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## **DIGITALISATION OF PUBLIC ADMINISTRATION: OPPORTUNITIES, CHALLENGES, AND DEVELOPMENT OF E-GOVERNANCE IN SERBIA\*\***

*The paper explores the digitalisation of public administration as a multidimensional reform process aimed at enhancing legality, transparency, efficiency, and accountability in the public sector. It emphasises that successful digital governance requires not only an adequate legal and strategic framework and properly designed public policies by the state authorities, but also the integration of artificial intelligence and the active participation of civil servants and citizens alike. Artificial intelligence is examined as a transformative tool capable of improving decision-making, regulatory enforcement, and service delivery, while also raising critical ethical and legal concerns, including algorithmic bias and data privacy, while the role of civil servants is highlighted as pivotal to the implementation and legitimacy of digital reforms, underscoring the importance of their professional development and adherence to democratic values.*

*The paper further analyses the case of Serbia, assessing its strategic and normative efforts to modernise public administration through various legal and policy initiatives. Despite notable advancements in digital infrastructure and service availability, the Serbian experience reveals persistent challenges, such as bureaucratic inertia, system interoperability issues, uneven service quality, and low digital literacy among citizens.*

*Lastly, the study concludes that digital transformation must be approached as an inclusive and adaptive process, grounded in democratic principles and requiring coordinated engagement from all stakeholders to ensure a transparent, efficient, and citizen-centric public administration.*

**Keywords:** Public Administration, Digitalisation, Artificial Intelligence, Civil Servants, Serbia.

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## 1. INTRODUCTORY REMARKS

Public administration must be founded on the principles of democratic culture, which implies that it must be freed from the constraints of bureaucracy, corruption, and political-party dogmatism (Perović, 2018, p. 526). In many countries, these goals have been only partially achieved, while in some cases, one can even speak of their predominant non-fulfilment. Therefore, the digitalisation of public administration has become a process that must adapt to the imperfections of social environments and administrative-legal systems in many countries, as well as to the needs of citizens. Furthermore, in practice, there are struggles when it comes to the implementation even of adequate legal framework and strategic documents regarding digitalisation, which can be prescribed not only to civil servants and other personnel but also to citizens and their ignorance. This results in a slow development of e-government, with parties gradually adjusting to its functioning.

It is evident that the electronic exchange of data enables fast, reliable, and accurate data transmission, upon which public administration bodies and institutions base their administrative procedures (Marković, 2021, p. 121) and that the introduction and regulation of digitalised public administration became a necessity in modern societies, but the digitalisation itself must be implemented with consideration of social, economic, political, cultural and historical circumstances of a given environment. Thus, in a wide range of them, especially in Western Balkan countries, it is important that the public administration modernisation is carried out progressively.

Primary objective of integrating information technologies into public administration is to enhance legality, transparency, accountability and efficiency (Vukašinović Radojičić & Marković, 2019, p. 286), and the achievement of this objective, or even its partial fulfilment can take a considerable amount of time.

The success of the digitalisation process is contingent upon the governments' capacity to effectively address challenges, formulate data protection strategies, mitigate digital inequality, and invest in the development of digital competencies (Lutsenko, 2024, p. 2).

Governments around the world have acknowledged the importance and potential of e-Government, as it, when effectively designed and implemented, improves the efficiency and accessibility of public services, administrative procedures, and processes. Moreover, it fosters greater trust among citizens in government institutions, enhances their engagement in governance, and facilitates substantial cost savings for users, citizens, businesses, and the state (Đurašković, 2016, p. 5).

Considering the legal aspect, electronic administration development plans and strategies need to be well defined and executed. This includes defining activities that will be undertaken to establish a proper legal framework, creating an online platform through which the provision of services and the realisation of parties' rights and legal interests will be carried out in an efficient and purposeful manner, as well as conduction of training of relevant personnel within the administrative authorities.

## 2. THE ROLE OF ARTIFICIAL INTELLIGENCE IN DIGITALISATION OF PUBLIC ADMINISTRATION

The possibilities for the digitalisation of public administration are extensive and encompass a legal framework and practices that will enable digitalisation to enhance the efficiency of public administration operations and the quality of services provided to citizens and economy (Abbate *et al.* 2014, pp. 49-60). In this regard, the emergence and dynamic evolution of artificial intelligence (AI) in the context of public administration digitalisation, particularly in the present day, cannot be overlooked. On one hand, it is regarded by many as a transformative phase in digitalisation, while on the other, its mechanisms and automatism might redefine the foundations of public administration, particularly for decision-making processes (Bencsik, 2024, p. 13).

Introducing AI allows the significant acceleration of routine procedures in which a decision on a client's request is based solely on objective facts, such as the submitted documentation or data in registries and records, particularly when the criteria for approving the request are indisputably met.<sup>1</sup>

Thus, AI can significantly contribute to improving the quality of public administration performance and paving the way to simplified provision of public services that will be adhered to modern tendencies.

There are various ways in which AI can be utilised. It can be employed as a decision-support tool in the creation and design of public policies for optimising public services, increasing the efficiency of public administration, or as a support for implementing regulations.<sup>2</sup> From the perspective of public administration, increasing its efficiency and supporting regulatory enforcement can be identified as two of the most important tasks of AI. Furthermore, these two elements are closely interconnected, as the consistent enforcement of regulations implies the efficient functioning of public administration.

Moreover, AI contributes to transparency and fraud detection. Machine learning algorithms can detect irregularities in financial records, identify compliance risks, and flag potentially fraudulent activities, strengthening public sector accountability.

However, integrating AI in public administration also presents ethical, legal, and governance challenges. Especially worth mentioning is that potential issues may emerge within decision-support systems, as AI technologies inherently reflect the biases of their creators or societal prejudices embedded in the training data. Given that AI systems learn from data, these biases can be institutionalised and further deepened by the rapid expansion of data-driven information systems integrated into the decision-making process (Veale, Van Kleek & Binns, 2018, pp. 1-14). Moreover, the use of AI technologies may lead to the violation or limitation of fundamental rights, such as the right to privacy and the protection of personal data.

Issues like algorithmic bias, data privacy, and lack of explainability must be addressed to ensure fair, trustworthy, and inclusive digital governance. This calls for a careful balance between technological innovation and democratic values.

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<sup>1</sup> Strategy for the Development of Artificial Intelligence in the Republic of Serbia for the period 2020 to 2025, *Official Gazette of the RS*, no. 96/19, p. 18.

<sup>2</sup> Strategy for the Development of Artificial Intelligence in the Republic of Serbia for the period 2020 to 2025, *Official Gazette of the RS*, no. 96/19, p. 11.

### 3. THE ROLE OF CIVIL SERVANTS IN PUBLIC ADMINISTRATION DIGITALISATION

Civil servants play a central role in the digital transformation of public administration. As the bridge between government policy and public service delivery, they are both facilitators and implementers of digital change. Primarily, civil servants contribute by identifying areas where digital technologies can improve efficiency, transparency, and citizen engagement. They provide crucial insights from their frontline experience, helping shape digital initiatives that are realistic, user-centred, and aligned with public needs. Second, they are responsible for adapting existing administrative processes to new digital tools. This often involves redesigning workflows, ensuring data security, and integrating legacy systems with modern platforms. Civil servants also play a critical role in ensuring that these transitions uphold public values, such as equity, accountability, and inclusiveness. Moreover, civil servants act as change agents as they must embrace new digital competencies and innovation within often rigid bureaucratic systems, and support colleagues through capacity-building and training. Last, civil servants are key to building public trust in digital government. Their transparent and ethical handling of digital services and data protection issues directly affects how citizens perceive and interact with the digital state.

In order for civil servants to properly execute the aforementioned roles, they must act according to principles of legality, impartiality, transparency and political neutrality. This implies carrying out tasks based on and within the framework of laws and other regulations, while respecting the rules of the profession, ethics and political neutrality, in order to enable the development of professionalism, impartiality and quality of work (Milovanović, Ničić & Davinić, 2011, pp. 53-54). In that sense, civil servants should be aware of and be trained to bear in mind the significance of public interest and the right to justice when applying the relevant legal regulations to the given case.

Besides that, knowledge, skills and professional development of civil servants are essential for performing complicated tasks, especially the ones related to digital platforms usage. Training and professionalisation of personnel must be based on adequate legal regulations that allow the establishment of a stable and effective public administration system. Additionally, while executing particular training programs, relevant regulations must be adapted to the needs and demands of an administrative authority.

The path to successful professional development depends not only on civil servants and their willingness and motivation to perform tasks conscientiously, efficiently and with regard to moral and ethical standards, but on the state authorities, their politics in relation to public administration and its professionalisation, institutions that provide training programmes, civil servants and their will and motivation. All of these factors are mutually connected and can lead to an effective public administration system only if they are taken into account equally.

## 4. PUBLIC ADMINISTRATION DIGITALISATION IN SERBIA

### *4.1. Strategical and Normative Framework*

In Serbia, user-oriented e-Government is of relatively recent origin (Milovanović, 2023, p. 13). The development of modern public administration began with the adoption of the first Public Administration Reform Strategy in 2004, back when the state itself was in a very poor social and economic condition. The Strategy prescribed that the process of modernizing public administration is primarily based on the implementation of modern information and communication technologies in its operations (Vukoichić, 2020, p. 174), thereby laying the foundations for the commencement of modernisation efforts and the adoption of contemporary trends for the public administration. Subsequently, it was essential to establish a new legal framework that would regulate the functioning of public administration and local self-government, as well as to adopt a series of strategic documents related to the reform process, which would facilitate the alignment of public administration with modern trends and standards.

Public Administration Reform Strategy for 2021-2030, the Strategy for the Development of Electronic Government in the Republic of Serbia for 2023-2025, Strategy for the Development of Electronic Communications in the Republic of Serbia for 2010-2020, and the Information Society and Information Safety Development Strategy for 2021-2026 collectively outline the primary directions and objectives for the successful improvement of electronic communications and securing a more competitive position in the global economy, while the Strategy for the Development of AI for 2020-2025 underlines the necessity of ensuring the reliability of services, safeguarding user privacy and data, and providing users with the option to engage with a human representative when designing, developing, and implementing AI-based public services.<sup>3</sup>

Key development objectives related to e-Government focus on finalising the institutional and legal frameworks, establishing functional interoperability, creating essential e-Government registers, developing new services tailored to user needs, and increasing knowledge among both public administration employees and citizens. Digitalisation reform efforts have also been pursued through the e-Government Program, alongside the establishment of standards for reducing administrative barriers, integrated into the decision-making process via Regulatory Impact Analysis (Milovanović, Nenadić & Todorović, 2012, p. 271).

The strategic framework for e-Government in Serbia is based on European standards and integrates the legal acquis of the European Union (Vukašinović Radojičić & Vučetić, 2023, p. 228). Furthermore, in order to establish efficient electronic administration, a significant number of laws were adopted, the most important ones being Law on General Administrative Procedure (LGAP), Law on Administrative Disputes, Law on Electronic Documents, Electronic Identification, and Trust Services in Electronic Business, Law on Electronic Government and Law on Electronic Communications.

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<sup>3</sup> Strategy for the Development of Artificial Intelligence in the Republic of Serbia for the period 2020 to 2025, p. 18.

The primary objective of Serbian administrative procedural legislation is to expedite administrative procedures, enhance the protection of parties involved in the provision of public services, establish the fundamentals of administrative contracts, and safeguard the rights of parties in various areas governed by special administrative procedures (Vukašinović Radojičić & Vučetić, 2023, p. 229). If these tasks cannot be performed properly outside of the digital world, there can be no expectations that the digital transformation and electronic provision of services will be conducted in a manner which leads to suitable electronic public administration system that will protect the public interest, but simultaneously protect citizens' rights and legal interests and facilitate their realisation.

#### **4.2. Results**

In recent years, the overall quality of administrative public services in Serbia has shown improvement, with the values of most indicators falling within the highest range in the region.<sup>4</sup> Public administration has been improved through the legal framework, infrastructure, and interoperability, as well as the optimisation and digitalisation of administrative procedures and services (Milovanović, 2023, p. 13). However, service quality is not uniformly high and there are disparities when it comes to provision of the same services in the different parts of the country.

LGAP, in force since February 2016, serves as the primary regulation for administrative service delivery, aligning with the principles of good administration, and its most notable achievement (which extends beyond its legal effects in the strict sense) is the comprehensive implementation of digitalisation across all aspects of administrative decision-making, which has significantly improved the efficiency and effectiveness of administrative proceedings, elevating them to a new standard, while substantially reducing costs for citizens, and even more so for entrepreneurs (Vučetić, 2021, p. 194). The Law on Electronic Government (LEG) outlines data regulations but has not been amended since 2018, thus not reflecting the most recent international and European standards. Similarly, the Law on Electronic Documents, Electronic Identification, and Trust Services in Electronic Business remains harmonized with the newly adopted EU Regulation 2024/1183. Despite these legislative omissions, the foundations for digital government in Serbia are solid. Online availability of administrative services has increased from 70% to 83% over the past three years,<sup>5</sup> the interoperability platform and Government Data Centres adhere to European standards, and citizens can now authenticate and provide consent online via a government mobile application. The e-Government portal "eUprava" is operational, and it offers single sign-on functionality, categorises services according to types and life events and facilitates access to various government portals. The Consent ID mobile application, which enables

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<sup>4</sup> Monitoring Report, Public administration in Serbia 2024, Assessment against the Principles of Public Administration, SIGMA, OECD, pp. 90-91. Available at: [https://www.oecd.org/en/publications/public-administration-in-serbia-2024\\_02001fe4-en.html](https://www.oecd.org/en/publications/public-administration-in-serbia-2024_02001fe4-en.html) (1. 5. 2025).

<sup>5</sup> Monitoring Report, Public administration in Serbia 2024, Assessment against the Principles of Public Administration, SIGMA, OECD, p. 99. Available at: [https://www.oecd.org/en/publications/public-administration-in-serbia-2024\\_02001fe4-en.html](https://www.oecd.org/en/publications/public-administration-in-serbia-2024_02001fe4-en.html) (1. 5. 2025).



citizens to authenticate and sign documents via their mobile phones, has nearly reached 1 million activations.<sup>6</sup>

Nevertheless, citizens still experience technical difficulties while trying to sign-in to eUprava portal even though they possess the qualified electronic certificate, which is another way to access this portal, besides the previously mentioned Consent ID mobile application that cannot be activated online, since citizens are required to visit a post office in order to get the parameters for its activation, which presents another issue that must be addressed in the near future.

The overall extent of digitalisation and the user-friendliness of services vary. While some services have been streamlined and digitalised, others remain bureaucratic, requiring citizens to fill and submit multiple forms and provide information already held by public administration<sup>7</sup> and the execution of certain services is progressing more slowly than anticipated. Such services include: electronic submission of applications for enrollment in kindergarten; electronic registration of a child's birth; electronic submission of requests for the replacement of outdated, physical firearm documents; requests for the delivery of extracts from civil registers, etc. These types of e-services are often characterised by incompleteness, unreliability (frequent delays in data processing, frequent changes to portals), and limited availability (Vukočić, 2020, pp. 185-186).

It should also be pointed out that there are a considerable number of citizens who are not sufficiently familiar with electronic public administration, the services it offers, and how they can access it and submit requests for specific actions. Additionally, the instructions provided on online platforms often employ “legal” language, which can be unclear to users, and the excessive textual content on public authority websites complicates the retrieval of necessary information (Marković, 2021, p. 117). On the other hand, citizens rarely go in-depth into these instructions and opt to visit the administrative authority in-person and submit their requests at the service counters, which causes long queues. This problem is especially widespread in smaller towns and municipalities, but it's also present in Belgrade and other Serbia's larger cities. Hence, the creation of functional electronic public administration greatly depends on citizens and not only on civil servants and state authorities, since citizens are the ones that need to attempt to adapt to digitalisation and electronic provision of services, which has remained a long-lasting issue.

Regarding businesses, the overwhelming majority of them recognise the benefits of the e-government process, and consider substantial long-term cost savings as its main advantage. In addition, the benefits of utilizing e-government appear to be independent of the type of business activity, sectoral affiliation, or enterprise size (Đurašković, Viduka & Gajić-Glamočlija, 2021, p. 46).

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<sup>6</sup> Monitoring Report, Public administration in Serbia 2024, Assessment against the Principles of Public Administration, SIGMA, OECD, p. 96. Available at: [https://www.oecd.org/en/publications/public-administration-in-serbia-2024\\_02001fe4-en.html](https://www.oecd.org/en/publications/public-administration-in-serbia-2024_02001fe4-en.html) (1. 5. 2025).

<sup>7</sup> Monitoring Report, Public administration in Serbia 2024, Assessment against the Principles of Public Administration, SIGMA, OECD, pp. 90-91. Available at: [https://www.oecd.org/en/publications/public-administration-in-serbia-2024\\_02001fe4-en.html](https://www.oecd.org/en/publications/public-administration-in-serbia-2024_02001fe4-en.html) (1. 5. 2025).

## 5. CONCLUSION

The aim of aligning public administration with European modern standards is to simplify the administrative procedure, partially de-formalise, rationalise, and expedite it, but without compromising efficiency, legal certainty and legality (Tomić, 2012, p. 63). Achieving these objectives should be encouraged by the digitalisation of public administration and the establishment of an electronic system through which the administrative procedure and the realisation of rights and legal interests of parties will be streamlined and rationalised.

As this paper has outlined, the successful implementation of digital governance requires not only a robust legal and strategic framework but also the effective deployment of advanced technologies, such as artificial intelligence, along with the active engagement of both civil servants and citizens.

Artificial intelligence emerges as a transformative force within this context, offering substantial benefits in terms of efficiency, policy support, regulatory enforcement, and service personalisation. Still, its integration must be accompanied by a careful consideration of ethical, legal, and societal risks, especially those concerning algorithmic bias, data privacy, and accountability. Likewise, the role of civil servants remains indispensable, as they are the primary agents through whom digital policies are executed and public trust is either cultivated or eroded. Their competencies, values, and continuous professional development are critical to the success of public administration reform.

The Serbian case illustrates both the progress made and the ongoing challenges in the digital transformation of public administration, as it shows that further work is needed in order to ensure the consistent application and adherence to the fundamental principles of administrative procedure, particularly the principles of legality, efficiency, effectiveness and assistance to the party, given that these principles are of crucial importance for establishing a stable and high-quality modern public administration that will be fully functional in its digital form and completely aligned with modern international and European standards. While significant strides have been taken in establishing legal frameworks, digital infrastructure, and online platforms, there remain critical issues related to system interoperability, uneven service quality, and digital literacy among citizens. Additionally, bureaucratic inertia and the persistent gap between legal standards and technological implementation continue to hinder the full realisation of digital governance.

Ultimately, the modernisation of public administration through digitalisation must be approached as an inclusive and adaptive process - one that not only leverages technology but also invests in people, institutions, and the socio-political environment in which it operates. Successful digital transformation depends on fostering collaboration across all sectors of society, ensuring equal access to digital services, and upholding the principles of legality, transparency, and democratic accountability. Only through coordinated efforts across all stakeholders can digital public administration truly fulfil its promise of greater transparency, efficiency, and responsiveness in the service of democratic governance.



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