PECULIARITIES OF GOVTECH TECHNOLOGIES IMPLEMENTATION IN THE PUBLIC ADMINISTRATION SYSTEM

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Summary

The article has examined the consequences of modern digital transformation, which requires changes in the public administration system based on Government Technologies (GovTech). The purpose of the article is to analyze the peculiarities of GovTech technologies implementation in the system of public administration in Ukraine. A topical issue is an urgent need for public authorities to introduce innovative technologies to strengthen the state's dialogue with citizens and business entities and to expand the possibilities to provide public services of new quality. One of such approaches is GovTech, which includes modernization of the public sector to promote simple, efficient, and transparent citizen-centric governance. The need for GovTech solutions is growing, given the further development of post-pandemic activities, which requires increased availability of developed models, considering the accessible technological capabilities and the digital gap. It has been found that the GovTech agenda involves using artificial intelligence and machine learning; cloud computing and the Internet of Things; open public data platforms; local support systems for business entities developing programs for the state. The country's insufficient level of digital transformation, the availability of low volume and poor quality of state electronic services, and a lack of experience in using state e-services have been detected. It has also been established that promising directions for the development of GovTech projects should be platforms for interaction with consumers, a general online environment for interaction, and the implementation of such models as "Smart City" and a digital region.

Keywords: Government Technologies, public administration, electronic government, digital transformation

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1. Introduction

The state and economic entities use Information and Communication Technologies (ICT) and modern innovative approaches to increase operational efficiency and achieve intended development purposes. The results of the stated solutions are expected to improve resource management, enhance cooperation, adjust to the consumers' needs, gain the necessary experience of working with service recipients, increase transparency and accountability, and cover a broader range of issues. The state's investment in technologies does not yet guarantee a fair and reasonable division of technological solutions in the case when social needs are not systematically determined in each of the projects. Such problems include the need to coordinate the implementation of affordable solutions of government technologies (Government Technologies (GovTech)) with the achievement of global goals – ending poverty and increasing social progress. The digital technologies creation for different groups of users

is aimed at reducing existing barriers to communication, interaction and access to services and information, which is a relevant direction under the conditions of digital transformation. The aim of the article is to study the peculiarities of GovTech technologies implementation in the system of public administration and provide proposals for the development of topical directions for digital changes in Ukraine.

2. GovTech as an approach to the state sector modernization

Innovative modern technologies enable public authorities to provide services for individuals and legal entities regardless of the forms of ownership. In the process of the interaction mentioned above, the expanded use of Information and Communication Technologies (ICT) is crucial in modern society. It is essential for producing new values and knowledge based on the broad interaction of the state and citizens, which allows to increase the efficiency of solving social problems and improve the quality of life. Thus, public authorities are focused on the search for advanced technologies to strengthen the state's dialogue with citizens and business entities, simplifying information exchange through Internet capabilities *(Alqaralleh et al., 2020)*.

Social problems overcoming due to the involvement of interested parties in the general solution of the current and future problems is seen as a result of digitalization. Implementing big data and blockchain technologies can make significant changes in public administration and provide a new vision in public services provision *(Engin, Treleaven, 2019)*. Besides, the rapid development and coverage of social media will intensify public activity, creating additional opportunities for bottom-up self-organization of activities *(Uldam, Kaun, 2018)*. The need for GovTech solutions is growing because of the further development of actions in the post-pandemic period, which involves increasing the availability of developed models in countries with different technological capabilities and the digital gap.

GovTech is a national approach to modernizing the public sector that promotes simple, efficient, and transparent governance where citizens are the key figure. To strengthen the implementation of effective methods and solutions in the field of GovTech, as well as to ensure a broad partnership for the effective exchange and transfer of knowledge and best practices, the advantages of GovTech projects developed taking into account the needs of users are the expansion of communities that have the opportunity to interact with public authorities, political figures and public service providers through innovative means. Based on the established policy concerning access to data and transparency, the digitalization of public services makes it possible to benefit the economy from increased efficiency and the obtained data, which stimulates the growth of local technological ecosystems and the development of small and medium-sized businesses *(Zapata, 2019)*.

The GovTech's task is to create improved means for people to interact with public authorities, which provide public services in various sectors based on digital technologies with significant advantages over previous models. As individual examples of GovTech projects, it is possible to distinguish:

- modernization of the system of public management and administration (financial management, public procurement, taxes, human resources management);
- - coordination and organization of public services into accessible and integrated solutions to simplify the interaction of citizens with public services;
- the creation of ICT-based public procurement processes to reduce administrative costs.

The 2030 concept for sustainable development recognizes the critical role that GovTech has to play in achieving the set goals and objectives (United Nations, 2018a). In addition, an urban development agenda is envisaged based on the commitment of the United Nations Member States to strengthen the possibilities of broad access to urban systems and infrastructure for people with disabilities (United Nations, 2018 b).

The evolution of digital transformation in the public sector is shown in fig. 1. The GovTech agenda also includes the implementation of artificial intelligence and machine learning; cloud computing and the Internet of Things; open public data platforms; local GovTech ecosystems to support business entities developing programs for the state; use of public-private partnership while solving public problems.

The goal of the GovTech concept is to create a common understanding of the effective use of digital platforms and data that are interoperable and secure based on a radical change in the way how public authorities that provide public services work. Public authorities are the primary beneficiaries of GovTech, which relies on indicators of efficiency increase and cost savings. The GovTech policy on open public data uses strategies that improve the efficiency of administration based on the digitization of work processes and the implementation of technological tools *(Ransbeeck, 2020)*, which allow citizens to access information and participate in governance.

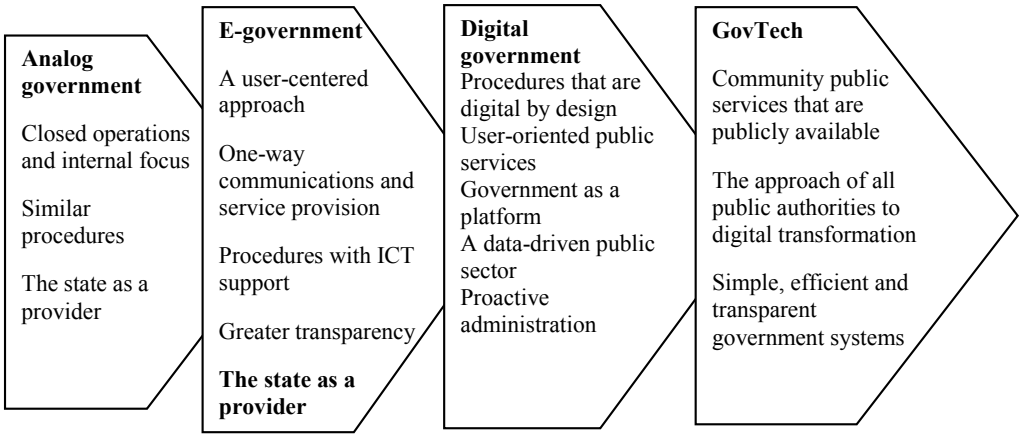

Fig. 1. Digital transformation in the system of public authorities (Dener et al., 2021)

In implementing the GovTech project, human-oriented, transparent, and accessible online services are developed. They help all target users, regardless of ownership, get services through inexpensive digital solutions (mobile phones, free open source programs).

3. Approaches to determing GovTech development

Based on various digital indices, appropriate approaches to determining the level of digital government have been developed for a long time (Table 1). They measure the state of online services, telecommunications infrastructure, citizen participation, innovation, government regulations, and the involvement of the private sector in GovTech programs. In 2020, the World Bank developed the GovTech Maturity Index (GTMI) to measure critical

aspects of digital transformation in the public sector: key government systems, provision of public services, citizen engagement, and GovTech tools. The review presents a global overview of GovTech maturity in 198 countries, examples of best practices, and opportunities for further GovTech growth *(Dener et al., 2021)*.

Table 1

Indices of digital government and GovTech

Index	Number of countries	Implemented
World Bank GovTech Maturity Index	198	2020
United Nations eGovernment Development Index	193	2003
Cornell University, INSEAD, and WIPO Global Innovation Index	131	2007
European Commission eGovernment Benchmark	36	2012
World Bank Identification for Development Index	198	2015
World Bank Digital Adoption Index	180	2016
OECD Digital Government Index	33	2020

The Source: (Dener et al., 2021; World Bank, 2020; European Commission, 2020; World Bank, 2018; World Bank, 2016; Ubaldi et al, 2020)

The e-Government Development Index (EGDI) demonstrates the scale and quality of online government services, the condition of telecommunication infrastructure, the available human resources, and opportunities for digital transformation in the public sector based on GovTech models *(World Bank, 2020)*. The Global Innovation Index (GII) examines countries' basic conditions and innovation potential by grounding its assessment on 80 indicators that influence innovation *(World Bank, 2020)*. The European Commission's eGovernment Indicator demonstrates improvements in the digital delivery of public services established on user-centricity, transparency, technological means, and cross-border mobility *(European Commission, 2020)*. The World Bank's Identification for Development Index (ID4D) estimates the number of people without proof of legal identity and provides data on those who are responsible for identification (ID) and civil registration and a digital identification solution *(World Bank, 2018)*.

The Digital Adoption Index (DAI) measures progress in digital adoption regarding people, government, and businesses. The DAI index is an average of three sub-indices and was calculated based on the Global Dataset of Digital Government Systems and Services (DGSS) *(World Bank, 2016)*. The OECD Digital Government Index (DGI) aimed at providing a measurement tool to assess the implementation of the OECD Recommendation on Digital Government Strategies *(Ubaldi et al, 2020)*. It examines digital government maturity based on digital design, public sector, data management, government platforms, open and user-oriented approach, and proactivity.

4. State of GovTech projects implementation in Ukraine

The implementation of digital technologies in the sector of public authorities based on data management should significantly change the principle of the state's operation and its interaction with citizens. GovTech must improve the delivery of key public services

by engaging citizens in digital transformation. However, the change of digital solutions into actual, measurable results remains problematic, and Ukraine is no exception, given the complex adaptation to the changing demands of society and external factors. Let's consider the state of GovTech principles implementation in Ukraine, namely the broad state's approach to digital changes in the public administration sector based on simplicity, precise solutions, efficiency and transparency of the system of public authorities operation, and people-centered reform. We should rely on the existing assessments of the achievements of digital transformation by the private sector representatives. Thus, according to the data provided by the European Business Association *(EBA, 2021)*, the components of the digital transformation index in Ukraine are shown in fig. 2. In the study, the stated indicators range from 0 (negative value) to 5 (positive value). Most of the directions identified by the respondents are in the zone of neutral values, which emphasizes the significant potential for Ukraine to achieve substantial results.

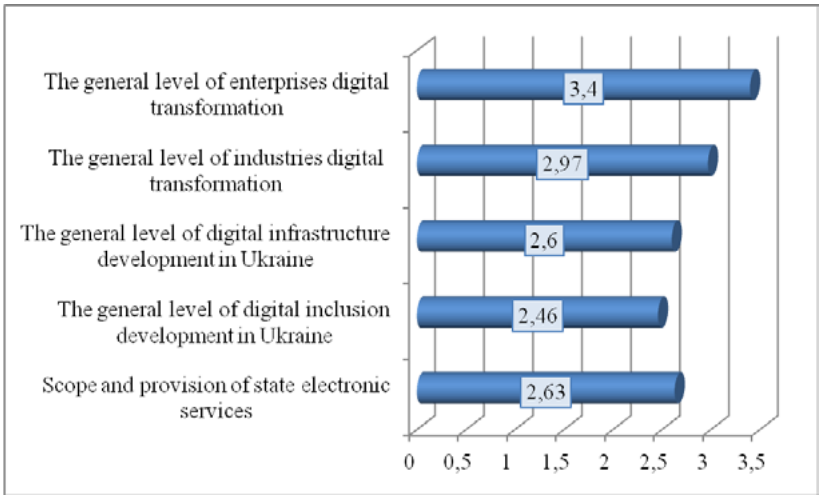

Fig. 2. Components of the digital transformation index in Ukraine, 2021 (EBA, 2021)

Of course, the presence of appropriate infrastructure and the functioning of various directions of digital transformation in the public sector is not a comprehensive characteristic of projects' success, which are implemented in Ukraine. It remains crucial to assess consumers using government digital services. According to the European Business Association *(EBA, 2021)*, the volume and quality of government e-services have a satisfactory (55%) or low rating (32%) (Fig. 3). In total, only 7% of respondents consider the volume and quality of state e-services to be high or very high.

The availability of various opportunities in the provision of e-services and the GovTech technologies implementation in Ukraine should be widely covered in mass media, on websites of public authorities, and mass public communication systems to inform about the available public opportunities of state resources and involve citizens, non-governmental organizations in joint actions regarding new opportunities for obtaining public services, participation in policy management and creation.

Taking into account the relatively short period of interested parties involvement in the e-services implementation in Ukraine, the experience of using state e-services (Fig. 4) shows the average level of consumer participation in the practical aspects of various areas in digital service provision *(EBA, 2021)*.

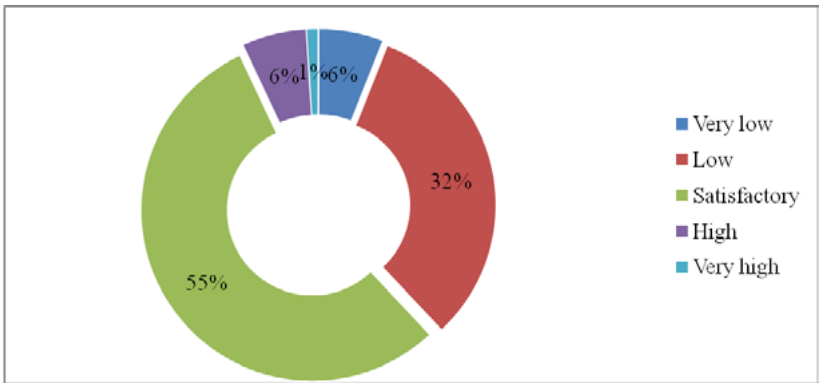

Fig. 3. Volume and quality of government e-services in Ukraine, 2021 (EBA, 2021)

Thus, the GovTech advantages are the capabilities of the digital identities and environments technologies to assess and predict the state of existing management objects. It strengthens the potential of public management in finance, social assistance, forecasting, and communications. To solve tasks related to the needs of accelerating economic growth, minimizing social stratification, and improving management efficiency, GovTech aims to reduce transaction costs, increase the availability and implementation of information, and involve interested parties in the development process and decision-making.

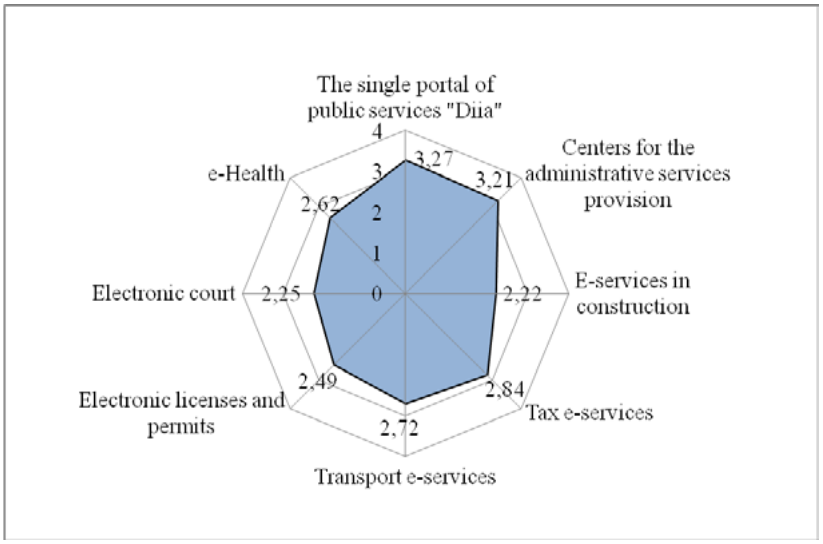

Fig. 4. Experience of using state e-services in Ukraine, 2021 (EBA, 2021)

The key areas of GovTech development while their formation in Ukraine are open data; electronic public services and the creation of digital profiles; “smart cities” and digital regions. The priorities for the further development of GovTech can be defined as the introduction of platforms to provide public services, which include the procedures for the development and approval of regulatory legal acts and communication interaction based on reading digital

profiles of individuals and legal entities on a single platform. This communication allows users to identify consumers by providing them with public services within a single platform. According to another direction of modernization based on the GovTech platform, state information systems should be integrated into a common online environment to interact with individuals, legal entities, and public authorities. The formation of the “Smart City” and digital region models will involve online systems for multilateral exchange, management, and control, where GovTech projects will ensure the integration of the specified software into platforms for the city or region development.

5. Conclusions

It has been established that the digitalization of public administration increases the state's potential. Technologies make it possible to realize the required level of efficiency, transparency, ability to interact with different categories of citizens. It improves the overall level of public administration. Inadequate implementation of broad digitization and GovTech technologies revealed significant gaps during the COVID-19 pandemic. Modern trends, which include electronic taxation, obtaining services and public procurement procedures, reduce budget costs, facilitate control and minimize the level of corruption. Innovative solutions in the field of digital transformation should cover the integration of the entire public management system, including the performance of various administration's functions, communication interaction, regulation and control to achieve transparency, openness and high quality of service provision.

The analysis of various GovTech directions allows us to note that in the conditions of digital transformation, there is a need to form integrated platforms of public services and a monitoring system at the city and regional levels. Taking into account GovTech trends in Ukraine, the country's insufficient level of digital transformation, mainly the presence of low volume and quality of state electronic services, and lack of necessary experience in using state e-services should be noted. Platforms for interaction with service consumers, joint development and testing of services, a shared online environment for the interaction of individuals, legal entities, public authorities, and the implementation of the "Smart City" and digital region models should be considered as prospective directions for the development of the GovTech project.

References

1. Alqaralleh, B., Al-Omari, A., & Alksasbeh, M. (2020). An integrated conceptual model for m-Government acceptance in developing countries: The case study of Jordan. International Journal of Interactive Mobile Technologies, 14(6), 5-14.

2. Dener, C., Nii-Aponsah, H., Ghunney, L. E., & Johns, K. D. (2021). GovTech Maturity Index: The State of Public Sector Digital Transformation. International Development in Focus. Washington, DC: World Bank. doi:10.1596/978-1-4648-1765-6.

3. EBA. (2021). Indeks tsyfrovoyi transformatsiyi [Index of digital transformation]. Retrieved from: https://eba.com.ua/wp-content/uploads/2021/05/digital-index_ukr1.pdf (access 27.06.2022) [in Ukrainian].

4. Engin, Z., & Treleaven, P. (2019). Algorithmic government: Automating public services and supporting civil servants in using data science technologies. The Computer Journal, 62(3), 448-460.

5. European Commission. (2020). E-Government Benchmark 2020: eGovernment That Works for the People. Brussels: European Commission. Retrieved from: https://op.europa.eu/en/publication-detail/-/publication/c0bd38e3-f98e-11ea-b44f-01aa75ed71a1 (access 27.06.2022).
6. Ransbeeck, W. V. (2020). What's the difference between Civic Tech and GovTech? Retrieved from: https://digileaders.com/whats-the-difference-between-civic-tech-and-govtech/ (access 27.06.2022).
7. Ubaldi, B., González-Zapata F., Barbieri M. (2020). OECD Digital Government Index (DGI): 2019. Paris. Retrieved from: https://www.oecd.org/gov/digital-government-index-4de9f5bb-en.htm (access 27.06.2022).
8. Uldam, J., & Kaun, A. (2018). Theorizing civic engagement and social media: The case of the "refugee crisis" and volunteer organizing in Sweden. In Social Media Materialities and Protest (pp. 101-115). Routledge.
9. United Nations. (2018 a). E-Government Survey 2018. Gearing E-Government to Support Transformation towards Sustainable and Resilient Societies; United Nations SDG Knowledge Platform. Transforming our world: the 2030 Agenda for Sustainable Development.
10. United Nations. (2018 b). The New Urban Agenda.
11. World Bank. (2016). Digital Adoption Index (database). Washington, DC. Retrieved from: https://documents1.worldbank.org/curated/en/896971468194972881/pdf/102725-PUB-Replacement-PUBLIC.pdf (access 27.06.2022).
12. World Bank. (2018). Identification for Development (ID4D) Global Dataset. Washington, DC. Retrieved from: https://datacatalog.worldbank.org/search/dataset/0040787/Identification-for-Development--ID4D--Global-Dataset (access 27.06.2022).
13. World Bank. (2020). GovTech: The New Frontier in Digital Government Transformation. Retrieved from: https://publicadministration.un.org/egovkb/Portals/egovkb/Documents/un/2020-Survey/2020%20UN%20E-Government%20Survey%20(Full%20Report).pdf (access 27.06.2022).
14. Zapata, E. (2019). CAF Development Bank of Latin America How GovTech Can Reinvent the State.