CHALLENGES OF THE DIGITALIZATION PROCESS IN UZBEKISTAN

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ABSTRACT. *This article examines the current state of digital transformation in public administration in Uzbekistan, as well as its achievements and challenges. Special attention has been paid to the problem of the digital divide between urban and rural areas, which has not been adequately addressed in previous research on Uzbekistan. Key barriers to digitalization, including lack of infrastructure and low levels of digital literacy, have been identified. Threats to cybersecurity have also been mentioned. Possible solutions to these problems, such as the development of digital infrastructure and the strengthening of data protection measures, have been discussed.*

KEYWORDS: *digitalization, public administration, e-government, IT parks, electronic platform, OSI, EGDI.*

INTRODUCTION

In today's globalized world, technological advancements have become an integral part of our daily lives. Digitalization has revolutionized the way people work, communicate, and access information, transforming various aspects of society such as education, healthcare, business, and public administration.

Countries like Uzbekistan are harnessing digital technologies to improve the efficiency and effectiveness of public services and governmental processes. However, with the continuous evolution of digitalization, new challenges arise that need careful consideration and innovative solutions. Issues such as data security, privacy concerns, and potential misuse of technology are some of the challenges that need to be addressed.

To ensure the continued benefits of digitalization while minimizing potential risks, it is crucial for governments and organizations to collaborate and develop strategies to tackle these challenges. By working together, we can create a more secure and responsible digital environment that maximizes the benefits of technology while minimizing its risks.

LITERATURE REVIEW

The development of digitalization in the Republic of Uzbekistan is one of the main tasks outlined in the country's strategic documents. Below is a list of sources devoted to the prospects and problems of digital transformation.

The Decree of the President of the Republic of Uzbekistan No. UP-6079 of 05 October 2020 (Decree of the President, 2020) identifies key areas for the development of digital governance and mechanisms for the implementation of government programs in this area. In this context, the "Digital Uzbekistan – 2030" strategy (Strategy Center, 2020) becomes significant, aimed at optimizing the implementation of digital technologies in various social spheres.

Digitalization in the context of public administration has been discussed in a number of academic publications. S. Ablatdinov (Ablatdinov, 2023) analyzed the current state of digitalization in Uzbekistan, highlighting both the achievements and the major challenges of implementing digital transformation initiatives.

Dzhumaev A. Kh. (Dzhumaev, 2024) pays attention to the problematic aspects of digitalization, including cybersecurity and digital inequality issues. F. Khakimov (Hakimov, 2023), in his work, reveals the priority directions of digital transformation within the context of Uzbekistan's "Uzbekistan-2030" strategy. The article "Digitalization as an Important Driver of New Uzbekistan's Development" (Hakimov, 2022) examines the factors contributing to the country's digital development and their impact on public administration and the economy.

Michel Von, in his 2007 article "Leapfrogging through Technology: A Developing Country Perspective" (Fong, 2007), examines the phenomenon of technology jumps, in which developing countries use new technologies to bridge infrastructure gaps, bypassing traditional stages of development. The author argues that thanks to mobile and Internet technologies, countries with limited resources can quickly achieve high levels of technological sophistication, avoiding expenses associated with outdated technologies. The author emphasizes that effective technology adoption requires an integrated strategy that includes not only access to resources, but also the development of skills and establishment of institutional frameworks.

The United Nations "E-Government Survey 2024" (United Nations, 2024) emphasizes the significance of digital government in realizing the Sustainable Development Goals (SDGs), with a focus on accelerating digital transformation. The survey pays special attention to the application of artificial intelligence (AI) in the delivery of public services, aiming to enhance efficiency and inclusiveness. The report analyses global trends and provides ratings on the digital maturity of various countries, as well as practices that contribute to narrowing the digital divide. It highlights the importance of sustainable, ethical, and people-centered digitalization, which takes into account disparities in access to technology.

Jan van Dijk, in his book "The Deepening Divide: Inequality in the Information Society" (van Dijk, 2005, pp. 21–25), examines the impact of information technology on social inequalities. He argues that the digitalization process contributes to the deepening of existing differences, creating a divide between those who have access to technology and those who do not. The author identifies several aspects of digital inequality, such as access to technology, levels of skill, and usage of technology. Van Dijk also highlights global disparities in access to information resources and proposes measures to address these gaps, including enhancing access and providing education in the field of information technology.

SCIENTIFIC NOVELTY

This study aims to address underexplored aspects of Uzbekistan's digital transformation, by integrating both theoretical and empirical perspectives that have not been adequately explored in previous research. Most existing literature has focused on national strategies and infrastructure development; this article presents a region-specific analysis of digital inequality, utilizing current, localized data on internet speed and accessibility. Moreover, it applies the concept of

"second-level digital divide" to the Uzbek context, highlighting that limited digital skills and usage, rather than just infrastructure, constitute a persistent barrier, especially in rural areas (van Dijk, 2005, pp. 21–25).

In contrast to descriptive evaluations of e-government platforms presented in previous studies, this research provides a critical assessment of the structure and functionality of my.gov.uz. The study identifies several shortcomings in the platform, including a lack of integration with other systems, limited user-friendliness, and the absence of offline accessibility options.

The proposed solution, a hybrid online-offline service model, is tailored to the specific infrastructure conditions in Uzbekistan and has not previously been explored in academic literature. Moreover, while the Estonian X-Road system is often cited as an exemplar of data integration (United Nations, 2024), this paper delves deeper by identifying specific legal, institutional, and technological barriers to implementing such an approach in Uzbekistan.

By outlining a phased and context-specific approach, the paper takes into account concerns regarding public trust and cybersecurity, shifting the focus away from technology adoption and towards broader governance and policy reform necessary for sustained digital transformation.

COMPARATIVE ANALYSIS

The development of e-government and online services has become a key indicator of a country's digital maturity. This paper presents a comparative analysis of Uzbekistan in relation to other countries, including Singapore, Kazakhstan, South Korea, Malaysia, Sweden, Estonia, and Japan. [Table 1].

Country	EDGI rank	Rating class	OSI
Kazakhstan	24	V3	0.9390
Singapore	3	VH	0.9831
Sweden	14	VH	0.8836
Uzbekistan	63	V1	0.7648
Estonia	2	VH	0.9954
Malaysia	57	V1	0.7280
Japan	13	VH	0.9235
Republic of Korea	4	VH	1.0000

Table 1. E-Government Development Index Ranking of Selected Countries

The table demonstrates that the leading countries in this area include South Korea (ranked 4th in the EGDI), Singapore (ranked 3rd in the EGDI), and Estonia (ranked 2nd). These countries have achieved success through an integrated approach that has focused not only on developing infrastructure but also on providing convenience for citizens through "one-stop-shop" services and mobile offerings. For instance, in Estonia, the OSI is 0.9954, e-residency and online voting are utilized. These countries have also paid special attention to their legislative frameworks and data protection measures, which has

strengthened citizens' trust in their digital services (United Nations, 2024).

Uzbekistan ranks 63rd in the ranking with an OSI of 0.7648, demonstrating positive dynamics in its digital transformation. In 2020, the country adopted the “Digital Uzbekistan-2030” strategy aimed at actively introducing digital technologies into public institutions and various economic sectors (Strategy Center, 2020). More than 100 information systems have been integrated into the Digital Government platform, including a billing system, an interdepartmental information system, the OneID system, and others (E-Government of Uzbekistan, 2025).

Despite the country’s progress in infrastructure development, many projects continue to be implemented in a siloed manner. Data is duplicated across different departments, leading to a lack of unified exchange channels, slowing down decision-making processes and reducing the convenience for end users. Furthermore, the legal framework for protecting personal data and ensuring cybersecurity is updated at a slower pace than infrastructure implementation, increasing distrust among citizens and businesses (Dzhumaev, 2024). The concept of "leapfrogging" suggests that developing countries can skip intermediate stages and adopt advanced solutions immediately (Fong, 2007). For Uzbekistan, this could involve the widespread adoption of mobile and cloud-based platforms, instead of expensive on-site data center construction. It could also include the introduction of automated document recognition systems and chatbot solutions for government services, to significantly reduce the workload on officials and speed up service delivery. Additionally, active collaboration with digital leaders could help to implement "best practices" and avoid costly development. However, a clear strategy and an adaptable regulatory framework are necessary for successful implementation. Substantial investment in training is also required to ensure that new technologies provide benefits immediately and avoid staff shortages.

They influence the way resources are allocated, administrative procedures are structured, and services are delivered to the public. Furthermore, they provide a means to enhance transparency, efficiency, and effectiveness in the interaction between citizens and government authorities.

KEY ACHIEVEMENTS

Key achievements include:

1. Implementation and enhancement of the interactive portal: Based on data for October 2024, over 60% of government services are now provided through my.gov.uz. The number of services available on this platform has increased to 700 (E-Government of Uzbekistan, 2025).
2. Internet user growth: By 2024, the total number of internet users in Uzbekistan will have reached 31 million (E-Government of Uzbekistan, 2025).
3. As part of ongoing initiatives for 2023-2024, 112 projects have been approved for the digitalization of government services, 137 for the digital transformation of regional areas, and 51 for digitizing the economy (E-Government of Uzbekistan, 2025).
4. Personnel training: As part of the "One Million Programmers" project, 500,000 young people were trained, and the number of IT parks reached 300 (E-Government of Uzbekistan, 2025).

Despite these achievements, Uzbekistan continues to lag behind countries such as Kazakhstan (ranked 24th) and Malaysia (ranked 57th). In order to catch up with these leaders, it is essential for Uzbekistan to adopt best practices from them and address key challenges, such as uneven digital infrastructure development, cybersecurity risks, low levels of digital literacy among the population, difficulties integrating new technologies with administrative systems, and financial constraints (United Nations, 2024).

Challenges

The main challenge in the path towards digitalization in Uzbekistan is the disparity in internet access between urban and rural areas. This gap is evident in the download speeds in different parts of the country, with more remote regions experiencing significantly slower internet speeds compared to major cities.

For example, in the Zhandar district of Bukhara region, internet download speeds are 20 Mbps, while in the Boysun district of Surkhandarya region, they are only 5 Mbps. In contrast, in Tashkent, speeds vary from 80 Mbps to 1 Gbps, and in Samarkand, they reach 80 Mbps. Even lower download speeds are observed in areas such as Shavat, Kushkupir (in Khorezm), and Khozheyli, Chimbay (in the Republic of Karakalpakstan), where speeds can range from 10-5 Mbps or lower (E-Government of Uzbekistan, 2025) [fig.1,2]. These disparities indicate a pronounced digital divide between the central and peripheral regions of Uzbekistan.

In addition, citizens residing in remote areas lack the necessary skills to effectively utilize digital technologies. It is essential to enhance the digital literacy of the population through educational initiatives, particularly for groups such as retirees. Even when internet access is available, many people still find it difficult to fully utilize digital services. This is known as the "second-level digital divide" (van Dijk, 2005, pp. 21–25). Due to a lack of clear instructions, limited platform adaptability, and unstable connections, individuals—particularly older adults and those with limited education in rural areas—are often unable to complete necessary tasks without assistance. Additionally, many digital interfaces are designed primarily with urban, digitally literate users in mind, without sufficient adaptation for the needs of rural populations. In regions with distinct linguistic or cultural characteristics, such as Republic of Karakalpakstan, this divide can be even more pronounced. These factors collectively reduce the accessibility of digital public services and exacerbate existing socio-economic inequalities.

To address this issue, it may be beneficial to increase the number of public service access points providing internet connectivity. Additionally, it could be feasible to implement offline modes for certain services on the my.gov.uz platform as a partial solution.

The following are the features of the portal that can be used offline:
1. Ability to complete and save applications: Users can complete the application form without an internet connection, and as soon as internet becomes available, the data will be automatically sent.
2. Automatic storage of previously downloaded help files on the device.
3. Access to templates: Users can access instructions or document templates.

4. Scanning of QR codes or encrypted files: Officials from organizations can scan codes even if the user doesn't have an internet connection.

A hybrid version of the my.gov.uz platform would be beneficial, especially in remote areas. Internet connectivity remains essential for full engagement with government services, however.

These aspects emphasize the importance of focusing on the uniform development of digital technologies and adopting a systematic approach to reduce the digital divide between central and remote areas.

It is essential to strengthen the legal framework in the area of cybersecurity. There are challenges with the integration of digital platforms, as different government systems may not interoperate well, leading to data duplication. When data is duplicated across systems, it becomes difficult to monitor the security of each copy, which can result in data breaches and increased risk of cyberattacks. Experience has demonstrated that such incidents have occurred in Uzbekistan, for example, when the Cybersecurity Center reported a data breach involving the personal information of over 200,000 individuals, including passwords stored by OneID, in October 2023 (Spot, 2023). Therefore, it is crucial not only to continue developing digital services but also to prioritize ensuring reliable integration and protection of data.

One of the major challenges in Uzbekistan's digital transformation process is the lack of coordination among government information systems. Various ministries and agencies tend to develop their own digital platforms in isolation, without adhering to shared standards or ensuring interoperability. This lack of integration leads to duplication of data, increased administrative inefficiencies, and an increased risk of inconsistencies (Dzhumaev, 2024).

Furthermore, the country is facing a shortage of skilled technical specialists with expertise in system integration, cybersecurity, and fault-tolerant infrastructure. Government IT procurement is often focused on addressing localized and short-term needs, rather than developing scalable national solutions. Additionally, there is a lack of a unified legal framework for interagency data exchange, leading to ambiguity regarding data access rights and eroding trust between institutions. These systemic issues pose significant obstacles to creating a secure and efficient digital environment.

To address these challenges, Uzbekistan may benefit from the experiences of countries that have successfully implemented national data integration frameworks. The X-Road system in Estonia offers a promising model: instead of duplicating data among agencies, it allows secure, real-time access to information through a decentralized data exchange layer. This system not only reduces data redundancy and improves consistency but also ensures transparency and security through digital signatures and access logs (United Nations, 2024). Adopting a similar approach in Uzbekistan would require a phased implementation, beginning with pilot projects involving key agencies such as tax, registry, and social protection. Equally important are the establishment of legal frameworks for data sharing and access controls, as well as investments in technical training and awareness-raising. By moving towards a unified, secure integration platform, Uzbekistan can significantly enhance the efficiency and reliability of its e-government services.

In addition to adopting foreign models, it may be feasible to strengthen domestic platforms, such as E-info.gov.ua, by developing a national data integration system. This should ensure that each data request is properly tracked and clearly presented to users, thereby increasing transparency and accountability.

CONCLUSION

Digitalization is not merely the introduction of new technologies, but rather the establishment of a system that enhances the accessibility, transparency, and efficiency of public services. Uzbekistan's success in digital transformation will depend on systematic legal, infrastructural, and educational reforms, as well as active public participation. These are the essential elements for ensuring the long-term success of digital transformation efforts and improving the quality of life for citizens.

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