THE FOUNDATIONS OF DIGITAL TRANSFORMATION OF THE PUBLIC ADMINISTRATION SYSTEM

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Introduction. One of the primary trends in the development of modern society is the manifestations of digitization in all spheres. Information technologies are an integral part of the processes taking place in the country, continuously affecting various socio-economic systems. Digitization processes play a vital role in the country's economic development and in ensuring its security. As a result, today, in the global economy, the trends in the formation of the digital economy and its rapid development are highlighted, characterized by comprehensive implementation and application of new information technologies in all spheres of economic life. Public administration could not be left out of all this, where digital transformation is also one of the critical issues, the main goal of which is to simplify the processes taking place in the public sector and increase accessibility. Moreover, digital transformation affects all areas of public administration, including the development and delivery of digital public services, process design, and policy development. The digital transformation of public services and public administration can create opportunities to modernize traditional governance models, making them more open and transparent. Undoubtedly, the digitization of public administration provides countries with opportunities to find more effective ways of governance by promoting co-operation between civil society and representatives of public administration bodies to ensure the inclusiveness of digitization. Of course, this process is quite challenging to implement in practice, considering the different degrees of development of information technologies in countries and the various manifestations of their "increase" in socio-economic life. In this context, it is possible to study and understand the experience applied in the field of digital transformation in different countries, pointing out their advantages and features. Thus, the need for digital change in the state administration system and the experience of its localization in individual countries is discussed.

Methodology. The theoretical, informational and methodological basis for the article are the works of Armenian and foreign economists, classical and modern economic theories about digital transformation, public administration and role of digital transformation for improving public administration systems. In this article the author used quantitative and qualitative research methodology. With quantitative methods author did

statistical analysis to answer their research questions. With the help of the quantitative method, the indicators of the ten best and worst countries on EGDI were analyzed. Using qualitative methods, the author substantiated the necessity and importance of digital transformation in the public administration system and their impact on increasing the efficiency of public administration processes. Also, for comprehensive understanding of issue the author has used statistical summarization, comparison, time series analysis methods, etc. There are two methods used by economic theory: the hypothetical-deductive method used principally by neoclassical economists, and the historical-deductive method adopted by classical and Keynesian economists. Both are legitimate, but, since economics is a substantive, not a methodological science, whose object is the economic system, the later method is more adequate. The hypothetical-deductive permits that the economist, starting from some basic assumptions – principally the maximizing agent, deduces a consistent and mathematical theory, but at the cost of realism and relevance. So in this article, the author also used the main idea of the hypothetical-deductive method.

Literature review. The term "digital economy" was first used in economic literature in 1995 by Don Tapscott, who interpreted the concept as follows: "Digital economy is a type of economy based on the use of digital technologies" [Tapscott, 1995, 342]. The Australian Department of Communications and Digital Economy defines the digital economy as a global network of economic and social activities carried out through various information technology platforms [Shpak, et al., 2020, 109].

In the professional literature, there are different approaches to defining the digitalization processes of public administration. Several studies [Dobrolyubova, et al., 2019] point to digital transformation as the possibility of developing new quality models of public administration and a more inclusive public agenda. On the other hand, especially after the spread of the COVID-19, the necessity and importance of implementing digital transformation processes in the state administration system has become more apparent [Gangneux, Joss, 2022, 1-19]. On the other hand, special attention pays to the fact that the manifestations of digital transformation in the public administration system in different countries differ [Battisti, 25]. However, the digital transformation of public administration brings multi-level socio-economic consequences for all countries [Kitsios, et al., 2021, 43]. In addition, there is also a need to introduce new knowledge in the field of management [[Alvarenga, et al., 2020, 5824]. Experts define digital transformation as the sum of the effects of digitization, a successive chain of reforms in the public administration system. It aims to reach a qualitatively new level of efficiency in public services using digital technologies [Rajkhlina, 2019, 294]. In the state administration system, digital transformation is interpreted as the process of introducing information, communication, and digital technologies into the activities of citizens, organizations, and state bodies, as a result of which fundamental changes are achieved in the processes of

organizing relations between the state and society. These technologies are "artificial intelligence", "big data", "robotics", "sensorics", etc.

Thus, although the digital transformation is one of the most modern directions in the contemporary world, the theoretical definitions and approaches need to be more unified and systematic. However, the theory emphasizes the importance of digitization in increasing the efficiency of public services, as well as ensuring the targeting of government functions, giving opportunities to apply new management models [Jansen, Kuk, 2016, 371]. Digital technologies promote the participation of broad segments of society and engagement in co-creating public values. One approach to introducing digital transformation processes in public administration in the academic literature states that digital transformation is not a one-time event or project with a clear start and end date but rather an ongoing process that involves changes in internal processes and procedures and core public administration in ways of communicating with stakeholders [Janowski, 2015, 221]. On the other hand, there needs to be a unified approach in the professional literature regarding the evaluation indicators of the effectiveness of the implementation of digital transformation in the public administration system, which is also a critical issue. As digital transformation is an evolving process, the tools used to assess it must also evolve, as the impact of digitalization on government performance varies depending on the stage of digital transformation. Due to all this, the complications and challenges related to implementing digital transformation in the public administration system continue to keep the topic essential and relevant.

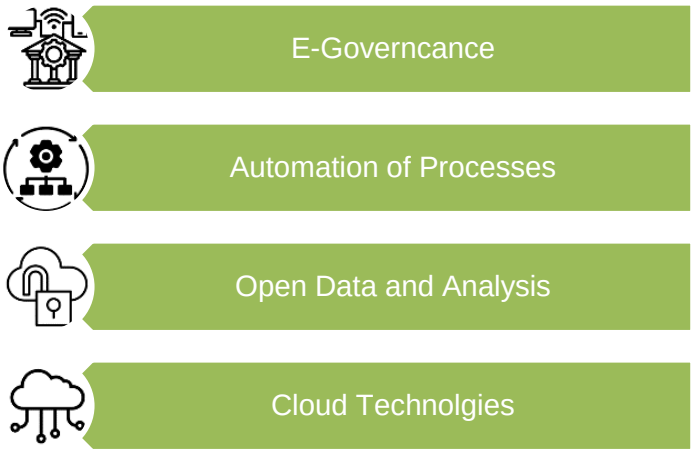
Analysis. Effective implementation and management of digital transformation processes require capacity development and new skills of representatives of state authorities, without which the effectiveness of digitalization processes in the country will be questionable. Digital transformation in the public administration system involves using modern technologies to increase public services' efficiency, productivity, and transparency. These include implementing various digital platforms in the public sector, automating processes and data analysis, and making the necessary decisions in the public administration sector more efficient and targeted. The manifestations of the introduction of digital transformation in the field of public administration are presented in Graph 1. E-governance is the application of innovative information and communication technologies in the public sector, thanks to which, based on Internet applications, opportunities are created for citizens, enterprises, and civil servants to access government information and services with the most convenient and high-quality tools. As a result of the diversity of e-government services, various types of it have appeared, which are divided into four main groups:

✓ *Government-citizen:* most common type of E-government with a primary goal to access to public information for e-citizens, reducing the time and costs of transactions,

✓ *Government-business:* the main objective is to create a platform for communication with businesses, ensuring the efficiency of services such as access to business information, new regulations, download of application forms, residence taxes, renewal of licenses, registration of enterprises, obtaining permits, etc.

✓ *Government-government:* this form is related to promoting the effectiveness of online communication between government structures, departments, and agencies, due to which, through information sharing and centralization, it is possible to improve intergovernmental organizational processes, simplifying cooperation and coordination.

✓ *Government-employee:* this form ensures the efficiency of processes between the government and employees, on the one hand, creating a platform for sharing experience and knowledge among civil servants, for the development of abilities and skills through online training and learning programs, on the other hand, facilitating such processes as online application for annual leave, leave balance checking and payroll records, etc[1].



Graph 1. Forms of implementation of digital transformation in the field of public administration[2]

The United Nations publishes the e-Government Development Index (EGDI) every two years, which reflects the level of information technology use in public administration in 193 countries and consists of three main dimensions: provision of online services, telecommunications connectivity, and human capacity[3]. According to the United Nations "E-Government Survey 2022: the Future of Digital Governance" report[4], the

[1] Leading Enterprise Solution Professionals in Information and Network (E-SPIN), "Definition and type of E-government", 2023-Feb-20. www.e-spincorp.com/definition-and-type-of-e-government/

[2] The graph was created by the author taking into account the forms of implementation of digital transformation in the field of public administration.

[3] The United Nations, e-Government Knowledgebase (UNeGovKB), https://publicadministration.un.org/egovkb/en-us/ -E-Government-Development-Index

[4] United Nations, "E-Government Survey 2022. The Future of Digital Government", https://desapublications.un.org

highest indicators with EGDI were recorded in 15 countries, where the result of the index ranged from 0.89 to 0.97. As the data analysis in Table 1 shows, the countries with developed economies are in the leading positions, where effective mechanisms and tools for digitizing public administration have been formed and implemented over the years, thus contributing to improving the ranking of EGDI. On the other hand, impoverished, mainly African countries with a weak level of economic development are in the worst condition, where such a vulnerable position in the digitization of public administration is due to the low level of ensuring technological progress.

Table 1. Worst and Best ten countries on EGDI[1]

	Best ten countries			**Worst ten countries**	
	Country	**Score**		**Country**	**Score**
1.	Denmark	0.9717	**184**	Afghanistan	0.2710
2.	Finland	0.9533	**185.**	Sierra Leone	0.2633
3.	The Republic of Korea	0.9529	**186.**	Guinea-Bissau	0.2560
4.	New Zealand	0.9432	**187.**	Haiti	0.2481
5.	Sweden	0.9410	**188.**	Niger	0.2406
6.	Island	0.9410	**189.**	Chad	0.1890
7.	Australia	0.9405	**190.**	Eritrea	0.1709
8.	Estonia	0.9393	**191.**	Central African Republic	0.1407
9.	Netherlands	0.9384	**192.**	Samalia	0.1340
10.	USA	0.9151	**193.**	South Sudan	0.0852

In 2022, Armenia ranked 64th out of 193 countries in the EGDI, falling behind Turkey (48th place) and Georgia (60th place) in the region and ahead of Azerbaijan (83rd place) and Iran (91st place)). In 2021, by the decision of the RA government, the legislative act "Decision of the RA government on approving the digitization strategy of Armenia, plan of strategy measures and performance indicators" was adopted, the annex one of which presents the "Digitization strategy of Armenia 2021-2025"[2].

The purpose of developing and implementing the strategy is to reform public administration in line with sustainable development goals. With the support of the World Bank, several innovative e-government projects have been launched in Armenia since 2021[3], within which Armenia was granted a loan of 26.5 million euros for the implementation of the fourth Public Sector Modernization Program. The electronic website www.e-gov.am is also actively used in Armenia to integrate all the electronic manage-

[1] The United Nations, e-Government Knowledgebase (UNeGovKB), https://publicadministration.un.org/egovkb/Data-Center

[2] Legal Information System of Armenia https://www.arlis.am/documentview.aspx?docID=149957

[3] www.worldbank.org/en/news/press-release/2022/03/03/armenia-to-improve-public-sector-performance-through-digital-solutions-with-world-bank-support

ment tools and databases of the state departments of the Republic of Armenia and to create a comfortable environment for their use[1]. Thus, introducing e-government systems in different countries is a multifactorial process, including considering the presence of digital technologies in the country, the degree of establishment of existing institutions, socio-economic and cultural factors, and the degree of infrastructure development. The implementation of various forms of e-government should be a priority in the strategies of the governments because its final result is the increase of transparency and accessibility of public services and the existence of an effective public administration system.

Automation of processes is one of the essential factors in digitizing and modernizing public administration bodies and increasing the efficiency of their work processes. The term "automation" generally describes the execution of a procedure by a technical artifact without human activity or intervention ("autonomous action"). Automated systems are supposed to perform work processes and solve problems. Process automation is commonly described as a broad range of approaches and technical concepts that facilitate the automation of repetitive activities and simple work processes in public and private sector organizations [Aguirre, 2017, 65]. Automation of processes in public administration is manifested in data collection and digitization through information and communication technologies, artificial intelligence, and, sometimes, machine learning [Paul, et al., 2018]. Automation of processes in public sector can take following forms:

- *Automatic data extraction from paper documents:* in Germany, for example, government agencies often require a paper application signed by the applicant. In such a case, after applying to the state body, the data is entered manually for data processing, which is quite costly and time-consuming. The system of automatic data extraction from paper documents is developed to rationalize the process.
- *Automatic integration of data and processes:* in organizing work processes in state administration bodies, it is often necessary to use different data, which are formed due to the work activities of various state administration structures. Thanks to the automatic integration of data, it is possible to have a centralized system of integrating relevant data from the plans. Similarly, process integration facilitates more efficient execution of government processes by automatically starting the next task or delegating tasks to the organizational unit that needs to work on the case later to minimize waiting time.
- *Automatic data transfer:* it makes it possible to create effective cooperative mechanisms between the bodies operating in the sphere of public administration because, for example, a citizen's application submitted to one state body is automatically transferred to other state bodies, which also need to have information about that application.

[1] Electronic Government of the Republic of Armenia https://www.e-gov.am/

- *Automated decision support:* process automation solutions can support faster and more efficient decision-making on application cases if the data needed to decide on the matter is available electronically [Constantin, 2019].

Thus, we can summarize that automation processes in the field of public administration can be outlined in several directions. Process automation can be used to develop and implement e-government services that enable citizens to access government services online. These services may include online tax filing, permit applications, and other services traditionally offered through in-person visits or paper processes. Workflow automation can be used to streamline and optimize internal management processes such as procurement, HR, and financial management. This can lead to more efficient operations, reduced costs, and improved service delivery. Process automation can be used to manage citizen service requests and complaints. For example, a citizen service platform can be created that automates registering and tracking citizen complaints and inquiries, enabling more efficient and timely resolution. Document management systems can be implemented to automate the process of document creation, storage, and retrieval. This can improve the speed and accuracy of document processing and reduce the risk of errors and information loss. Process automation can be used to collect and analyze data from various government processes, enabling better decision-making and policy development.

Open data and analysis in the public sector refers to data retrieval, data analysis, publication of results, and data reuse to address challenges [Klievink, 2017, 267]. This is mainly due to the increasing availability of open and big data and the expansion of its analysis toolkit [Jansen, Kuk, 2016, 371]. In the digital governance literature, public sector data analytics studies often focus on accessing data for public or economic value [Sasha, et al., 2017, 157]. Open data aims to increase transparency, accountability, and innovation by allowing citizens, researchers, and businesses to access and analyze data. In the modern world, the public sector is rapidly "absorbing" the main mechanisms of open data and their analysis, which are an integral part of public administration decision-making in developed countries. Transactions in the public sector, employment, education, health care, manufacturing, agriculture, and several other sectors generate large amounts of information, the use and analysis of which can lead to an increase in the effectiveness of governments. Using open data and its research in the public sector has several advantages. First, this contributes to increasing the transparency and accountability of state processes. Citizens can receive information about government activities, spending, and decision-making, which can help build trust and promote engagement. In addition, open data and its analysis improve decision-making in public administration. By analyzing data, governments can gain insight into patterns and trends that might not be immediately apparent. This can aid decision-making and the development of targeted government programs, leading to more effective and evidence-based public policy

implementation. Effective use of open data contributes to the provision of enhanced services. Data analytics can be used to identify areas where service delivery can be improved. For example, by analyzing traffic data, governments can identify bottlenecks and bottlenecks and take steps to improve traffic flow. And finally, by making data publicly available, governments can spur innovation and economic growth. Due to the availability of open data, entrepreneurial activities in the country are also promoted because, using them, producers can produce new products and services, and explore new export markets, thereby contributing to the increase of socio-economic activity in the country.

Of course, highlighting the challenges related to open data and their analysis is also essential in this context. Thus, in the case of open data used in the public sector, the quality collected from various sources is often quite a severe problem. In addition, the issue of privacy and security is also important, as open data can raise concerns about its preservation, especially regarding sensitive or personal information. Governments must ensure that data is protected and privacy is respected.

Cloud technologies are becoming increasingly popular in the public sector due to their potential to increase efficiency, reduce costs and improve service delivery. For example, the UK government's sweeping 2022 reforms are expected to cut public spending by £3.5 billion by 2026, mainly through to implement in the public sector thanks to digitalization solutions and, especially, cloud technologies. In addition, the COVID-19 pandemic has been another impetus for government agencies in many countries to emphasize the need to use cloud technologies, thanks to which governments in several countries have been able to face challenges such as massive increases in demand for services or the sudden shift to remote work. Thanks to cloud technologies, public sector organizations can move their infrastructure to the cloud, reducing the need for server equipment and maintenance costs. Virtualization and cloud-based infrastructures also provide higher security and data protection. In addition, cloud storage solutions enable the public sector to store and manage big data securely. By using cloud-based data storage services, public sector entities can reduce the storage burden on their physical servers and take advantage of reliable and scalable storage options. This facilitates efficient data sharing and collaboration between departments and stakeholders, improving decision-making and streamlined procedures.

Conclusion. With the rapid trends in the development of modern digital technologies, the possibilities of improving tools have penetrated the public sphere, where the manifestations of digital transformation are no longer a reality. The digital transformation of the public administration system involves using technology to improve the efficiency and transparency of public services, resulting in enhanced citizen satisfaction and connectivity with services provided in the public sector. These include adopting digital platforms, automating processes, and implementing data analytics to make better deci-

sions and reduce unnecessary processes and functions. As a result of the use of digital technologies, the analysis of big data enables the entities of the state sector to identify the problems of the citizens, and predict their needs, as a result of which the most targeted and targeted ways of solution are defined and the resources are distributed effectively. Ensuring digital transformation creates opportunities for efficient distribution and reduction of costs in the public sector, which certainly gives reason to be sure about the continuity and scalability of this process. Digital transformation is a complex of actions carried out by state bodies to reorganize and modernize the state administration system and functions. The need for digital transformation became more apparent due to the spread of the COVID-19 pandemic when the public sector needed to demonstrate flexibility and the ability to adapt quickly to new realities.

Digital transformation enables public sector organizations to deliver services more effectively and efficiently. With technology, processes can be simplified, and services made more accessible, convenient, and personalized for citizens. This results in improved customer satisfaction and overall citizen experience. Digital tools and platforms also allow for seamless collaboration and communication within public sector structures. With common platforms, employees can collaborate on projects, share information and improve coordination. Enhanced communication channels also facilitate more effective engagement of citizens, stakeholders, and other government agencies. Thus, all this, together with the rapid development and spread of technologies, forces us to pay great attention to implementing digital transformation in the public sector.

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The foundations of digital transformation of the public administration system

Key words: digital transformation, public administration, e-governance, process automation, open data, cloud technologies

Digital transformation has actively penetrated all sectors of the economy, making the management of existing processes more efficient and increasing productivity. Of course, public administration could not remain apart from the current trends of digitalization, taking into account its role and importance both in the context of ensuring the development of the country's economy and increasing the efficiency of public administration functions. Digital transformation of the public administration system refers to integrating digital technologies and capabilities in the public sector to improve the quality and efficiency of service delivery and promote transparency and accountability. It involves using technology to streamline processes, automate tasks and deliver digital services to citizens and businesses. In addition, digital transformation requires the development of capacities and skills in the field of public administration and the development and implementation of targeted and targeted policies.