Digital Transformation of Public Services: The Experience of Implementing E-Government in Different Regions

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Abstract

[Purpose] The aim of the research was to examine the key factors and conditions that influence the successful implementation of digital transformation of public services in various countries, with a focus on the specifics of e-government adoption.

[Methodology] The research methodology involved analyzing digitalization strategies in countries such as China, India, Turkey, Brazil, South Korea, and European Union (EU) countries.

[Findings] The study found that the success of digital transformation is influenced by factors such as the level of economic development, political will, the availability of digital infrastructure, and the digital literacy of the population. In EU countries, the high level of

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infrastructure development and active governmental support have led to significant progress in the digitalization of public services. At the same time, in India and Brazil, the digitalization process faces challenges due to uneven access to technology and the lack of infrastructure in rural areas. The study also emphasizes the importance of cybersecurity in building citizens' trust in e-services. Based on the analysis, recommendations were developed to improve the implementation of e-government in Azerbaijan, including expanding internet access and implementing digital literacy enhancement programs. The findings demonstrate the significant potential of digital transformation to improve the quality of public services and drive economic growth globally. Furthermore, the successful practices of highly digitalized countries could serve as a model for other developing nations, fostering more effective knowledge and experience exchange in this field.

Keywords: Cybersecurity. Information Technology. Management Efficiency. Innovation. Developing Countries. Interaction Efficiency.

INTRODUCTION

Digital transformation has become one of the key driving forces behind the development of both the public and private sectors of the economy. The introduction of new technologies is changing not only the ways in which information and resources are interacted with but also the very structure and functionality of government institutions. In the context of globalization and the growth of the digital economy, governments around the world are facing the need to modernize their systems in order to enhance the efficiency of service delivery to citizens and businesses. One of the key aspects of this transformation is the development of e-government, which enables states to provide a wide range of services through digital platforms, thus improving accessibility, transparency, and accountability.

The relevance of this topic is due to the fact that the digitalization of public services is an important factor for improving public administration efficiency, reducing administrative barriers, and ensuring process transparency. The implementation of digital technologies in government structures not only optimizes the work of authorities but also improves interaction with citizens and businesses, leading to an increased level of trust in government institutions and accelerating economic processes.

Digitalization of public services can lead to measurable improvements in economic efficiency and social well-being, such as reduced bureaucratic delays and increased access to essential services. It substantially reduces the time and resources spent on bureaucratic procedures, increases transparency to help reduce corruption, and facilitates access to public services for a wider range of the population. These processes directly influence the improvement of the business

environment, which stimulates investment inflows and entrepreneurship development. Additionally, e-government fosters the creation of conditions for more agile responses to crisis situations and the accelerated implementation of innovations, which enhances the competitiveness of countries on the international stage.

However, despite the tangible advantages, the nature and success of digital transformation largely depend on several factors, such as the level of economic development, political will, infrastructure readiness, and the digital literacy of the population. Digital literacy encompasses the ability to proficiently and critically explore, assess, and generate information using various digital tools while comprehending the implications of their utilization, including online safety and security (Atamanyuk & Kondratenko, 2015; Ronzhes, 2023). Identifying the factors that influence the success of digital transformation in public services is essential for developing effective strategies and policies. In the context of the global transition to e-government, it is essential to uncover obstacles that hinder the implementation of digital initiatives and propose solutions that take into account the universal, infrastructural, and social characteristics of different regions.

Although economic development, political will, infrastructure preparedness, and digital literacy are all essential, their significance differs. Robust political will can frequently alleviate infrastructure deficiencies by promoting investments and policy backing; yet, in the absence of digital literacy, even sophisticated infrastructure may not produce advantages. Similarly, strong infrastructure cannot entirely offset insufficient political commitment or economic resources, underscoring the necessity for these elements to function together for effective digital transformation.

The success in the area of digital transformation encompasses several elements, including elevated adoption rates of digital services by citizens, cost reductions resulting from more efficient governmental operations, enhancements in citizen satisfaction due to improved accessibility and service quality, broadened service coverage ensuring equitable access across regions, and heightened transparency through the digitization of governmental processes. These factors jointly delineate the effective execution of e-government, with the significance of each varying according to the particular objectives and setting of the digital transformation initiatives.

Scientific literature dedicated to the digital transformation of public services and the implementation of e-government covers a wide range of studies that address both theoretical foundations and practical cases from various regions of the world. An important starting point for analysis was the work of Fountain (2001), in which e-government was considered not only as the introduction of

technology but also as the transformation of institutional processes and relationships between the state and society. The work indicated that digitalization contributed to reducing bureaucracy and improving public service delivery. Other theoretical studies by Falk et al. (2017) expanded on the idea that e-government is a strategic tool for public administration, helping to increase transparency and efficiency in government-citizen interactions.

The practical aspects of digitalizing public services in various regions were explored in the work of Bacalum et al. (2022), which examined the factors ensuring the success of e-government in Europe, including political support, strong infrastructure, and efficient data management. Digital transformation in developing countries such as India, Brazil, and Turkey was addressed in the work of Mountasser and Abdellatif (2023). The authors analyzed case studies, highlighting both successful examples and challenges related to the lack of infrastructure and digital literacy. The source for the analysis of digital transformation was China's experience, discussed in Mehta's (2023) work, which analyzed the relationship between China's digital government strategy and global initiatives such as the Belt and Road, and the impact of this strategy on international processes.

In Dwivedi and Bharti's (2010) paper, results of digital transformations in various regions were presented, including identified obstacles such as low levels of digital literacy and limited internet access. The authors argue that these limitations require adapted solutions to successfully implement e-services under such conditions. South Korea, one of the leaders in e-government, was studied in Chung's (2020) work, which explained that South Korea's success was due to a combination of high technology, political support, and active government-citizen interaction. Furthermore, a number of studies focus on Azerbaijan and its efforts in the digitalization of public services. Isazade (2023) analyzed the state of government in Azerbaijan, highlighting key achievements such as improving the accessibility of digital services for citizens, and also identifying standard challenges, including the need for further improvements and an increase in the population's digital literacy.

Despite the broad coverage of the digital transformation of public services and e-government, existing studies have some gaps. First, most works focus on developed countries and insufficiently examine the specific contexts of developing countries like Azerbaijan. Second, existing studies often fail to account for the influence of social and cultural factors on the adoption of digital technologies in public services. These gaps highlight the need for further research to understand the dynamics and effects of digital transformation in the context of Azerbaijan.

The aim of this research is to study the experience of different countries in implementing e-government.

The following tasks were set for the research:

1.Identification of commonalities and differences in the approaches to the digitalization of public services in India, Brazil, Turkey, China, Azerbaijan, and South Korea.

2.Evaluation of the scale of innovations in e-government. Analysis of the level of implementation and use of innovative technologies in public administration in the studied countries.

3.Identification of factors that contribute to or hinder the successful digital transformation.

4.Formulation of recommendations for Azerbaijan based on the analysis conducted.

LITERATURE REVIEW

This study employs Fountain's (2001) "virtual state" framework as the theoretical perspective for examining the digital transformation of public services, including e-government. Fountain's concept underscores that e-government transcends the mere implementation of technology, encompassing a comprehensive transformation of governmental institutional processes. It examines the manner in which digital technologies transform the connection between the state and society, enhancing governmental efficiency, transparency, and citizen participation. The concept posits that technology facilitates these transformations. However, its efficacy is contingent upon the degree to which it interacts with and modifies governmental institutions and services. This study uses this perspective to analyze how digital tools can improve administrative processes, diminish bureaucracy, and foster increased accountability in Azerbaijan's public sector while also addressing issues like infrastructural deficiencies and gaps in digital literacy.

Falk et al. (2017) argue that e-government can be a strategic tool for enhancing transparency and accountability; however, they also point to challenges related to insufficient digital literacy among the population and inequality in access to technologies. The authors emphasize the importance of political will and institutional support for the successful implementation of e-services. Sarai et al. (2023) analyze the experience of India, where successes in e-government largely depend on investments in infrastructure and digital literacy enhancement programs. The authors note that the lack of sufficient government support leads to unequal access to e-services, which, in turn, increases social inequality. Reflecting on the experience of China, Mehta (2023) illustrates how state support and the integration of digital initiatives at the international level can contribute to

successful digital transformation. However, the author also highlights issues related to cybersecurity and governance transparency, which require attention. Many studies focus on the successes of EU countries in the field of e-government. For example, Bacalum et al. (2022) stress that political support and effective data management are key factors for the success of e-government in Europe. Nevertheless, even in countries with developed infrastructure, such as Estonia and Denmark, challenges remain in ensuring equal access to e-services for all citizens.

The research by Zhao et al. (2021), dedicated to the influence of cultural factors on e-government, emphasizes that the level of citizen trust in government institutions significantly affects their use of e-services. This highlights the need to develop a communication strategy aimed at improving trust in the government through transparency and the accessibility of information. Singh (2023) stresses that in India there are both successes and significant challenges, such as digital inequality and inadequate infrastructure, which require a comprehensive approach to the reform of public services. Lappi et al. (2019) analyze the experience of Finland in digitalization, identifying the high level of trust that citizens have in government institutions as a critical factor for the success of e-services implementation.

Brazil also faces challenges in e-government, as noted by Santos et al. (2023), where limited internet access and low levels of digital literacy hinder the success of digitalization. Chen and Hao (2022) stress that in China, successful digital transformation largely depends on state support and coordination, yet problems related to cybersecurity and data protection arise. In the work by Al-sayed et al. (2022), the challenges faced by Middle Eastern countries in e-government are considered, including low infrastructure levels and cultural barriers, highlighting the need for a strategic approach.

Dwivedi and Bharti (2010) examine the experience of India and assert that for successful digital transformation, cultural and social aspects must be taken into account. Rocha and Zavale (2021) consider the impact of blockchain technologies on public administration, highlighting their potential to enhance transparency and accountability.

The research by Sabri et al. (2012) shows that the introduction of information and communications technologies (ICTs) in e-government can significantly enhance transparency by facilitating open access to information and increasing accountability. The study highlights how ICT tools, such as online portals, digital databases, and interactive platforms, allow citizens easy access to government data and the ability to track service delivery processes. As a result, citizens can better monitor government activities, leading to increased public trust and engagement.

Solaru et al. (2023) analyze the digital transformation process in Nigeria, emphasizing that the successful implementation of e-government requires substantial efforts to improve infrastructure. P. Phuangthuean and Nuansang (2024) examined the role of artificial intelligence (AI) in the transformation of e-government. The authors argue that AI can improve the efficiency of public services. Haryanti et al. (2023) compared digital transformations in the public sector between Africa and Europe, identifying both differences and similarities in approaches to the implementation of e-services.

It is also worth noting the work by Undi-Phiri and Phiri (2022), who analyzed the impact of the Covid-19 pandemic on accelerating the implementation of e-government, highlighting that crisis can act as catalysts for the digitalization of public services. In the study by Amin et al. (2022), methods of evaluating the success of e-government in Arab countries are discussed, emphasizing the need for a tailored approach to each country.

MATERIALS AND METHODS

During the research, an analysis was conducted of the reports from the United Nations E-Government Survey: The Future of Digital Government (2022) and the 2023 OECD Digital Government Index: Results and Key Findings (2024). A comparison was made of the digital transformation experiences in EU countries, China, India, Turkey, Brazil, South Korea, and Azerbaijan. The analysis examined aspects such as government strategies, technology adoption, levels of political support, regulatory frameworks, and the availability of digital employment. These criteria were selected to understand the common economic and social conditions for the success of digital reform, which is defined here as improvements in key areas such as service adoption, coverage, efficiency, citizen satisfaction, and enhanced transparency in government processes.

For the quantitative assessment of the level of digitalization, the E-Government Development Index (EGDI) and the Online Services Index (OSI) were used, along with data on internet infrastructure availability and the level of digital literacy among the population, as reflected in the reports of the 2023 OECD Digital Government Index: Results and Key Findings (2024). For the analysis of digital transformations in Azerbaijan, statistical data from the State Statistics Committee of Azerbaijan (ASIS) (2024) were additionally used, which provided up-to-date information on the state of internet access and digital services in the country.

An analysis was conducted of Azerbaijan's Digitalization Strategy (Guliyev, 2022), aimed at improving the quality of public services and their accessibility to citizens, as well as implementing modern technologies to optimize administrative processes. The strategy's main focus is on improving interaction

between government agencies and the public through digital platforms, as well as simplifying procedures.

The research included an analysis of the following initiatives: the Digital India program (Mehta, 2023), the Belt and Road initiative (Wang and Zhu, 2024) in China, and the e-government model in South Korea (2023 OECD Digital Government Index: Results and Key Findings, 2024). These examples allowed for a detailed examination of successful strategies and tools used for digital transformation under different conditions and an understanding of which of these could be adapted for other countries. Potential risks and barriers that might arise in the implementation of these practices were also considered.

The following projects were analyzed: the SmartCitiesWorld City Profile – Shenzhen in China (2022), the E-Government Gateway program in Turkey (Kurfalı et al., 2017), the Government of Brazil Official Portal (2024), and the Government 3.0 project in South Korea (Chung, 2020; Chung et al., 2022; Ronzhyn and Wimmer, 2022). Recommendations for the implementation of e-government in Azerbaijan were proposed based on the analysis of digital transformation of public services in the European Union, China, India, Turkey, Brazil, and South Korea.

The research also included a detailed analysis of Azerbaijan's digital transformation strategies, focusing on state initiatives aimed at improving management efficiency and environmental sustainability. One of the central initiatives is the Paperless Government initiative (News Agency Turan, 2024), which aims to optimize administrative processes through the introduction of a digital document circulation system. The Online Azerbaijan project developed by the Ministry of Digital Development and Transport of the Republic of Azerbaijan (2021) was also considered.

RESULTS

As a result of the conducted research, key features of the digital transformation of public services and the implementation of e-government in different regions of the world were identified. The analysis of the data showed that the success of digital transformation depends on a range of factors, such as the level of economic development, political will, the availability of digital infrastructure, and the level of digital literacy among the population.

Countries recognize the importance of digitalization as a means to enhance the efficiency of public administration and improve the quality of services provided. Digital transformation of public services involves not only the adoption of new technologies but also changes in organizational processes, requiring government structures to be flexible and adaptable to new conditions. The first factor influencing the success of digital transformation is the level of economic

development of the country. Developed countries, such as those in the European Union, are characterized by a high quality of life and a robust economy, creating conditions conducive to the successful implementation of e-government. These countries have access to the resources and technologies necessary for digitalization and can afford to invest in infrastructure and training (Bacalum et al., 2022).

At the same time, developing countries, such as India and Brazil, face a number of obstacles that hinder the digitalization process. Limited financial resources and underdeveloped infrastructure impede the adoption of modern technologies, which reflects the quality of public services provided. Political will also plays a key role in the success of digital transformation. Countries with active state support for digital initiatives, such as China and South Korea, demonstrate faster adoption of e-government. Political support includes creating a favorable regulatory framework, which fosters the development and increased accessibility of digital services.

In developing countries, where political will may be insufficient, the implementation of e-government often faces challenges. For example, in Brazil and India, political instability and lack of government support can hinder the realization of digital reforms. The availability of digital infrastructure is one of the main factors of success. In countries with developed infrastructure, such as Estonia and Finland, citizens have easy access to public services via the internet. This creates convenience for citizens and encourages more active use of e-services. In contrast, in developing countries, particularly in remote and rural areas, access to high-speed internet remains a serious issue. For example, in India and Brazil, a significant portion of the population still lacks internet access, creating a digital divide and limiting citizens' opportunities to use e-services.

Digital literacy among the population also plays an important role in the successful implementation of e-government (Destek et al., 2024; Shynkar & Levchenko, 2025). Countries with a high level of digital literacy, such as South Korea and Norway, have high levels of e-service usage. Citizens in these countries are well-informed about the available digital tools and use them actively.

EU countries demonstrate a high level of digitalization of public services thanks to well-developed infrastructure, coordinated efforts at the European Commission and national government levels, and high standards of regulatory frameworks. The EU digital strategy aims to improve the interaction between the government and citizens through the development of online services and platforms for data exchange between government bodies. An example of successful implementation is the electronic IDentification, Authentication and trust Services (eIDAS) project, which ensures cross-border interaction between citizens and government bodies within the EU. This project allows citizens and

businesses to interact with administrations in other EU countries using identification and signatures provided in one country, significantly simplifying and speeding up processes (Lapp, 2024).

In 2022, Azerbaijan achieved significant progress in development, ranking 74th out of 193 countries in the E-Government Development Index (EGDI) with a score of 0.7607 on a scale from 0 to 1 for the first time in its history. Growth was also recorded in the Online Services Index (OSI) and the Telecommunication Infrastructure Index (TII) by 21%, and the European Participation Index (EPI) increased by 28%, which allowed Azerbaijan to rise from 98th to 88th place (Huseynzadeh, 2024).

China demonstrates active growth in the field of e-government, supported by the state initiative Belt and Road (Wang and Zhu, 2024), aimed at global digital integration and the development of national infrastructure. One of the key success factors is the concentration of resources on developing technologies such as artificial intelligence and big data. Chinese projects, such as the SmartCitiesWorld City Profile – Shenzhen (2022), have become models for many developing countries, showing how the use of modern technologies can improve the quality of life for citizens and enhance urban management. These projects are aimed at creating smarter and more sustainable urban environments where ICTs play a key role in resource management and service delivery. For example, Shenzhen actively uses Internet of Things (IoT) technologies to monitor and optimize water and electricity consumption, as well as to manage traffic and public transport. The Shenzhen health code application was a critical component in managing COVID-19, and the city introduced smart water supply services, automated metro lines, and intelligent airport management in collaboration with Huawei, enhancing the city's role as a global benchmark for smart cities. This not only improves the efficiency of urban services but also reduces costs, lowers pollution levels, and improves the overall quality of life for residents.

However, China faces challenges in the areas of cybersecurity and governance transparency, which limit the possibility of expanding successful practices internationally. Despite significant progress in digital technology development, the level of public trust in data protection systems remains low. The country faces serious issues with transparency and the protection of personal information, which raises concerns on the international stage. For instance, questions about how citizens' data is used and who has access to it remain unresolved, complicating the export of successful practices to other countries.

The cybersecurity situation in China requires stricter protection measures, especially given the constant threats of cyberattacks and data breaches. The development of effective information protection mechanisms, strengthening enforcement of data protection laws, and creating systems that foster greater

transparency in governance are necessary steps to build trust among both citizens and international partners. Otherwise, despite successful technologies and implementation examples, China may face difficulties in integrating its practices into global standards, limiting its influence on the international stage and its potential to expand its digital influence.

India actively promotes the Digital India initiative (Mehta, 2023), aimed at expanding access to public services through digital platforms, especially for rural areas. The main goal of this program is to make public services more accessible and convenient for citizens, minimizing physical barriers and simplifying interactions with government institutions. One of the main successes of this program has been the creation of the unique Aadhaar identifier, which allowed millions of citizens to access basic government services and became an important step towards the digitalization of public services in India (Singh, 2023), as well as subsidies through digital channels. This project, which provides biometric identification, has become the foundation for many social programs, including the distribution of subsidies for goods and services, as well as access to healthcare and education.

Beyond the obstacles of infrastructure and digital literacy, various profound structural issues hinder the effective digital transformation of public services. A major obstacle is the resistance to change within public organizations, where established bureaucratic cultures and entrenched administrative practices foster an unwillingness to adopt digital solutions. This opposition frequently originates from a fear of relinquishing control or the perceived intricacy of new systems, which can impede the adoption of e-government efforts. Additionally, fragmented governance frameworks, characterized by disparate agencies and government tiers operating independently, can hinder the execution of unified digital policies and result in inefficiencies. A significant concern is the irregular and frequently insufficient financing for digital transformation. In the absence of consistent financial backing, digital projects face the risk of stagnation or abandonment, hindering the complete actualization of their potential. Unaddressed deeper impediments can substantially impede the efficacy and sustainability of digital transformation initiatives.

However, the research showed that India faces a number of issues in infrastructure and digital literacy. One of the main obstacles is the insufficient level of internet coverage in remote and rural areas, which limits citizens' access to digital services. According to studies, a significant portion of the population still lacks stable internet connectivity, which hinders the implementation of the "service via internet" principle.

Furthermore, the lack of educational programs and resources to improve digital literacy also affects the success of the program. Many citizens lack the

necessary skills to work with digital technologies, creating an additional gap in access to services (Smailov et al., 2025; Khan et al., 2025). To address these issues, efforts to develop infrastructure and improve the level of digital literacy among the population must be intensified. For example, initiatives to teach digital skills in rural areas could significantly improve the situation.

Programs aimed at teaching basic computer skills can help people use the internet to access public services, which in turn will improve their quality of life (Zinchenko & Lavdanska, 2022). It is also important to organize mobile training centers that will operate in remote communities, providing the necessary training and resources. The successful implementation of such programs will help reduce the digital divide, increase citizen engagement, and create a more inclusive society, where everyone has the opportunity to benefit from digitalization.

The analysis showed that in Turkey, the digitalization of public services is developing within the framework of the E-Government Gateway program, which provides a wide range of online services, including tax declarations, medical services, and business registration (Kurfalı et al., 2017). This program allows citizens to access services without leaving home, which significantly improves the quality of service and makes interactions with government bodies more convenient and efficient. Users can easily apply, obtain necessary documents, and use other services through intuitive online platforms, saving time and effort.

However, Turkey faces challenges related to limited infrastructure availability in rural areas. Many residents of remote regions of the country do not have stable internet access, which hinders their ability to use e-services. This leads to a digital divide, with urban residents having access to modern services while rural populations are left behind. Overcoming these obstacles requires a comprehensive approach that includes expanding internet coverage and developing infrastructure in remote areas. In addition, the need to increase citizens' trust in digital services by improving cybersecurity and data protection remains relevant. With the increasing use of online platforms, the risk of cyberattacks, data breaches, and other incidents that may undermine user trust also rises. For successful digitalization, these issues must be addressed, and strategies aimed at solving them must be developed.

For example, the government should actively work on implementing secure technologies and involving the public in digital security issues. This could include organizing information campaigns, seminars, and training programs that help citizens understand the importance of protecting their data and using e-services safely. An important step is also the creation of an effective user support system, where citizens can receive assistance in case of access issues to digital services or security concerns. Thus, addressing issues of accessibility and citizens' trust in digital services is an essential part of the successful

implementation of the E-Government Gateway program in Turkey. The government must actively develop infrastructure, improve digital literacy, and protect citizens' data to ensure a comprehensive and inclusive approach to the digitalization of public services.

Brazil has made significant strides towards digital government through the Government of Brazil Official Portal (2024), which integrates public services into a single system. This platform is aimed at simplifying the interaction between citizens and government bodies and improving the efficiency of the services provided. Thanks to the Government of Brazil Official Portal, users can easily access a variety of services such as business registration, tax filings, and access to medical services, which significantly improves the quality of service and accelerates administrative processes. Streamlining procedures and reducing bureaucracy make interactions with government institutions more comfortable for citizens.

However, the research revealed that digital transformation in Brazil faces several obstacles related to low digital literacy levels and inequality in internet access, especially in remote regions. Around 30% of the population still lacks access to stable internet connections, which limits their ability to use online services (2023 OECD Digital Government Index: Results and Key Findings, 2024). This creates a digital divide between urban and rural areas, making the issue of access to digital services particularly critical for sparsely populated and hard-to-reach regions. Additionally, political instability also creates challenges for the consistent implementation of digital reforms. Frequent changes in the country's leadership, fluctuations in policy, and the lack of a long-term strategy may hinder the effective implementation of digitalization programs. Without a stable political context, it is difficult to achieve coordination of actions at all levels of government, which is essential for the successful implementation of large-scale initiatives like the Government of Brazil Official Portal (2024).

The study found that the government of Azerbaijan is actively developing its digital infrastructure, including the expansion of the National E-Government Platform, which currently offers around 500 online services. This digital strategy is based on successful practices from global leaders in e-government and is aimed at achieving the status of a regional digital leader, underscoring the significance of the initiative for the country (News Agency Turan, 2024).

It is important to note that for the successful implementation of e-government, issues related to access to technologies and education must be addressed. The development of programs aimed at teaching digital skills and expanding access to the internet, especially in remote and rural areas, could significantly improve the situation. Such initiatives could include the establishment of training centers, providing subsidies for internet connections,

and collaborating with the private sector to improve infrastructure. Engaging the public and fostering awareness among citizens about the importance of digital skills will help create a more inclusive society where everyone has the opportunity to benefit from digitalization (Dovzhuk, 2022; Domashenko, 2024). To achieve the goals of e-government in Brazil, it is necessary to integrate the efforts of all stakeholders: government, business, and civil society, in order to create a sustainable and accessible system of public services for all citizens.

South Korea is one of the global leaders in e-government, largely due to its strategic approach to implementing high technologies and its continuous investment in the development of digital infrastructures. The country actively uses modern technologies such as artificial intelligence and blockchain to improve public services and increase their accessibility. The Government 3.0 project is one of the key areas of digitalization in South Korea (Chung, 2020; Ronzhyn and Wimmer, 2022). It is aimed at creating personalized services for citizens, enabling government services to be tailored to individual user needs. This approach allows citizens to receive more relevant and convenient services and interact more efficiently with government bodies and businesses.

One of South Korea's main successes is the high level of citizen trust in digital services. This trust is built on the transparency of processes, the high quality of services, and the constant improvement of these services. Developed infrastructure, including high-speed internet and modern technologies, provides a solid foundation for the effective functioning of e-services (Azieva et al., 2021; Issayeva et al., 2024).

Additionally, South Korea is actively working to ensure cybersecurity and data protection, which strengthens citizens' trust and encourages the use of digital services. For example, the implementation of cybersecurity systems in government agencies helps protect citizens' personal data and prevent information leaks, which is especially important in the face of the constantly growing threat of cyberattacks. The South Korean government is also developing and implementing legislative measures aimed at data protection and managing risks associated with cyber-threats.

An important part of South Korea's digital government strategy is its active collaboration with the private sector and academic institutions. This cooperation fosters the introduction of innovative solutions and technologies into public administration, which in turn allows for the continuous improvement of the quality of services provided. South Korea also places emphasis on educating citizens in digital skills, which promotes broader adoption of e-services and increases the population's level of digital literacy. The successful implementation of these initiatives makes the country a model for digital government, offering

opportunities for other countries to learn from its experience and adapt successful practices to their own conditions.

Based on the United Nations E-Government Survey: The Future of Digital Government (2022), key global trends in digital transformation were identified: the development of online services, enhanced cybersecurity, increased transparency in governance, and citizen engagement. Countries with high EGDI scores (Table 1) demonstrate better outcomes in providing public services, however, developing countries continue to face challenges in access to infrastructure and digital technologies.

Country	Score of EGDI	Ranking (out of 100)	Notable e-government initiatives
Estonia	88	1	E-Residency program, digital ID
Denmark	85	2	Digital self-service solutions
Sweden	84	3	E-health services, comprehensive digital access
Finland	82	4	Integrated public services
Latvia	78	5	E-citizenship, digital tax services
Azerbaijan	65	35	ASAN service centers, mobile e-government services

Table 1 - E-Government Development Index (EGDI) of individual EU countries and Azerbaijan (2022)
Source: compiled by the authors based on 2023 OECD Digital Government Index: Results and Key Findings (2024).

Table 1 presents the EGDI scores of individual EU countries, as well as Azerbaijan. It highlights that although Azerbaijan ranks lower than EU countries in terms of digital government transformation, significant progress has been made in this area. The ASAN service centers established in Azerbaijan are a major innovation.

The research showed that developed countries, such as the EU states and South Korea, have achieved significant success in digital government thanks to political support, well-developed infrastructure, and high levels of digital literacy among their populations. Meanwhile, developing countries such as India, Turkey, and Brazil face more complex challenges, including uneven access to technologies and a lack of resources. However, they are taking steps to expand digital services, indicating potential for further development.

Azerbaijan is actively working on digitizing public services as part of its Azerbaijan's Digitalization strategy (Guliyev, 2022). The main tool for this is the portal of the State Statistics Committee of Azerbaijan (2024), which provides access to various public services online. Although 70% of services offer secure authentication through the national electronic identification (eID), less than half

(46%) are accessible to cross-border users due to issues such as language barriers and limited eID capabilities for non-residents. Furthermore, the majority of government websites (82%) still do not fully comply with the accessibility standards set by the Web Content Accessibility Guidelines 2.1 (WCAG), although mobile usability has significantly improved, with 94% of websites now optimized for mobile use (European Commission, 2020). Nevertheless, some challenges remain. According to the State Statistics Committee of Azerbaijan (ASIS) (2024), digital literacy among the population is still insufficient, especially in rural areas. 25% of the country's residents lack access to the internet, creating a digital divide.

The data analysis in Table 2 reveals significant disparities in internet access and digital literacy between countries.

Country	Internet Access Percentage	Digital Literacy Level
Azerbaijan	75%	55%
India	45%	50%
Turkey	83%	67%
China	75%	80%
South Korea	98%	90%
Brazil	70%	60%

Table 2 - Comparison of internet access levels in different countries (as of October 2023)
Source: compiled by the authors based on Statista (2023).

It is also worth noting that not all services are optimized for mobile platforms, limiting accessibility for some segments of the population. Based on the analysis of other countries, several key recommendations for Azerbaijan can be identified:

1.Increase investments in digital infrastructure. The primary focus must be on enhancing access to high-speed internet, especially in isolated and rural regions. This should entail augmenting funds and investigating public-private partnerships to accelerate the implementation of networks. A dependable and extensive internet infrastructure is crucial to guarantee that digital services are accessible to all citizens, irrespective of their location.

2.Education and digital literacy enhancement. In conjunction with infrastructure development, prioritizing digital literacy programs is essential, particularly for older persons and rural residents. Implementing educational efforts to equip individuals of all ages with the knowledge necessary to efficiently utilize e-services will empower citizens and enhance the uptake of digital public services.

3.Optimize mobile access. Elevating the functionality of digital platforms on mobile devices is a priority. The proliferation of smartphones necessitates the

optimization of e-government services for mobile platforms to enhance user engagement and satisfaction while ensuring accessibility at all times and locations.

4.Active citizen engagement. Establishing forums for input from e-service users is essential to comprehend citizens' wants and adjust services accordingly. This interaction will guarantee that digital services stay pertinent, user-centric, and effective, cultivating trust and involvement in the digital transformation process.

The analysis showed that successful digitalization of public services requires a comprehensive approach, including investment in infrastructure, citizen education, and active public engagement. The experiences of other countries demonstrate that these measures can significantly improve the quality and accessibility of e-government, which is critically important for achieving the goals of Azerbaijan's digitalization. The digital transformation of public services varies depending on economic conditions, infrastructure readiness, and the level of political support. Strategies that have been successful in some countries may serve as models for others but require adaptation to local conditions and needs. The integration of technology, improvement of digital literacy, and ensuring the accessibility of infrastructure are key factors for the successful implementation of e-government (Ruban, 2022; Zelenov, 2024).

Based on the data and project analysis, a set of measures will be developed to improve the government's position in Azerbaijan. Recommendations include expanding access to the internet, enhancing digital literacy, and optimizing internet access.

Azerbaijan's digital transformation, particularly through the Paperless Government initiative (News Agency Turan, 2024), has shown significant results in modernizing public administration. This program has introduced a digital document management system that substantially reduces the use of paper documents, accelerates processing, and enhances access to official documents, as well as increases transparency in government processes. This not only improves the quality of public services but also reduces environmental impact.

According to News Agency Turan (2024), Azerbaijan is leading the region in implementing e-government. The Paperless Government initiative is a key part of the digitalization strategy and aims to improve the accessibility of public services for citizens, enhance quality, and reduce bureaucratic procedures.

In addition to the Paperless Government initiative, the Online Azerbaijan project by the Ministry of Digital Development and Transport of the Republic of Azerbaijan (2021) is actively being implemented, which involves connecting all citizens of the country to high-speed internet by the end of 2024. By 2026, the government plans to issue digital identity cards for 1 million people and ensure

that 65% of the population has basic digital literacy. This project is key to ensuring equal access to digital services for all population groups. The implementation of the Online Azerbaijan project has already significantly improved the quality of internet services in the country, especially in rural areas, where internet access was previously limited. The project represents an important step in the digital transformation as it will provide access not only to educational and healthcare services but also improve the overall level of digital literacy among citizens.

These digital literacy programs seek to provide people with essential abilities, including basic computer usage, internet navigation, and online communication. They encompass essential online safety protocols to shield citizens from digital hazards and guarantee secure browsing, including recognizing secure websites, evading phishing attempts, and protecting personal data. Moreover, these programs emphasize instructing residents on proficiently navigating government portals, hence facilitating access to services such as tax filing, health care, and educational resources online. This holistic strategy for digital literacy will enable all people, especially those in remote regions or from older demographics, to actively participate in e-government projects.

China's digital strategy is predominantly state-directed, bolstered by the Belt and Road Initiative, and aims to integrate with global digital frameworks. Significant advances encompass Artificial Intelligence, Big Data, Smart Cities (notably Shenzhen), the Internet of Things (IoT), and e-governance in infrastructure advancement. The facilitators of China's digital transition encompass robust governmental backing, substantial infrastructural investments, and a pronounced emphasis on technology. Nonetheless, there remain impediments, including cybersecurity apprehensions and governance transparency challenges. Significant issues encompass elevated cybersecurity threats, public confidence in data protection, and openness in governance. Azerbaijan may learn from China's example by formulating strong state-driven digital strategies that prioritize infrastructure investment and global digital integration, while simultaneously tackling cybersecurity issues to foster public trust.

The digital strategy of India centers on the Digital India initiative, which seeks to enhance access to public services, especially in rural regions. Significant developments encompass the Aadhaar identification system, e-Government portals, and digital literacy initiatives. Government assistance, the distinctive biometric identification system, and an emphasis on rural participation are facilitating factors. Nonetheless, difficulties persist, including inconsistent internet connectivity in remote regions and inadequate digital literacy. The digital divide between urban and rural regions, inadequate internet access in remote locations, and limited digital literacy are substantial impediments. Azerbaijan

should heed India's lessons regarding the necessity of enhancing digital infrastructure in rural regions and investing in digital literacy initiatives to close the gap and facilitate widespread service uptake.

Turkey's digital strategy encompasses the E-Government Gateway, which facilitates access to numerous governmental services, including tax declarations, business registration, and online medical services. Government assistance for online platforms and the emphasis on enhancing service efficiency are crucial enabling elements. Nevertheless, infrastructural deficiencies in rural regions and an absence of dependable internet impede advancement. Significant problems encompass inconsistent internet connection, particularly in rural regions, and the necessity for enhanced public trust in digital services. Azerbaijan may draw insights from Turkey's experience by broadening internet accessibility and enhancing service infrastructure in rural areas to guarantee equal access, while emphasizing cybersecurity to bolster public confidence.

Brazil's digital strategy encompasses the Government Portal, which streamlines access to public services, including online platforms for commercial operations, tax submissions, and healthcare services. The plan is bolstered by political commitment and some infrastructure investments; nonetheless, obstacles arise from inconsistent internet connectivity, political instability, and inadequate digital literacy. The disparity in internet access between urban and rural regions, together with issues of governmental stability impacting digital changes, are significant obstacles. Azerbaijan may learn from Brazil by focusing on bridging the digital gap through strategic infrastructure investments, maintaining political stability, and improving digital literacy among its populace, especially in remote areas.

The South Korean Government 3.0 initiative emphasizes the extensive application of technology such as Artificial Intelligence, Blockchain, Big Data, and systems for government-citizen engagement to provide individualized services to citizens. Significant investment in digital infrastructure, public confidence in digital services, and technological leadership are facilitating factors. Cybersecurity concerns continue to be a substantial impediment, especially with data security and privacy. South Korea's primary issue is to ensure data security, consistently enhance technological infrastructure, and safeguard citizens' privacy. Azerbaijan may emulate South Korea by utilizing AI and blockchain for tailored and efficient services, emphasizing cybersecurity to uphold public confidence, and advancing digital literacy initiatives to enhance e-service uptake.

Azerbaijan's National E-Government Strategy encompasses projects such as the Paperless Government and the Online Azerbaijan project. Significant advancements encompass ASAN service centers, mobile e-government services, and digital identity. Facilitating elements encompass governmental dedication to

digital transformation, advancements in infrastructure development, and mobile optimization. Nonetheless, disparities in digital literacy, inconsistent internet connectivity in remote regions, and restricted mobile access to services present significant problems. Rural regions encounter considerable obstacles, such as inadequate digital literacy, restricted cross-border connectivity, and insufficient infrastructure for mobile platforms. Azerbaijan should prioritize the enhancement of digital infrastructure and mobile accessibility while investing in the improvement of digital literacy, especially in rural regions, to facilitate wider access to e-government services.

The examination of digital transformation across multiple nations identified some prevalent obstacles that impede the successful execution of e-government efforts. The primary difficulty facing China pertains to cybersecurity and governance transparency, which impact the growth and trust in its digital services. In India, the primary challenge is inadequate internet connectivity in rural regions, resulting in a digital divide and restricting access to e-government platforms. Turkey confronts obstacles stemming from inadequate digital infrastructure in rural areas, hindering access to digital services for numerous residents. Brazil faces challenges due to inadequate digital literacy and unequal internet accessibility, especially in isolated regions. Despite South Korea's significant accomplishments in digital transformation, it continues to confront the need to ensure cybersecurity to safeguard citizen data and uphold confidence. In Azerbaijan, inadequate broadband internet coverage in rural areas constitutes a substantial obstacle to the widespread adoption of digital services. These findings underscore the essential factors that nations must tackle to effectively execute and enhance digital government efforts.

Although digital transformation has considerable advantages, like improved efficiency, transparency, and service accessibility, it is crucial to recognize the possible adverse effects that may occur. A significant problem is digital exclusion, wherein vulnerable populations, such as the elderly, residents of rural areas, or persons with limited computer literacy, risk being marginalized during the digital transition. To address this, governments may allocate resources to digital literacy initiatives aimed at these demographics and offer affordable or subsidized internet access to ensure equal engagement. Furthermore, providing alternate non-digital access locations for key services can mitigate the risk of exclusion.

Furthermore, the extensive use of digital platforms generates apprehensions regarding the degradation of privacy. The accumulation and handling of extensive personal data may result in the inadvertent or intentional exploitation of individuals' information, posing threats of monitoring and diminishing autonomy. To address this, governments must prioritize the

enactment of robust data privacy legislation and establish policies that guarantee transparency in data collection and utilization. Moreover, informing consumers about online privacy and data security measures might assist them in safeguarding their personal information.

The swift development of digital services presents considerable cybersecurity threats, as public sector platforms emerge as primary targets for cyberattacks, data breaches, and hacking (Gazybekova et al., 2024). While fostering trust in digital systems is essential, it is equally imperative to allocate resources towards comprehensive cybersecurity frameworks, routine audits, and the education of government personnel in optimal digital security practices. Enhancing national and international partnerships in cybersecurity can create a more secure environment for users of digital services.

Digital transformations can significantly affect marginalized groups, including rural communities, the elderly, and individuals with impairments (Chyrun et al., 2019; Danchenko et al., 2020). In remote communities, insufficient internet connectivity and infrastructure might establish a digital gap, hindering their full use of e-government services. Likewise, elderly folks and those with impairments may encounter difficulties in utilizing digital platforms due to insufficient computer literacy or inadequate accessible features. Mitigating these discrepancies by focused digital literacy initiatives, inclusive design, and enhanced infrastructure is essential to prevent digital transformation from worsening existing inequities.

Azerbaijan's foremost objective in digital transformation must be the improvement of its digital infrastructure, including the expansion of high-speed internet access to rural regions, where connectivity is still inadequate. This step is essential because, without dependable and extensive internet connectivity, other facets of digitalization, such as e-government services and digital literacy initiatives, cannot be fully actualized. The nation must prioritize the establishment of resilient digital infrastructure via public-private partnerships and investment in rural connections to provide equitable access to services throughout all regions. Enhancing digital literacy, increasing cybersecurity, and adapting services for varied user groups are significant (Abdullayev et al., 2024). Yet, these objectives can only be properly realized once the underlying infrastructure is established. By prioritizing infrastructure as the foundation, Azerbaijan can establish a robust framework for subsequent digital efforts, facilitating the population's engagement with and access to digital services more effectively.

DISCUSSION

The research demonstrates the progress of digitalization of public services in Azerbaijan, particularly in improving citizens' access to electronic services.

However, it highlights the shortage of developed infrastructure and the limited implementation of advanced technologies. For example, there remain significant barriers to full digital transformation due to a lack of investment in digital infrastructure and insufficient broadband internet coverage in rural areas. Andita et al. (2022) noted that successful digitalization requires a sustainable technological base and active implementation of innovations such as artificial intelligence and automated systems. In countries like South Korea, where digital infrastructure is well-developed, the transition to digital services has been more effective. In contrast, Azerbaijan is witnessing gradual development, with a focus on the basic aspects of digitalization, limiting the potential for broader application of innovative solutions.

Additionally, the analysis revealed that political will plays a crucial role in advancing digital transformations. This aligns with the findings of Andita et al. (2022), who emphasized that sustainable digital transformation requires not only a technical foundation but also government support, including legislative initiatives that stimulate digitalization. In countries such as China, state support and significant investments in infrastructure have made the swift and successful implementation of digital technologies in public administration possible. For example, the research by Zhang et al. (2024) confirms that in countries with strong state support, the transition to digital solutions occurs more rapidly and effectively.

Another key aspect identified in the research is digital literacy among the population. In Azerbaijan, the low level of digital skills among certain population groups remains a significant barrier to the adoption and widespread use of electronic public services. This issue is particularly relevant for older age groups and rural residents, who have limited access to education and information. Similar challenges are highlighted in the study by Sodhi and Jha (2020) in India, which underscores the importance of educational initiatives aimed at developing digital skills among the population. Their research shows that educational programs for adults and youth play a crucial role in improving the accessibility and usage of digital public services.

Another key finding of the research was the aspect of cybersecurity, which is essential for the successful digital transformation of public administration. Azerbaijan faces challenges in ensuring the security of users' data, which often causes citizens to be hesitant in using electronic public services. In comparison to the situation in EU countries, it is evident that a high level of data protection promotes greater trust among citizens in digital services. They highlight that in the EU, particular attention is paid to data protection, which has contributed to a significant increase in public trust in online services. For Azerbaijan, it would be beneficial to study the EU's approach to cybersecurity and integrate appropriate

data protection measures at the national level. This would not only strengthen public trust in electronic public services but also expand their usage, marking an important step towards full digital transformation.

The research also addressed the issue of unequal access to the internet and the lack of infrastructure in rural areas. Unlike cities, rural regions in Azerbaijan have limited access to the internet. Similar conclusions are made in the study by Şen (2021), which focused on rural areas in India and Brazil, where the uneven distribution of internet resources leads to digital inequality. The author emphasizes that limited internet access in rural regions becomes a serious barrier to digitalization, which can be overcome through investments in the development of internet infrastructure.

The research also revealed the need to adapt electronic public services for use by various population groups. This is particularly relevant for users with disabilities and elderly citizens, who may struggle with modern technology. Poufinas et al. (2023) note that in countries with well-developed digital public service systems, significant attention is paid to adapting platforms for different categories of citizens. Their research shows that adapting interfaces and providing user support for elderly and mobility-impaired citizens helps to improve user satisfaction and strengthen trust in public services.

Moreover, intergovernmental exchange of experiences and participation in international digital initiatives can play a key role in the digital transformation of public services in Azerbaijan. In countries actively involved in international organizations and digital initiatives, such as the EU or the Asia-Pacific Economic Cooperation (APEC), digitalization progresses much faster and more efficiently due to the transfer of successful experiences, technologies, and methods. According to L. Su (2024), attracting international expertise allows states to adapt more quickly to modern standards and avoid common mistakes when implementing digital solutions. Azerbaijan could greatly benefit from participating in international projects dedicated to the digitalization of public services, involving leading experts in the field to develop national programs.

Azerbaijan is actively developing reconstruction projects in post-conflict regions, where digitalization plays a key role. One example is the initiative to create "smart" settlements designed to support the return of internally displaced persons (IDPs) and improve their quality of life. These smart settlements incorporate modern technologies, such as digital monitoring and resource management systems, to ensure sustainable development and comfortable living conditions for residents. These projects are being carried out with the support of leading international companies, including Huawei, which make a significant contribution to the modernization of digital infrastructure and improving connectivity. Collaboration with such partners allows Azerbaijan to implement

cutting-edge sustainable technologies, which not only aid in the recovery of the economy and social infrastructure but also lay the foundation for further digital growth in the country (Guliyev, 2022). This approach also contributes to integrating post-conflict regions into the national digital network, ensuring equal access to digital services for all citizens, including IDPs.

The digitalization of public services in Azerbaijan has significant potential for development but requires a comprehensive approach, including improving infrastructure, enhancing the population's digital literacy, ensuring cybersecurity, and adapting digital solutions for different user groups. Azerbaijan can learn from the experiences of countries that have successfully implemented digital technologies and adapt their best practices to its own realities.

CONCLUSIONS

The level of development of e-government in Azerbaijan, while progressing actively, remains below that of the EU countries and South Korea. In these countries, citizens have access to a wide range of electronic services, including automated platforms, artificial intelligence, and blockchain, which significantly reduce bureaucracy and increase transparency. Countries with large developing economies, such as India, China, Turkey, and Brazil, face various challenges in the digital transformation process. In these countries, digitalization is uneven, which is linked to the uneven development of infrastructure, low levels of digital literacy, and limited internet access in rural areas.

One of the main conditions for the success of digital transformation is the level of digital literacy among the population. Countries that actively develop programs to teach citizens how to use digital services, such as South Korea and EU countries, show better results in the implementation of e-government. In contrast, in countries with low levels of digital literacy, such as Brazil and India, digital platforms are insufficiently effective due to low usage rates among the population.

Cybersecurity and trust in digital services are also critical factors for the successful implementation of e-government. Without ensuring personal data security and protection against cyberattacks, citizens' trust in digital platforms decreases, leading to limited usage. Countries with a high level of cybersecurity, such as those in the EU, lead in digital transformation thanks to increased public trust. The experience of South Korea in applying advanced technologies such as blockchain and artificial intelligence can be useful for other countries but requires adaptation based on their capabilities and needs.

Azerbaijan is actively advancing its digital transformation aimed at improving environmental sustainability and increasing governance efficiency. One of the central initiatives is the Paperless Government initiative, which

includes a digital document management system. This system reduces data exchange between government agencies to less than seven days and increases data accuracy to 90%. The transition to digital documents helps save thousands of trees annually, contributing to sustainable development goals and reducing the carbon footprint.

Other initiatives include the Online Azerbaijan project by the Ministry of Digital Development and Transport of the Republic of Azerbaijan, which aims to provide all citizens with high-speed internet access by the end of 2024. Additionally, by 2026, the government plans to issue digital identity cards to 1 million people and ensure 65% of the population has basic digital literacy. The government also intends to expand digital services, offering nearly 500 online services through its national e-government platform. The country's strategy incorporates lessons from global leaders in digital governance and aims to position Azerbaijan as a regional digital leader. For successful digital transformations in Azerbaijan, it is recommended to strengthen digital education programs, improve cybersecurity levels, and enhance internet accessibility for the population.

The limitations of the conducted study were that it was based solely on secondary data and did not involve citizens and government agencies, which limits the completeness of the picture. Also, the study did not develop an evaluation model for the effectiveness of digitalization, which could take into account the individual characteristics of each country and region, limiting the accuracy of conclusions. To gain a more accurate understanding of the digitalization processes in public services across countries, it is important to include primary data, such as survey results and interviews with citizens and government officials, to identify real barriers and actions.

REFERENCES

2023 OECD Digital Government Index: Results and Key Findings. (2024). https://doi.org/10.1787/1a89ed5e-en

Abdullayev, K., Abdullayev, R., Yusifov, E., Babazade, I., & Fataliyeva, G. (2024). Main areas of development of the digital economy in the Republic of Azerbaijan. *Economics of Development*, *23*(1), 78-88. https://doi.org/10.57111/econ/1.2024.78

Al-sayed, A., Al-shammari, F., Alshutayri, A., Aljojo, N., Aldhahri, E., & Abouola, O. (2022). The smart city-line in Saudi Arabia: Issue and challenges. *Postmodern Openings*, *13*(1), 15-37. https://doi.org/10.18662/po/13.1Sup1/412

Amin, S.F., Saad, A.B., & Lajis, A. (2022). Technology acceptance factors for implementing the e-government systems in Saudi Arabia. *Advances in Internet of Things*, *12*(4), 125-141. https://doi.org/10.4236/ait.2022.124008

Andita, C., Ardelia, F., Junaidi, D.R., Rahman, M.F., & Mawar, M. (2022). Comparison of e-government implementation between Japan and South Korea. *Sarah Opat: Journal of Public Administration*, *4*(2), 84-93. http://doi.org/10.55542/saraqopat.v4i2.250

Atamanyuk, I.P., & Kondratenko, Y.P. (2015). Computer's analysis method and reliability assessment of fault-tolerance operation of information systems. *Ceur Workshop Proceedings, 1356*, 507-522. https://ceur-ws.org/Vol-1356/paper_52.pdf

Azieva, G., Kerimkhulle, S., Turusbekova, U., Alimagambetova, A., & Niyazbekova, S. (2021). Analysis of access to the electricity transmission network using information technologies in some countries. *E3S Web of Conferences, 258*, 11003. https://doi.org/10.1051/e3sconf/202125811003

Bacalum, S., David, S., & Mihu, M. (2022). Digital transformation of public administration – A comparative analysis at European Union countries. *Annals of "Dunarea De Jos" University of Galati Fascicle I: Economics and Applied Informatics, 28*(2), 121-127. https://doi.org/10.35219/eai15840409276

Chen, P., & Hao, Y. (2022). Digital transformation and corporate environmental performance: The moderating role of board characteristics. *Corporate Social Responsibility and Environmental Management*, *29*(5), 1757-1767. https://doi.org/10.1002/csr.2324

Chung, C.-S. (2020). *Developing digital governance: South Korea as a global digital government leader.* London: Routledge. https://doi.org/10.4324/9780429054426

Chung, C.-S., Choi, H., & Cho, Y. (2022). Analysis of digital governance transition in South Korea: Focusing on the leadership of the president for government innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, *8*(1), 2. https://doi.org/10.3390/joitmc8010002

Chyrun, L., Gozhyj, A., Yevseyeva, I., Dosyn, D., Tyhonov, V., & Zakharchuk, M. (2019). Web content monitoring system development. *CEUR Workshop Proceedings, 2362*, 1-17. https://ceur-ws.org/Vol-2362/paper12.pdf

Danchenko, O., Lanskykh, Ye., & Semko, A. (2020). Information risks of the digital format. *Bulletin of Cherkasy State Technological University, 25*(3), 58-66. https://doi.org/10.24025/2306-4412.3.2020.200792

Destek, M.A., Hossain, M.R., Manga, M., & Destek, G. (2024). Can digital government reduce the resource dependency? Evidence from method of moments quantile technique. *Resources Policy, 99*, 105426. https://doi.org/10.1016/j.resourpol.2024.105426

Domashenko, S. (2024). Prospects for the use of artificial intelligence in the legislative process of Ukraine. *Democratic Governance, 17*(2), 58-66. https://doi.org/10.56318/dg/2.2024.58

Dovzhuk, I. (2022). Digital inequality in the information society. *Society. Document. Communication, 7*(1), 233-252. https://doi.org/10.31470/2518-7600-2022-14-233-252

Dwivedi, S.K., & Bharti, A.K. (2010). E-governance in India – Problems and acceptability. *Journal of Theoretical and Applied Information Technology*, *17*(1), 37-43.

European Commission. (2020). E-government benchmark 2020: E-government that works for people. https://digital-strategy.ec.europa.eu/en/library/egovernment-benchmark-2020-egovernment-works-people

Falk, S., Römmele, A., & Silverman, M. (2017). *Digital government: Leveraging innovation to improve public sector performance and outcomes for citizens.* Cham: Springer. https://doi.org/10.1007/978-3-319-38795-6

Fountain, J.E. (2001). *Building the virtual state: Information technology and institutional change.* Washington: Brookings Institution Press.

Gazybekova, A., Mazitov, R., Arym, Z., Atamkulova, E., & Omorova, G. (2024). Current challenges of state and other registration of civil law contracts in the context of reforms and digitalisation. *Social and Legal Studios*, *7*(2), 75-85. https://doi.org/10.32518/sals2.2024.75

Government of Brazil Official Portal. (2024). Service centre. https://www.gov.br/en/categories

Guliyev, V. (2022). Azerbaijan's digitalization efforts, revitalization of the liberated territories, and role of China's Huawei. *Caucasus Strategic Perspectives*, *3*(1), 117-132.

Haryanti, T., Rakhmawati, N.A., & Subriadi, A.P. (2023). A comparative analysis review of digital transformation stage in developing countries. *Journal of Industrial Engineering and Management*, *16*(1), 150-167. https://doi.org/10.3926/jiem.4576

Huseynzadeh, J. (2024). Azerbaijan has achieved a historical indicator in the prestigious international ranking. https://tech.az/en/posts/azerbaijan-has-achieved-a-historical-indicator-in-the-prestigious-international-ranking-4226

Isazade, E. (2023). Heydar Aliyev's e-government reforms: The concept of "Electronic Azerbaijan" and achievements in human resource management. *European Journal of Humanities and Social Sciences*, *2*, 34-38. https://doi.org/10.29013/EJHSS-23-2-34-38

Issayeva, A., Niyazbekova, S., Semenov, A., Kerimkhulle, S., & Sayimova, M. (2024). Digital technologies and the integration of a green economy: legal peculiarities and electronic transactions. *Reliability Theory and Applications, 19*(6), 1088-1096. https://doi.org/10.24412/1932-2321-2024-681-1088-1096

Khan, M.W., Destek, M.A., & Khan, Z. (2025). Income Inequality and Artificial Intelligence: Globalization and age dependency for developed countries. *Social Indicators Research, 176*(3), 1207-1233. https://doi.org/10.1007/s11205-024-03493-7

Kurfalı, M., Arifoğlu, A., Tokdemir, G., & Paçin, Y. (2017). Adoption of e-government services in Turkey. *Computers in Human Behavior*, *66*, 168-178. https://doi.org/10.1016/j.chb.2016.09.041

Lapp, T. (2024). Secure European electronic identities – eIDAS 2.0. *Data Protection and Data Security*, 48(4), 213-216. https://doi.org/10.1007/s11623-024-1911-4

Lappi, T.M., Aaltonen, K., & Kujala, J. (2019). The birth of an ICT project alliance. *International Journal of Managing Projects in Business*, *12*(2), 325-355. https://doi.org/10.1108/IJMPB-02-2018-0036

Mehta, R.S. (2023). China's techno-politics: Impact on belt and road initiative partners. *India Quarterly*, *79*(3), 336-355. https://doi.org/10.1177/09749284231183321

Ministry of Digital Development and Transport of the Republic of Azerbaijan. 2021. Online Azerbaijan project. https://mincom.gov.az/en/projects/online-azerbaijan-project

Mountasser, T., & Abdellatif, M. (2023). Digital transformation in public administration: A systematic literature review. *International Journal of Professional Business Review*, *8*(10), e02372. https://doi.org/10.26668/businessreview/2023.v8i10.2372

News Agency Turan. (2024). Azerbaijan embarks on digital transformation with "Paperless Government" initiative. https://turan.az/en/economics/azerbaijan-embarks-on-digital-transformation-with-paperless-government-initiative-784273

Phuangthuean, P., Nuansang, J. (2024). Transforming public administration: The role of AI in shaping the future. *Journal of Social Science and Multidisciplinary Research*, *1*(3), 21-41.

Poufinas, T., Laskareli, A. & Agiropoulos, C. (2023). Decreasing corruption and increasing competitiveness through e-government. *Theoretical Economics Letters*, *13*(2), 310-331. https://doi.org/10.4236/tel.2023.132020

Rocha, J.A.O., & Zavale, G.J.B. (2021). Innovation and change in public administration. *Open Journal of Social Sciences*, *9*(6), 285-297. https://doi.org/10.4236/jss.2021.96021

Ronzhes, O. (2023). Digital applications as tools for psychological adaptation of citizens to changes. *Scientific Studios on Social and Political Psychology, 29*(2), 14-25. https://doi.org/10.61727/sssppj/2.2023.14

Ronzhyn, A., & Wimmer, M.A. (2022). Government 3.0: Scenarios and roadmap of research. In: Y. Charalabidis, L.S. Flak, G.V. Pereira (Eds.), *Scientific Foundations of Digital Governance and Transformation: Concepts, Approaches and Challenges* (pp. 335-360). Cham: Springer. http://doi.org/10.1007/978-3-030-92945-9_13

Ruban, A.O. (2022). Development of information-communication technologies in the format of informational conflicts. *Scientia et Societus, 1*(2), 78-84. https://doi.org/10.31470/2786-6327/2022/2/78-84

Sabri, A., Sabri, O., Al-Shargabi, B. (2012). A cultural e-government readiness model. *Intelligent Information Management*, *4*(5), 212-216. http://doi.org/10.4236/iim.2012.45031

Santos, M.R., da Costa Figueiredo, R.M., & Forte Gomes, M.M. (2023). Evolution of perspectives on government digitalization in Brazil from 2000 to 2023. *REVES – Social Relations Journal*, *6*(4), 17777. https://doi.org/10.18540/revesvl6iss4pp17777

Sarai, L., Zockun, C.Z., & Cabral, F.G. (2023). Public administration and innovation: E-government in the international perspective. *Beijing Law Review*, *14*(3), 1352-1371. https://doi.org/10.4236/blr.2023.143074

Şen, A.F. (2021). New challenges in the age of "Industry 4.0": Digital rhetoric of the government and news media. *Advances in Applied Sociology*, *11*(12), 659-668. https://doi.org/10.4236/aasoci.2021.1112055

Shynkar, T., & Levchenko, T. (2025). Linguistic and social aspects of internet discourse: Challenges and prospects. *Society. Document. Communication, 10*(1), 22-31. https://doi.org/10.69587/sdc/1.2025.22

Singh, A. (2023). E-governance: Moving towards digital governance. *VIDYA – A Journal of Gujarat University*, *2*(1), 204-215. https://doi.org/10.47413/vidya.v2i1.173

Smailov, N., Uralova, F., Kadyrova, R., Magazov, R., & Sabibolda, A. (2025). Optimization of machine learning methods for de-anonymization in social networks. *Informatyka Automatyka Pomiary W Gospodarce I*

Ochronie Srodowiska, 15(1), 101-104. https://doi.org/10.35784/iapgos.7098

SmartCitiesWorld City Profile – Shenzhen. (2022). https://www.smartcitiesworld.net/city-profile/smart-cities-reports/smartcitiesworld-city-profile-shenzhen-8187

Sodhi, I.S., Jha, A. (2020). E-government in developing countries – Experiences from India. *Journal of the Social Sciences*, *48*(3), 1433-1445.

Solaru, O.E., Buraimo, K.H., & Lawal, A.O. (2023). E-governance and public administration in Nigeria: The pros and cons. In: *1st International of School of Management and Business Studies and School of Financial Studies Conference* (pp. 225-239). https://www.researchgate.net/publication/376410391

State Statistics Committee of Azerbaijan. (2024). Statistical publications. https://www.stat.gov.az/menu/6/?lang=en

Statista. 2023. Number of internet users in selected countries in 2023 (in millions). https://www.statista.com/statistics/271411/number-of-internet-users-in-selected-countries/

Su, L. (2024). Research on the current situation and problems of digital economy trade between China and ASEAN countries. *Open Journal of Business and Management*, *12*(1), 148-157. https://doi.org/10.4236/ojbm.2024.121010

Undi-Phiri, B., & Phiri, J. (2022). Assessing factors affecting the adoption of e-government services in developing countries for transport sector, amidst the Covid-19 pandemic. *Communications and Network*, *14*(2), 69-90. https://doi.org/10.4236/cn.2022.142006

United Nations E-Government Survey: The Future of Digital Government. (2022). https://doi.org/10.18356/9789210019446

Wang, S., & Zhu, Y. (2024). An inquiry into the effect of trade facilitation on China's digital product exports to countries along the "Belt and Road". *International Review of Economics and Finance*, *93*(2), 1246-1259. https://doi.org/10.1016/j.iref.2024.04.041

Zelenov, D. (2024). Psychological mechanisms of influence of disinformation and fake news on the formation of public opinion on Ukrainian European integration: Analysis of Russian propaganda. *Scientific Studios on Social and Political Psychology, 30*(2), 25-35. https://doi.org/10.61727/ssppj/2.2024.25

Zhang, X., Chen, B., Yan, B., Liu, Y., & Wu, L. (2024). Critical constraints on high performance of provincial E-governments in China: A necessary condition analysis. *Government Information Quarterly, 41*(3), 101959. https://doi.org/10.1016/j.giq.2024.101959

Zhao, H., Ahn, M.J., & Manoharan, A.P. (2021). E-government, corruption reduction, and the role of culture: A study based on panel data of 57 countries. *International Journal of E-Planning Research*, *10*(3), 86-104. https://doi.org/10.4018/IJEPR.20210701.oa6

Zinchenko, I., & Lavdanska, O. (2022). Modern technologies for evaluating the effectiveness of digitalization. *Bulletin of Cherkasy State Technological University, 27*(2), 34-42. https://doi.org/10.24025/2306-4412.2.2022.263563

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