

REVIEW

## Implementation of Automation Mechanisms in Public Administration in Ukraine: Analysis of Challenges and Prospects

## Implantación de Mecanismos de Automatización en la Administración Pública de Ucrania: Análisis de retos y perspectivas

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### ABSTRACT

**Introduction:** this study evaluated the adoption of automation technologies within Ukraine's public administration, focusing on their effectiveness and identifying key challenges and opportunities for future development.

**Method:** the research employed an in-depth literature review, analysis of the existing regulatory framework, statistical assessments, and empirical investigations. A comparative analysis used international examples from Estonia, Singapore, and South Korea to identify best practices applicable to the Ukrainian context.

**Results:** the results indicate that automation technologies significantly improve administrative efficiency. However, key challenges still need to be addressed, including gaps in the legal and regulatory frameworks and inadequate personnel training.

**Conclusions:** the study concludes with recommendations for enhancing automation in Ukraine's public administration, drawing on international experiences while considering national specifics. A comprehensive digital integration across all levels of public administration is essential for ensuring effective and transparent governance.

**Keywords:** Process Automation; Public Administration; Digitalisation Challenges; Development Prospects.

### RESUMEN

**Introducción:** este estudio evaluó la adopción de tecnologías de automatización en la administración pública de Ucrania, centrándose en su eficacia e identificando los principales retos y oportunidades para el desarrollo futuro.

**Método:** la investigación empleó una revisión bibliográfica en profundidad, un análisis del marco normativo existente, evaluaciones estadísticas e investigaciones empíricas. Un análisis comparativo utilizó ejemplos internacionales de Estonia, Singapur y Corea del Sur para identificar las mejores prácticas aplicables al contexto ucraniano.

**Resultados:** los resultados indican que las tecnologías de automatización mejoran significativamente la eficiencia administrativa. Sin embargo, aún deben abordarse retos clave, como las lagunas en los marcos jurídico y normativo y la formación inadecuada del personal.

**Conclusiones:** el estudio concluye con recomendaciones para mejorar la automatización en la administración pública de Ucrania, basándose en experiencias internacionales y teniendo en cuenta al mismo tiempo las especificidades nacionales. Una integración digital completa en todos los niveles de la administración pública

es esencial para garantizar una gobernanza eficaz y transparente.

**Palabras clave:** Automatización de Procesos; Administración Pública; Retos de la Digitalización; Perspectivas de Desarrollo.

## INTRODUCTION

In today's world, which is rapidly changing under the influence of technological progress, digital transformation is becoming a determining factor for developing society, economy and public administration. This process is essential for countries at the stage of reforms and modernization, such as Ukraine. In the context of globalization and increasing requirements for transparency, efficiency and accessibility of public services, automation is becoming an integral part of public administration.

As a state that seeks to integrate into the global community and increase competitiveness, Ukraine is actively implementing digital technologies in management processes. The transition to automation contributes to optimizing the activities of state institutions, reducing bureaucratic barriers, and strengthening anti-corruption measures. However, this process is manageable: it is accompanied by numerous challenges that need to be considered to achieve the desired results.

Among the fundamental problems that Ukraine faces on this path, one can highlight the need to update the legislative framework, which must meet modern technological realities. Another critical aspect is ensuring cybersecurity, as any failure or data leak can jeopardize not only the functioning of individual systems but also the general trust of citizens in state institutions. Social challenges cannot be ignored, particularly the need to retrain personnel and adapt the workforce to trust conditions addressed.

At the same time, automation opens up broad prospects for improving regional development, increasing resource management efficiency, and ensuring citizens' equal access to public services. An analysis of these challenges and prospects is necessary to formulate strategies that will allow realizing the potential of digital technologies for the benefit of society. The successful implementation of automation mechanisms can not only transform public administration but also become the basis for the sustainable and balanced development of Ukraine in the digital era.

## Research Focus

This study aimed to conduct a detailed analysis of the challenges and opportunities related to implementing automation mechanisms in public administration in Ukraine. The research explored how automation can improve the efficiency of management processes, enhance transparency, mitigate corruption risks, and strengthen the interaction between the state and its citizens. The study tested the following hypotheses:

1. The introduction of automation mechanisms in Ukraine's public administration will significantly enhance the efficiency of administrative processes and reduce corruption risks.
2. The primary barriers to implementing automation in Ukraine's public administration are an insufficient regulatory framework and inadequate training of personnel in using advanced technologies.

These hypotheses provided the foundation for further analysis, helping to identify the key factors that influence the success of automation processes in Ukraine's public sector.

## Research Aim

The aim of this study was to analyse the challenges and opportunities associated with implementing automation mechanisms in public administration in Ukraine.

## Research Questions

To achieve this aim, the following objectives were established:

- To assess the current state of implementation of automation technologies in Ukraine's public administration.
- To analyse the main challenges and barriers encountered during the implementation of automation mechanisms.
- To identify the prospects and potential directions for the development of automation in the public sector, considering international experience.

## Literature review

The scientific literature identifies several critical research areas related to the automation of public administration. The first area focuses on the technical aspects of automation, such as developing and

implementing information systems, electronic government platforms, and digital services. The research also analyzes technical solutions and tools that enhance the efficiency of public service delivery.<sup>(1,2)</sup>

The second area of research focuses on the legal aspects of automation. In this context, various studies<sup>(3)</sup> examine the legal acts that regulate the digitalization of public administration, data protection, cyber security, and human rights.

The third area covers the socio-economic aspects of automation, including the impact of digital technologies on employment, social equality, and economic development. Researchers have made notable contributions,<sup>(4,5)</sup> exploring the impact of automation on various population groups and examining the potential risks and benefits of implementing such technologies in the public sector.

Researchers identify several key trends within these areas. First, there is a growing interest in the development and implementation of integrated digital platforms that allow combining various public services into a single system. Orlova N.S. and Majlo V.V.<sup>(6)</sup> contributed to the understanding of how such platforms can increase citizens' convenience in using services and reduce the administrative burden on government agencies.

Secondly, there is a growing emphasis on cybersecurity within the public administration sector. In this context, research<sup>(7)</sup> explores methods for safeguarding information and data stored and processed in public information systems. This work underscores the importance of establishing a regulatory framework to protect against cyber threats effectively.

Third, studies analyzing the social impact of automation on public administration are becoming increasingly important. Studies<sup>(6)</sup> examine the accessibility of digital services for various population groups, emphasizing the importance of providing equal opportunities and addressing the digital divide between different social and regional groups.

Scholars use a variety of approaches to study public administration automation. One is a systemic approach that considers the automation process part of a broader system of the state's digital transformation. Orlova N.S. and Mokhova Y.L.<sup>(8)</sup> actively developed this approach, taking into account the interaction between technical, legal, social, and economic aspects of automation.

Another approach is to use comparative analysis. Beglytsia V. et.al.<sup>(9)</sup> compare the experience of different countries in the field of public administration automation, which allows them to identify best practices and possible ways to adapt them to national conditions.

Many researchers also use an empirical approach, which involves analyzing specific cases and automation projects that have already been implemented or are in the process of implementation. Research has shown that this allows identifying the factors of success or failure of automation initiatives in different contexts.<sup>(10)</sup>

The literature review in this article reveals a substantial body of research on implementing automation mechanisms in public administration. However, despite the abundance of studies, certain aspects still need to be explored or have been largely overlooked by scholars. One of the most significant gaps is the need for more attention to analyze the practical implementation of automation in the Ukrainian legal and institutional reality context. Although many studies examine the general aspects of public administration automation, the issue of adapting these mechanisms to the specifics of Ukrainian realities requires additional study. In particular, there needs to be more research that analyses specific examples of successful or unsuccessful attempts at automation at different levels of public administration in Ukraine, including a detailed analysis of the reasons for these results.

The literature review conducted in this article has highlighted many studies concerning implementing automation mechanisms in public administration. However, despite many works, certain aspects still need to be researched or completely ignored by scholars.

One of the most significant gaps is the need for more attention to analyzing the practical implementation of automation in the context of Ukrainian legal and institutional reality. While numerous studies explore the general aspects of automating public administration, further research is needed to tailor these mechanisms to the unique context of Ukrainian realities. More research needs to be conducted that analyses specific examples of successful or unsuccessful attempts at automation at different levels of public administration in Ukraine, including a detailed analysis of the reasons for these results.

## METHOD

This study used a comprehensive approach that combined several methodological tools that contributed to an in-depth analysis of the implementation of automation mechanisms in public administration in Ukraine.

This method included a systematic review of scientific papers, articles, analytical reports, as well as legislative acts related to automation in the public sector. Particular attention was paid to theoretical concepts and approaches to automation, which formed the basis for identifying existing problems and gaps in research. Thanks to this analysis, it was possible to establish how the topic of automation in public administration has developed and to identify the main areas that require further study.

A comparative analysis was conducted to better understand the challenges and opportunities of automation

in the Ukrainian context. This method made it possible to assess the experience of other countries that have successfully implemented automation mechanisms in public administration. The analysis included a study of strategies, technologies, and practices that were used in these countries. The comparison allowed us to identify best practices and assess their potential adaptation to the national conditions of Ukraine, taking into account the peculiarities of the legal, economic and social environment.

This method focused on the analysis of specific examples of the implementation of automation projects in Ukraine. Both successful and unsuccessful cases were considered, which allowed us to identify key success factors or reasons for failures. For example, the analysis of projects for the digitalization of public services or the introduction of electronic document management in individual state bodies provided a practical idea of the real challenges that Ukraine faces in this process. This included aspects such as financing, change management, technical infrastructure and personnel qualifications.

The combination of these methods allowed us to provide a comprehensive analysis of the topic under study, taking into account both theoretical and practical aspects of the implementation of automation in the public administration of Ukraine. This approach contributed not only to the identification of the main challenges, but also to the outline of prospects for further development.

## RESULTS

Automation in the context of public administration is defined as the process of replacing manual, routine operations with technological solutions, thereby optimising, simplifying, and accelerating the performance of management functions. Specifically, this involves the introduction of various information systems, software applications, and the use of artificial intelligence, along with other modern technologies, to enhance the efficiency of government agencies. Moreover, the successful implementation of automation necessitates a comprehensive understanding of the foundational principles underlying this process, in addition to a strategic definition of its objectives (table 1). These components encompass not only the technical aspects but also the cultural and institutional readiness of the state to embrace change.

**Table 1.** Principles and goals of automation in the public sector <sup>(3,7,9,11,12,13,14,15,16,17)</sup>

Principles	Objectives
The principle of citizen-centeredness means that all processes and services should be designed to be as convenient, accessible, and transparent as possible for users. For example, introducing electronic government services should reduce bureaucratic obstacles and speed up citizens' interactions with government agencies.	The principle of efficiency and resource saving is fundamental to improving government operations. Specifically, the introduction of automated systems minimizes the time and financial resources expended on routine tasks, thereby significantly enhancing the overall efficiency of government agencies. For instance, automated document management systems diminish the reliance on physical paperwork, accelerate information processing, and mitigate the risk of human error.
The principle of transparency and accountability implies openness of data, access to public information, and citizens' ability to control the activities of the authorities. Successful implementation of this principle helps fight corruption and increases the accountability of public institutions.	The introduction of electronic information management systems ensures transparency and accountability by enabling citizens to control state actions, monitor public fund usage, and participate in decision-making. Consequently, this approach strengthens democratic institutions and fosters greater trust in the state.
The principle of citizen-centeredness implies that all processes and services must be designed to maximize convenience, accessibility, and transparency for users. Specifically, the implementation of electronic government services aims to minimize bureaucratic barriers and expedite citizen interactions with government institutions.	Facilitating the state's digital transformation - automation is an integral part of the digital transformation process, which involves transitioning from traditional to digital forms of service delivery and information management. The goal is to create an integrated digital ecosystem where all public services are available online, and government agencies effectively use data to make decisions.
The principle of inclusiveness means that automation should consider the needs of different social groups, including people with disabilities, the elderly, and residents of rural areas.	Enhancing the interaction between the state, citizens, and businesses involves developing user-friendly platforms that facilitate citizen engagement with government agencies, streamline procedures for accessing public services, and foster a business-friendly environment. Effective automation minimizes administrative hurdles, positively influencing economic growth and driving innovation.
The principle of security requires the implementation of modern security measures and the regular updating of security protocols.	Promoting sustainable development and innovation requires harnessing automation to unlock new avenues for progress while fostering societal sustainability. This approach includes using advanced technologies to protect the environment, reduce resource consumption, and enhance the efficiency of managing public assets.

Thus, automation in the public sector is not a goal, but a tool for achieving deeper changes aimed at building an efficient, transparent, and accountable state that is able to respond quickly to the challenges of the times and ensure a high standard of living for its citizens.

At the same time, automation of public administration is a global trend that reflects the desire of government agencies to increase the efficiency of their operations and improve the quality of services provided to citizens. Successful examples of automation implementation around the world allow identifying the key factors that contribute to the success of these initiatives, as well as to identify the challenges that states face on the way to digital transformation. Estonia, Singapore, and South Korea were chosen for the analysis for several important reasons. These countries are recognised leaders in digital innovation and e-government, and their experience can provide valuable lessons for Ukraine. The key elements of the three countries' public administration automation models. Estonia is often cited as a leading example of successful public administration automation. Starting in the 2000s, the country implemented an e-government system that gave citizens access to a wide range of public services via the Internet. The analysis of the Estonian experience shows that the success of automation largely depends on investments in digital infrastructure, the development of clear and accessible tools for citizens, and the political will to implement reforms. However, it is essential to note that such innovations require high public trust and proper personal data protection.

Singapore is another successful example of public administration automation. The country has long been known for its technological innovations and effective governance model based on integrating the public and private sectors into the digital environment. An examination of Singapore's experience reveals that a crucial factor for success lies in integrating diverse elements of digital governance into a unified system encompassing all facets of public life. This approach fosters efficiency and establishes a foundation for future development and innovation.

South Korea is also a prime example of a country actively implementing automation in public administration. In particular, the country is known for its approach to ensuring cyber security in digitalizing public services. South Korea's experience shows that successful automation of public administration is only possible with proper data protection and a balance between technological innovation and security. This is especially true today, where cyber threats are becoming more widespread and complex. The main elements of the public administration automation models of the three countries are summarised in table 2.

**Table 2.** Key elements of Estonian, Singaporean and Korean models of public administration automation <sup>(18,19,20,21,22,23)</sup>

Element	Estonia	Singapore	South Korea
Digital identification	e-ID: electronic identification for all citizens, providing access to public services and online voting	Sing Pass: a single digital platform for access to public services	e-Government: electronic identification system for access to public services
Integrated data exchange system	X-Road: a data exchange platform between government agencies that enables integration and efficiency	Smart Nation: integration of all digital systems into a single environment for the provision of public services	Data analytics: using analytical tools for decision-making and forecasting
Protection of personal data	High level of cyber security, strict data protection standards, mandatory security protocols	High level of cybersecurity, active cooperation with the private sector to protect data	Strict laws on personal data protection, use of modern protection technologies
Cooperation with the private sector	Active cooperation with private companies to develop innovative digital solutions	Close cooperation between the state and the private sector within GovTech to implement innovations	Working with the private sector to develop secure and effective digital solutions
Innovation and digital transformation	Continuous development of new technologies, including e-citizenship (e-Residency)	Smart Nation Initiative: Implementation of IoT, Big Data, and artificial intelligence in public administration	Using data analytics and advanced technologies to improve public services

Given the rapid development of digital technologies, rising public expectations for transparency and accessibility of public services, and increasing international requirements for public administration, Ukraine is also actively implementing various digital solutions. This process allows not only to modernize state institutions but also to contribute to building a more open and accountable government. Significant achievements characterize the current state of public administration automation in Ukraine, but several challenges still



require further attention (table 3).

Table 3. The current state of public administration automation in Ukraine <sup>(2,10,14,15, 22,23,24,25,26,27,28,29)</sup>	
Achievements	Challenges and issues
Development of e-governance. One of the key achievements was the creation and implementation of the e-government system, through the Diia portal. As of 2023, more than 18 million Ukrainian citizens use the Diia platform to access public services online. This indicates a high level of acceptance of digital services among the population.	Uneven level of automation implementation. Despite the success in implementing certain systems, the overall level of automation across government agencies remains uneven. For instance, experts indicate that merely 37 % of government agencies have fully implemented electronic document management systems, hindering effective coordination and information sharing among various agencies.
Integration of digital tools into public administration. One example of successful integration is the ProZorro e-procurement system, which has been used to conduct more than 4,5 million tenders for a total value of over UAH 3,5 trillion between 2016 and 2023. The implementation of this system saved the state about UAH 190 billion.	Cyber security remains one of the most vulnerable areas. According to the State Service for Special Communications and Information Protection of Ukraine, more than 1,5 million cyber incidents were recorded in 2023, indicating a high level of threats.
Electronic identification and digital signature. Ukraine is actively developing the BankID system, through which more than 80 Ukrainian banks provide electronic identification services. This allows citizens to securely use public services online.	Lack of sufficient digital skills. Ukraine still has a significant portion of the population, especially in rural areas, that has insufficient digital skills. As of 2023, only 58 % of the adult population has basic digital skills, making it difficult to access automated government services.
Development of open data infrastructure. Ukraine is ranked 46th out of 94 countries in the Open Data Barometer (2022) global open data ranking, which indicates significant progress in the development of access to public information.	Resistance to change. Resistance to innovation remains a significant problem. Recent surveys show that about 25 % of civil servants consider process automation a threat to their jobs, which reduces the effectiveness of digital solutions.

The international community has established various indices to assess the effectiveness of public administration automation, each addressing different facets of this intricate process. These indices enable countries to benchmark their achievements against others and pinpoint strengths and weaknesses in their digital strategies. The UN’s E-Governance Development Index (EGDI) is one of the most essential tools for assessing the level of automation in public administration. The EGDI consists of three main components: availability of online services, telecommunications infrastructure, and human capital. According to the UN report for 2022, Ukraine ranked 46th among 193 countries, which indicates an average level of e-government development in the country (figure 1). The high level of telecommunications infrastructure and the active implementation of online services, such as the Diia portal, have become critical factors in the positive dynamics in this index.

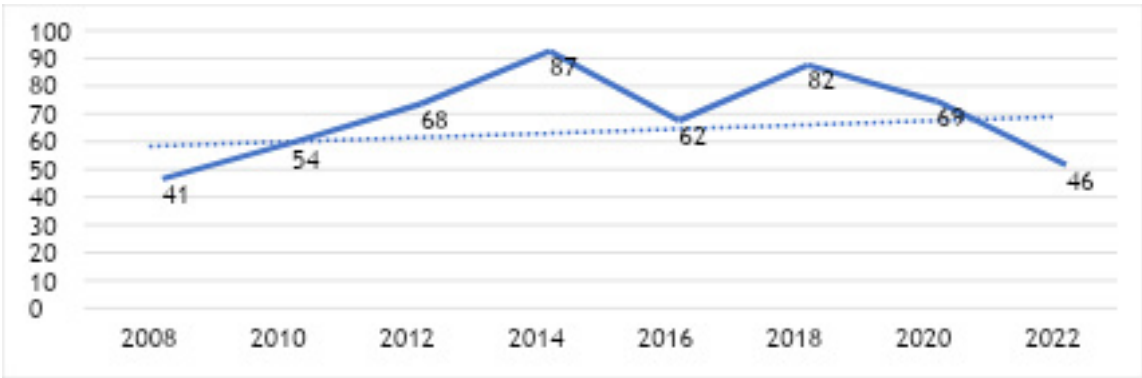


Figure 1. Ranking of Ukraine in the UN E-Governance Development Index (EGDI), 2008-2022 <sup>(30)</sup>

In 2022, Ukraine was ranked 57th in the global E-Participation Index (EPI), part of the United Nations E-Government Development Index (EGDI). This index measures citizen engagement in decision-making processes through digital platforms, including access to information, online consultations, and participation in decision-making. This position indicates Ukraine’s significant progress in developing e-participation, an essential component of the overall e-government and public administration automation (figure 2).

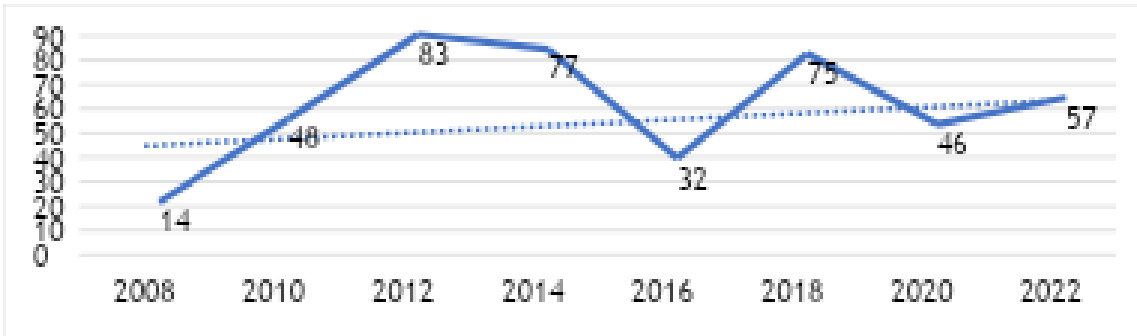


Figure 2. Ukraine's place in the global ranking according to the E-Participation Index (EPI), 2008-2022 <sup>(30)</sup>

The World Bank's Ease of Doing Business Index assesses the level of automation and digitalization in business-related processes, such as business registration, tax payments, and access to credit. In the 2020 report, Ukraine ranked 64th out of 190 countries, demonstrating significant progress compared to previous years (figure 3). This advancement illustrates the state's initiatives to streamline administrative procedures and implement electronic services, including the electronic registration of enterprises and the simplification of tax administration via online platforms.

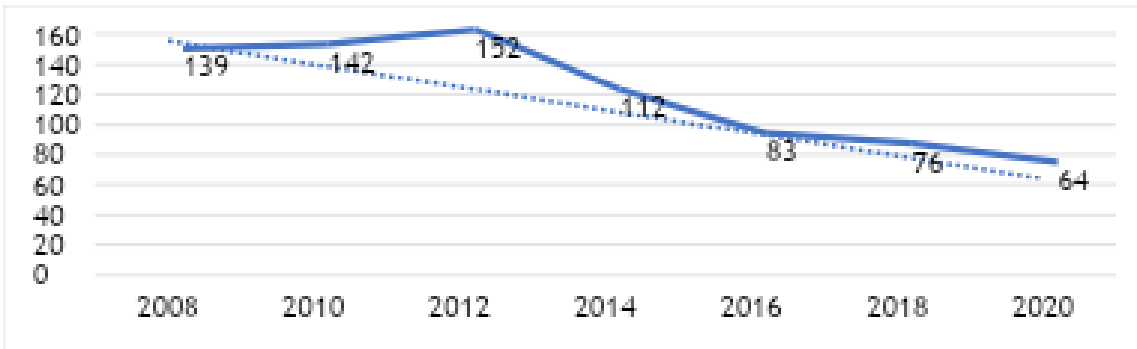


Figure 3. Ukraine's place in the World Bank's Ease of Doing Business ranking, 2008-2020 <sup>(10)</sup>

The primary focus of automation development is to enhance the integration of digital technologies across all sectors of public administration. This includes creating national e-government platforms, such as Diia, to expand their functionality and ensure access to all administrative services online. Such integration aims to minimize bureaucratic obstacles, speed up request processing times, and improve citizen satisfaction. Furthermore, the use of artificial intelligence (AI) and data analytics in public administration introduces new opportunities for automation. AI can automatically analyze large datasets, predict socioeconomic trends, and facilitate well-informed management decisions. Additionally, automating processes through AI will considerably enhance the efficiency of addressing challenges and delivering personalized services to citizens. Effective automation is impossible without a reliable digital infrastructure. Ukraine needs to continue developing high-speed internet and ensure the availability of digital technologies in all regions of the country, including rural and remote areas. Investments in cyber security are also a priority to protect government systems from cyber threats and ensure public trust in electronic services.

Electronic citizen participation (e-participation) is an important component of modern public administration. Involving citizens in decision-making processes through digital platforms such as online consultations, electronic petitions, and public discussions allows for a more open and accountable government. A promising area is to expand opportunities for citizens to participate in the budget process, regional development planning, and other key areas of governance.

One of the challenges for the further development of automation is the level of digital literacy among the population and civil servants. Improving digital literacy is a prerequisite for the effective use of electronic services and automation tools. ICT training and professional development programs should be a priority for government policy.

The priorities for implementing public administration automation should be established at the state, regional, and local government levels. Accordingly, we propose a multi-level model for implementing a digital transformation strategy for public administration, built according to the components used to calculate the e- Government Development Index (table 4). Each level - state, regional and local - has its own priorities and areas of work to achieve effective automation of public administration.

**Table 4.** Model of implementation of the strategy of innovative sustainable development of the enterprise <sup>(1,7,12,13,15,16,24,31,32,33,34,35,36,37,38,39)</sup>

Component	State level	Regional level	Local level
Online services	Development and implementation of national e-government portals, access to online administrative services	Adaptation of national online services to regional needs and specifics, integration with regional resources	Creating local e-services that meet the needs of citizens and local businesses
Telecommunications infrastructure	Ensuring the national policy of telecommunication infrastructure development, investments in broadband Internet	Supporting infrastructure development at the regional level, improving accessibility in rural areas	Providing access to the Internet at the local level, especially in remote communities
Human capital	Development of programs to improve digital literacy, development of educational programs in ICT	Supporting educational initiatives in the regions, providing training in local educational institutions with a focus on ICT	Conducting local educational programs for citizens, developing digital skills among the population and local officials

This model allows to clearly defining priorities for each level of government and focus efforts on the most critical aspects of digital transformation. The use of a multi-level approach ensures the harmonious development of e-government across the country, taking into account the different needs and capabilities of the national, regional and local levels.

## DISCUSSION

The findings of the study on the implementation of automation mechanisms in Ukraine's public administration highlight the considerable potential of this process to enhance operational efficiency. However, the results also identify several challenges that complicate this endeavour, aligning with conclusions drawn by other researchers. For example, Pariso P. Marino A.<sup>(2)</sup> emphasise the importance of global coordination of regulatory measures in their study and note that the integration of automated systems into public administration can increase transparency and reduce corruption risks. Our results support this thesis by showing that automation contributes to more effective control over the activities of public authorities. However, the lack of information infrastructure and problems with system integration remain serious obstacles that were not analysed in detail in the study by Pariso P. and Marino A.<sup>(2)</sup>. Hariguna T. et. al.<sup>(4)</sup>, in their analysis of different approaches to regulatory policy, emphasise the need for stakeholder participation in automation processes, which is consistent with our findings. Our research has shown that involving the public and business in the automation process can contribute to greater efficiency and public support for the reform. However, Hariguna, Rahardja, and Ruangkanjanases focus more on the regulation of market relations, while our study extends this concept to the field of public administration. Notably, Shevchenko O.<sup>(16)</sup> concentrates on the economic and social dimensions of automation in their study, highlighting its potential to lower costs and enhance the accessibility of public services. Our findings support these conclusions but also uncover a degree of resistance from civil servants regarding the implementation of automation, a factor that was not thoroughly explored in their research. This may be explained by the fact that our study pays more attention to Ukrainian realities, in particular the specifics of the national legal framework and the level of development of digital technologies in Ukraine.

Comparison of our results with the works of other researchers indicates that the research goal has been achieved. The key challenges and prospects of automation in public administration in Ukraine have been identified, which corresponds to the initial hypothesis of significant potential but also serious obstacles in this process.

The purpose of this study was to examine the current state, challenges, and future prospects of public administration automation in Ukraine. The results confirmed the hypothesis that automation enhances transparency and reduces opportunities for corruption. For instance, the use of digital platforms such as Diia has decreased direct contacts between citizens and officials, thereby reducing corruption risks. This finding aligns with international experience, which similarly demonstrates the positive impact of automation on the efficiency and transparency of administrative processes.

An insufficient regulatory framework has been identified as one of the primary challenges to automation adoption. Existing laws and regulations often do not adequately address the latest technologies, creating obstacles to their implementation. Furthermore, it was found that a lack of proper training presents a serious problem, as many employees are not sufficiently prepared to work with new digital tools. This conclusion is consistent with the findings of other researchers, who also emphasize the need for training and updates to the



regulatory framework to ensure successful digitalization.

The study's results indicate that public administration automation in Ukraine is in an active development phase, though it still faces numerous challenges, including technical, social, and political barriers. It was found that Ukraine is gradually integrating digital technologies into public administration, notably through the introduction of national portals. However, the success of these initiatives depends significantly on the population's level of digital literacy and the availability of the necessary infrastructure.

The findings of this study can inform the development of national strategies for advancing the digitalisation of public administration. Specifically, the results may be instrumental for:

- Enhancing educational programs to improve the digital literacy of the population;
- Developing regional programs to expand access to telecommunications infrastructure, particularly in remote areas;
- Adapting international experience to the Ukrainian context, thereby aiding in the formulation of effective automation policies at both the state and local levels.

### Limitations of the study

This study has several limitations that should be considered when interpreting its results. These limitations may influence the overall conclusions and recommendations presented in the paper, emphasizing the need for further research to gain a deeper understanding of public administration automation issues in Ukraine.

1. Limited access to up-to-date data. One of the primary limitations is the lack of access to the most recent data and statistics. In some cases, data from previous years were used, which may not fully reflect the current state of automation in Ukraine. This may affect the accuracy of the analysis and recommendations.
2. Influence of external factors. The military conflict and political instability in Ukraine can significantly affect automation processes, which cannot always be precisely accounted for in this study. The impact of these factors can alter the priorities and resources available for automation programs, making long-term forecasting challenging.
3. Limited international comparisons. The analysis of international experience was limited to three countries (Estonia, Singapore, and South Korea), which may reflect a partial range of possible approaches to public administration automation. The limited number of cases reduces the overall representativeness of the comparative analysis and its applicability to other contexts.

These limitations emphasize the complexity and multifaceted nature of the topic under study. Further research that considers these limitations could contribute to a deeper understanding of automation in public administration and help develop more accurate and effective strategies for its implementation in Ukraine.

### CONCLUSIONS

This study aimed to investigate the current state, challenges, barriers, prospects, and opportunities for advancing automation in public administration in Ukraine. As a result of these investigations, the following conclusions were reached:

1. An analysis of the current state of automation in Ukraine has shown that the country is actively implementing digital technologies in public administration. At the same time, there are significant differences in the level of automation between different regions and government agencies. Ukraine has made some progress in developing and implementing national e-government portals, such as Diia, which provide citizens with access to many administrative services online. However, the effectiveness of these services largely depends on the availability of telecommunications infrastructure and the population's digital literacy level.
2. The identified main challenges and barriers to full automation of public administration include:
  - Insufficient development of telecommunications infrastructure, especially in remote regions, which limits access to electronic services;
  - low level of digital literacy among the population, diminish the introduction and use of automation technologies;
  - military conflict and political instability, which affect the prioritization of resources and their allocation, making it difficult to implement long-term strategies;
  - The diversity of regional conditions and differences in automation implementation approaches require adapting to local realities.
3. The study of international experience (based on the examples of Estonia, Singapore, and South Korea) has allowed us to identify critical success factors in public administration automation that can be adapted to the Ukrainian context. These include:
  - Expanding access to high-quality telecommunications infrastructure is essential for effective automation.

- Increasing the digital literacy of the population through educational programs at the state and local levels;
- The development and implementation of innovative electronic services that take into account the specifics of each region and provide convenient and secure access to administrative services for citizens and businesses;
- Support for the sustainable development of e-government through integrating international standards and practices will increase the automation and adaptability of public administration to modern challenges.

The study showed that the automation of public administration in Ukraine is an important step towards a more efficient, transparent and inclusive public sector. Despite some progress, in particular through the development of national e-government portals such as «Diya», key challenges remain uneven infrastructure development, low levels of digital literacy, regional differences and external factors such as military conflict and political instability.

The experience of leading countries such as Estonia, Singapore and South Korea confirms the importance of investing in telecommunications infrastructure, increasing digital literacy and introducing regionally adapted innovative services. Adapting these approaches to Ukrainian conditions can accelerate the automation process, making public services more accessible, of higher quality and efficient.

Further research could focus on quantifying the impact of automation on the quality and efficiency of public services. This could include studies of the impact of digital technologies on the speed of service, accessibility of services for different segments of the population, and reduction of administrative costs.

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