ♦ low level and quality of professional training in the field of digital technologies;
- ♦ educational programs are poorly adapted to the needs of the digital economy.

The effectiveness of the functioning of the state’s monetary system and the implementation of targeted monetary policies with the help of the monetary management mechanism depends on the

organization of the management of the state’s funds. No single authority, not a single state organization, has absolute power without appropriate financial resources for implementing their activities. For the regular operation of society and to create a genuinely legal, social, democratic state, it is necessary that other branches of power control all state bodies with powers in the field of financing. Only in this way can the use of public funds for the private purposes of a particular political force be avoided.

Thus, the study aims to find practical digitalization tools to improve public administration in the financial sector.

METHODS

The following research methods were used to solve the tasks of the study: systematization and empirical research – in studying the theoretical foundations of the system of public administration in finance, tools and methods of digitalization, as well as the scientific basis of digitalization of public administration in finance; statistical and comparative analysis, Microsoft Excel analysis tools – when analyzing the current state of the processes of providing administrative services in Ukraine and the world; detailing and synthesis – in the study of public satisfaction with the quality of administrative services; dialectical and comparative analysis – to summarize the trends and the state of functioning of the centres of administrative services; methodical methods of tabular and graphical presentation of research results, grouping, scaling – to assess the condition of development of e-government; logical and substantive modelling – to develop methodological support for the system of public administration in the field of finance under the influence of digitalization; economic and mathematical modelling – to assess the effectiveness of digitalization of public administration; logical structuring – to build the structure of the study, the generalization of its theoretical and practical provisions.

LITERATURE REVIEW

The term digitalization, as well as the phenomenon of digitalization itself, is more characteristic of economic and production processes. Still, at the moment, we can observe some aspects of the digitalization of social processes that change the

social space, mechanisms of public administration, and the exercise of public power. What is meant by digitalization? In general, this is converting analog data into digital form (Savić 2020). In this sense, the digitalization process is universal (Marhasova *et al.* 2020; Paul *et al.* 2021). At the same time, a feature of digitalization highlighted by researchers is that this process characterizes not so much the relationship between a person and a computer but is more global, affecting various aspects of public life, including the processes of production and consumption, social interaction and the administration of power.

It should be emphasized that e-government is not an addition or analog to traditional government and in no way replaces it; it only implies the active use of a new form of interaction between applicants and state representatives using information and communication technologies that improve the efficiency of public services. Thus, according to the World Bank experts, “to obtain a guaranteed return on digital transformation, it is necessary to invest in the quality of traditional public administration” (World Bank 2021).

The implementation of public authority in each specific historical period is characterized by its characteristics, parameters, forms, and other distinctive features characteristic of a particular historical stage in the development of society. One of the features of the implementation of public power in the modern historical period is its digitalization. Digital-services public administration system has undergone a specific evolution (Fig. 1).

Today, the latest and promising direction in the public administration system in the field of finance is the use of blockchain technology, which has gained popularity relatively recently among

the general public and as a phenomenon that is relatively little studied; meanwhile, the use of this technology is encouraging in the financial sector.

Blockchain technology was used to create the first Bitcoin cryptocurrency in 2009. Blockchain is a technology for storing information in the form of specially arranged blocks, copies of which are stored on many different computers independently of each other (Malanchuk *et al.* 2019; Nitsenko *et al.* 2020).

There are several basic principles of blockchain technology:

- ♦ the created copies of all generated data are stored by each participant of the system built on this technology;
- ♦ all transactions that are carried out in a system based on blockchain technology are transparent for each participant and can be verified by each of them;
- ♦ a system built on blockchain technology cannot be changed or hacked because, for this, it is necessary to make changes to the records of almost all participants in the system with an accuracy of up to a comma. At the same time, they should not have noticed these changes and would not have compared their records with records from other sources.

The authors believe that this technology should be guided when restructuring the system of public administration in the field of finance with digitalization tools. The prospect of the use of Blockchain in the public administration system has been studied by many scientists (Böhme *et al.* 2015; Akhmetbek & Špaček, 2021; Alexopoulos *et al.* 2021; Jain *et al.* 2022).

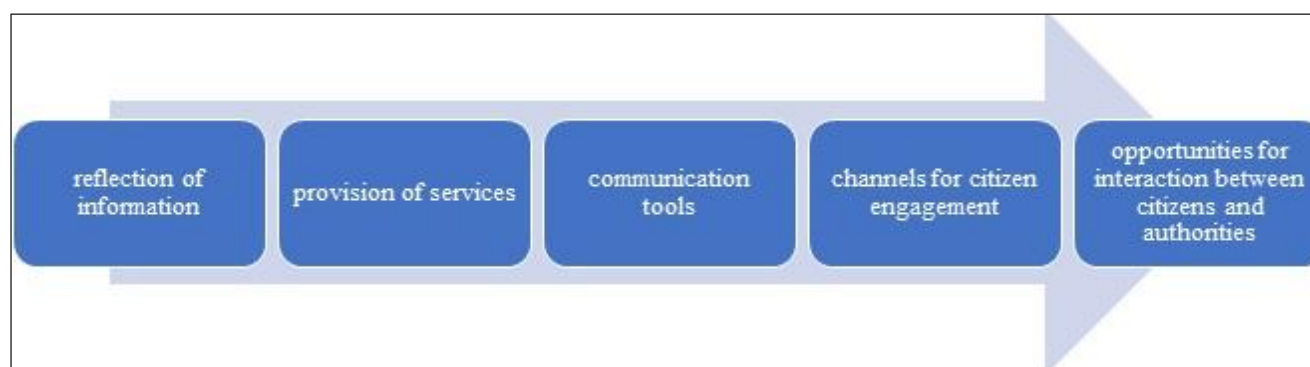


Fig. 1: Evolution of digital services of the public administration system (developed by the authors)

RESULTS AND DISCUSSION

Unlike the EU, in Ukraine, using an electronic form of administrative services along with a written form (on paper) is not every day, although it occurs in practice. The World Bank annually collects information on the development of e-government in the world (Fig. 2).

It is worth noting that all countries improved their performance compared to 2018: at least by 2.3% (Japan), Estonia showed the best growth result - 11.6%, the average growth was about 6%.

Denmark has the highest EGDI score globally for the second consecutive study. It is one of seven countries in Northern Europe and one of five in the European Union that rank in the highest (VH) scoring class. Other countries in the European Union/Northern Europe in this category have registered improvements since the 2018 Survey. Estonia reported the most significant increase in EGDI, while Finland improved all three EGDI sub-indices. Both Sweden and the United Kingdom achieved a higher overall EGDI score through substantial improvements in the technical infrastructure (TII) component. The Netherlands is the last member of the European Union in the VH class. Iceland and

Norway, both Nordic countries ranked twelfth and thirteenth overall, showed improvements across all three EGDI sub-indices.

As for Ukraine, although it took 69th place in the ranking in 2020, firstly, it rose by one EPI level between 2018 and 2020, and secondly, it entered the group of countries with “Very high EPI level (from 0.75 to 1.00)” in the ranking Countries with the highest e-participation index in 2020 (Fig. 3).

The growth of indicators indicates that Ukraine has chosen the right vector for developing digital services and can adequately compete with the leaders in the future. However, to speed up this process, it is worth paying attention to the experience of leading countries (Mcguire 2018):

- ♦ On December 18, 2017, Estonia started using a blockchain-based E-resident program, and now 100% of government data is on Blockchain;
- ♦ Chile – the Energy Department – uses the Ethereum blockchain to track data and finances in a bid to ensure that there is accountability in the sector;
- ♦ UK (Blockchain-as-a-service (BaaS)) – the Blockchain is used for paying welfare checks and disbursing student loans;

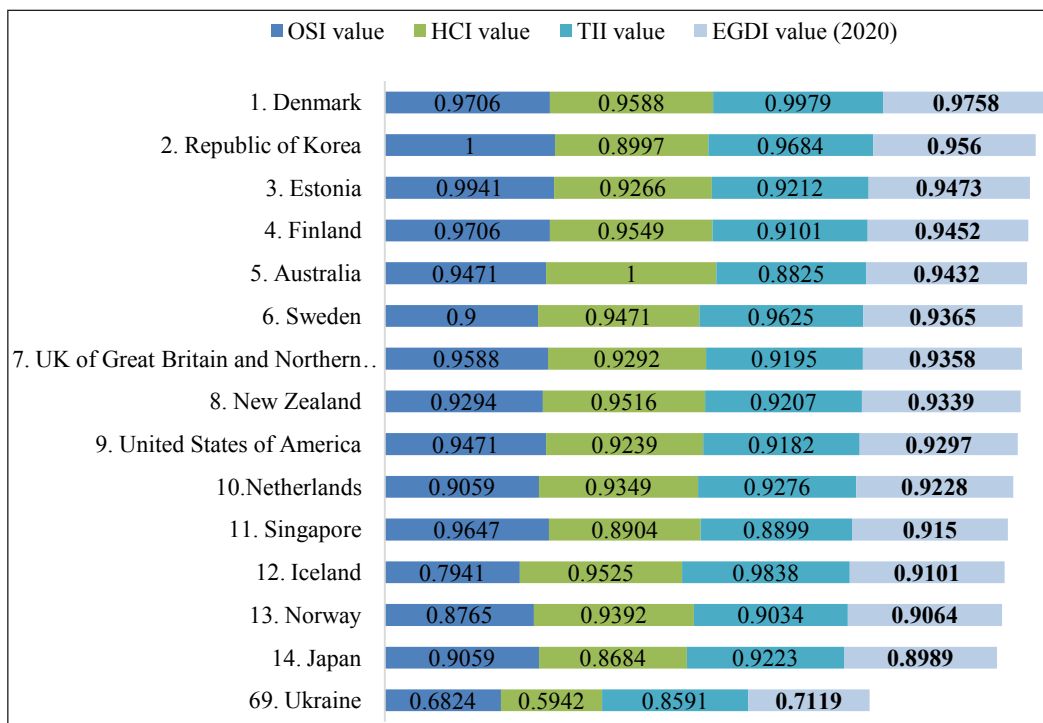


Fig. 2: Leading countries in e-government development in 2020 (compiled by the authors according to the data 2020 United Nations E-Government Survey)

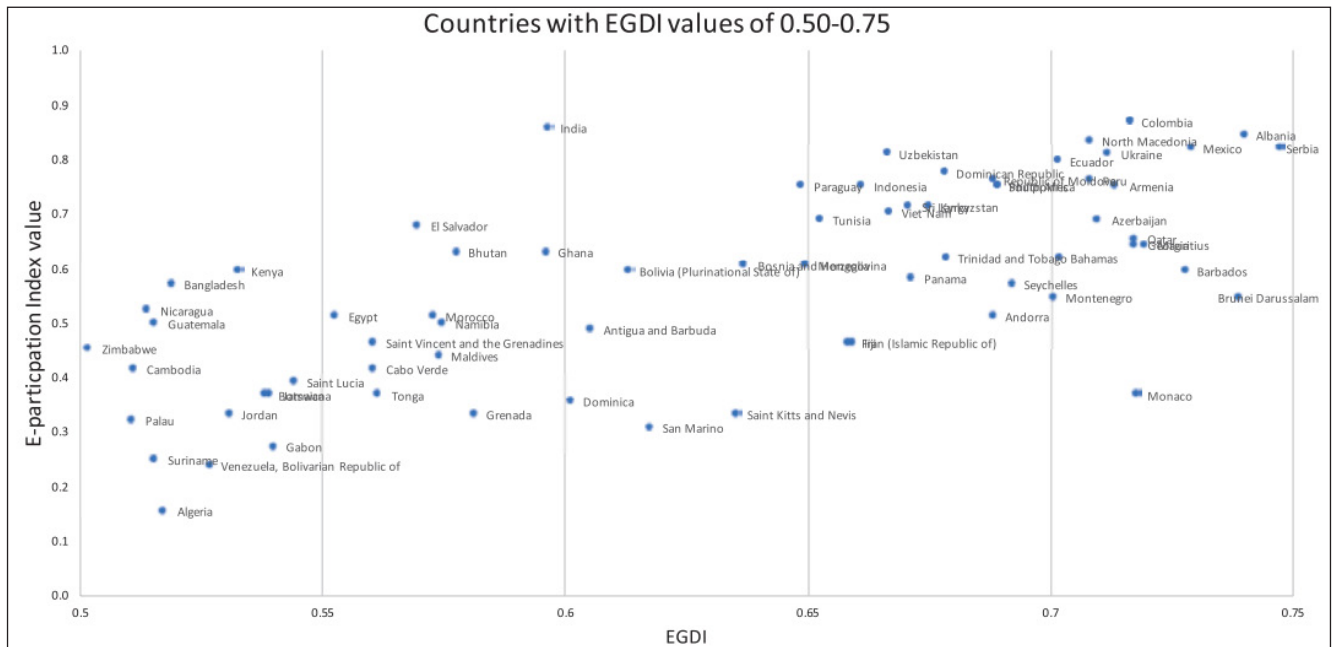


Fig. 3: E-Government Development Index and E-Participation Index values for countries in the high EGDI group in 2020 (United Nations E-Government Survey 2020)

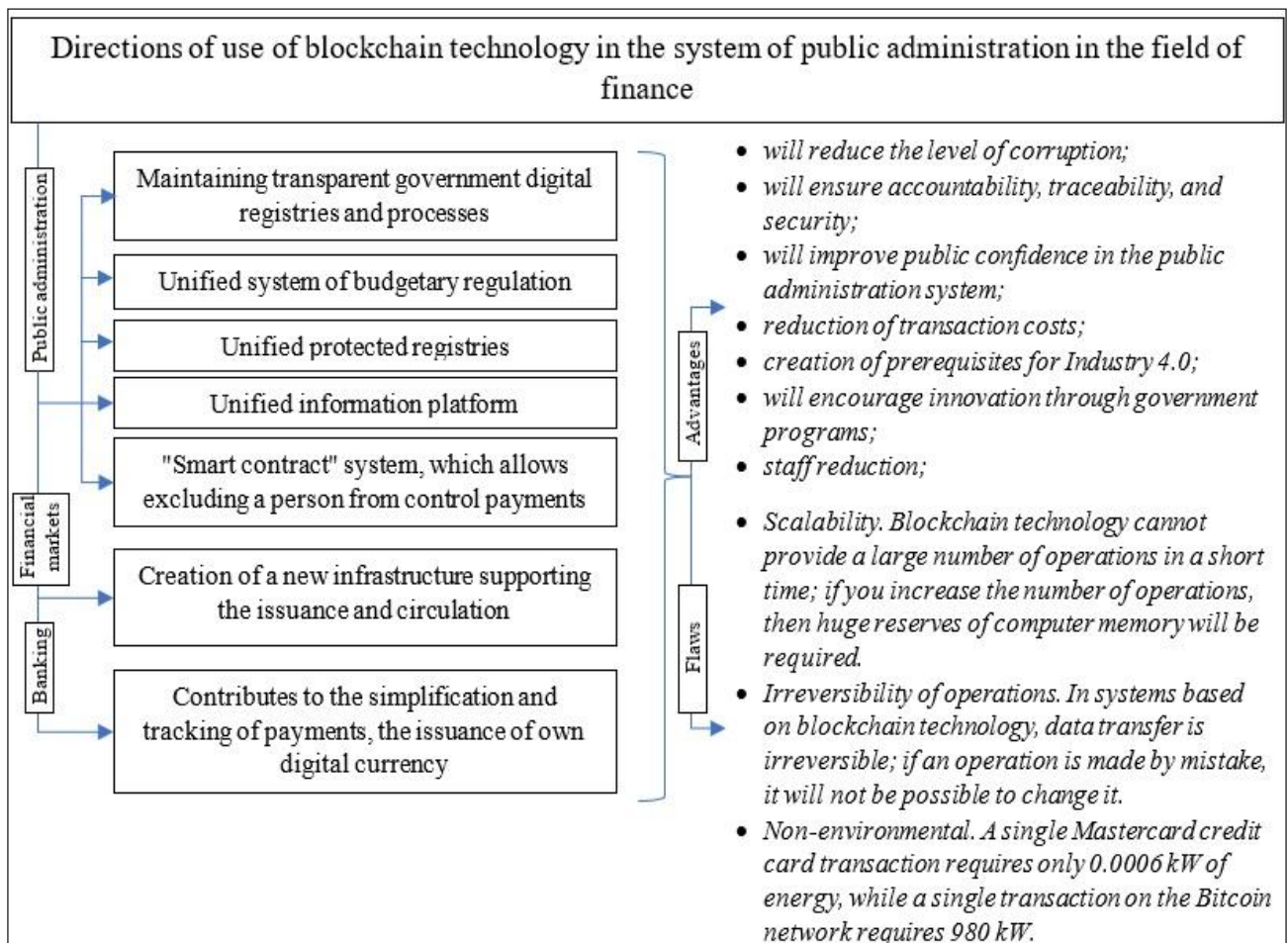


Fig. 4: Use of blockchain technology in the system of public administration and the field of finance (developed by the authors)

- ♦ Georgia – land titles on Blockchain.
- ♦ Singapore – Finance Department – as of October 13, 2017, Interbank payments are made in Singapore using the blockchain concept and so on.

With the transition to market relations, public administration of finance in Ukraine has acquired a new meaning – from strict regulatory methods inherent in the command-administrative system to the use of economic levers of influence through the implementation of financial and credit policy through a system of authorized bodies.

We will schematically present recommendations on the use of blockchain technology in the system of public administration in the field of finance (Fig. 4)

As seen in Fig. 4, many of the advantages of implementing blockchain technology outweigh the disadvantages of a technology still in the early stages of implementation and involves multiple improvements. However, one of the key disadvantages of the Blockchain can be considered the need for a complete change in the laws of states in the financial sector. Regulating transactions based on blockchain technology is key, and work on resolving this issue should be started in the coming years. Blockchain technology has its advantages and disadvantages in its use and requires significant improvement; however, even now, at this stage, many states are interested in using it for various purposes.

CONCLUSION

The introduction of information and communication technologies has now acquired an avalanche-like character, which has led to the digitalization of the entire world economic system and the emergence of a new model of economic development – the digital economy, based on the use of the most advanced computer technologies. One of the leaders of the digital economy is the financial sector, which has become one of the sources of innovation: digital banks, electronic payment instruments, which include one of the latest innovative achievements of cryptocurrency, and much more. The development of the concept of the electronic state in modern conditions is realized through the digitalization of public administration processes. This activity should aim to achieve several goals: to provide citizens and

employees in the field of public service delivery with access to high-quality information and services anywhere, anytime and from any device; ensure the protection of personal data so that citizens, as the government adapts to the new digital world, have confidence in the availability of data and its security; encourage innovation through government programs.

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