

From Bureaucracy to Digital Efficiency: AI Adoption in Romania's Public Sector

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ABSTRACT

Offering digital public services is a critical goal in the digitalization of public sector organizations. Particularly during the pandemic, when face-to-face services faced challenges due to lockdowns and public reluctance, institutions in Romania upgraded and extended their digital offerings. This article explores the journey from bureaucratic processes to embracing artificial intelligence (AI) solutions in the Romanian public sector. It examines the current state of AI adoption, challenges, opportunities, ethical considerations, and case studies. By analyzing successful implementations, we highlight how Romania is transitioning from traditional bureaucracy to digital efficiency through AI integration.

KEYWORDS: *artificial intelligence, digital efficiency, public organizations, bureaucracy, Romania.*

1. Introduction

In recent years, the Romanian public sector has undergone a transformative journey, propelled by the integration of artificial intelligence (AI) into its operations. This shift from traditional bureaucratic systems to digital efficiency represents a pivotal moment in the country's governance landscape.

Bureaucracy in Romania's public institutions is generally perceived as inefficient, slow, and plagued by corruption. The bureaucracy is often seen as a hindrance to doing business and obtaining services from the government that is why, in mass-media, are often mentioned common issues like:

- excessive red tape because of the bureaucratic process that can be overly complex and time-consuming, with numerous forms, approvals, and regulations that can delay the completion of tasks;
- lack of transparency: many public institutions lack transparency and accountability, making it difficult for citizens to understand how decisions are made and how public funds are spent;
- inefficiency due to a lack of modernization and outdated processes, many public institutions are inefficient, leading to delays and frustration for citizens;
- corruption which is a significant problem because of the state employees demanding bribes in exchange for providing services or expediting processes.

In this context, the issue of bureaucracy in public institutions is a significant concern. Although efforts have been made in recent years to reform the Romanian bureaucracy and improve transparency, accountability, and efficiency within public institutions, in practice it is noticeable:

- Open Government Partnerships (OGP): Romania has made efforts to eliminate unnecessary bureaucratic procedures in its central government. While reducing bureaucracy is not directly related to open government, this commitment involves

collaboration with civil society to evaluate public institutions¹. The goal is to simplify, secure, and expedite public administration processes, ultimately benefiting citizens and businesses that interact with public services;

- impact of bureaucracy: Romania faces challenges due to an inflated and inefficient public sector. This inefficiency could negatively impact the country's economy by deterring foreign investors and leading to inefficient use of public funds²;
- progress and challenges: Romania is making progress in ensuring interoperability of systems and registers, moving toward the application of the "once-only" principle. This aims to reduce bureaucracy and streamline interactions between citizens/businesses and public institutions³.

Nevertheless, there is still room for improvement, and efforts are ongoing to address bureaucratic hurdles.

Digital efficiency in public institutions in Romania has been a growing focus in recent years as the government seeks to modernize and streamline its operations⁴. This push towards digitization aims to improve the delivery of services to citizens, increase transparency, and reduce bureaucracy. One of the key initiatives in this area is the implementation of electronic government (e-government) services, which allow citizens to access government services online. This has the potential to save time and effort for both citizens and government employees, as well as reduce the chance for corruption and improve data security. Another aspect of digital efficiency in public institutions in Romania is the adoption of digital workflows and communication tools. By digitizing processes such as document management, workflow automation, and communication, public institutions can increase efficiency, reduce errors, and improve collaboration among employees. However, there are still challenges to overcome in achieving digital efficiency in public institutions in Romania. These include issues such as the lack of digital skills among employees, the need for investment in IT infrastructure, and concerns about data privacy and security.

Overall, the push towards digital efficiency in public institutions in Romania is a positive development that has the potential to improve the quality of services provided to citizens and increase the overall efficiency of government operations. With continued investment and commitment from the government, Romania has the opportunity to become a leader in digital transformation in public administration.

AI adoption in Romania's public sector has the potential to greatly improve bureaucratic processes and efficiency. Currently, Romania's public sector is known for its slow and often inefficient operations, with a heavy reliance on paper-based processes and outdated technology.

¹ Independent Reporting Mechanism, Action Plan Review: Romania 2022-2024, available at: https://www.opengovpartnership.org/wp-content/uploads/2023/01/Romania_Action-Plan-Review_2022-2024_EN_for-public-comment.pdf

² Frâncu L.G., 2014. "The Impact of Bureaucracy from the Romanian Public Institutions over the Sustainable Economic Development", Proceedings of International Academic Conferences, 0902868, International Institute of Social and Economic Sciences, available at: <https://ideas.repec.org/p/sek/iacpro/0902868.html>

³ Ștefanovici A., Romania's evolution towards reducing the bureaucracy and simplifying the citizen's relationship with the state, article published on 14.09.2020, available at: <https://bdattorneys.ro/en/media/romanias-evolution-towards-reducing-the-bureaucracy-and-simplifying-the-citizens-relationship-with-the-state/>

⁴ Voinea R.C., Steps towards digitization of the public sector, Administrație și justiție socială: echitate, incluziune, legalitate. Pp. 270-288. Ed. Bălan E., Văcăreanu M., Varia G., Editura Universitară, București, 2023. DOI: 10.5682/9786062817381. ISBN: 978-606-28-1738-1.

By implementing AI systems, government agencies can streamline their operations, reduce the time and resources needed to complete tasks, and ultimately improve the overall efficiency of the public sector.

One of the key areas where AI can have a significant impact is in the automation of routine administrative tasks. For example, AI-powered chatbots can be used to answer common citizen inquiries, reducing the burden on human employees and freeing up their time to focus on more complex and strategic tasks. AI can also be used to analyze data and identify patterns or trends that can help government agencies make more informed decisions and allocate resources more effectively.

Furthermore, AI can help improve the accuracy and speed of decision-making within government agencies. By analyzing vast amounts of data and identifying relevant information, AI systems can help government officials make more informed decisions in a timely manner. This can lead to better outcomes for citizens and a more responsive and efficient government.

2. Artificial intelligence in Romania

In Romania, artificial intelligence has been gaining traction in public institutions as a way to improve efficiency, reduce costs, and provide better services to citizens. Government agencies have been exploring AI solutions for a wide range of applications, including e-governance, healthcare, law enforcement, and transportation.

Romania launched the “National Strategy on Artificial Intelligence” in February 2019. The strategy aimed to establish Romania as a regional leader in artificial intelligence and outlined plans for developing and implementing AI technologies in various sectors such as healthcare, education, industry, and public administration. Following the launch of the strategy, Romania began taking steps to implement its goals, such as setting up a National AI Center and launching various research and development projects focused on AI. The government also allocated funding for AI initiatives and announced partnerships with industry and academic institutions to drive innovation in the field.

Universities play also a crucial role in developing and applying AI in Romania. Research and education in this field are essential for promoting innovation and preparing the future workforce and some of the best-ranked universities in the country based on their performance in AI research are:

Table no. 1. Best universities for Artificial Intelligence (AI) in Romania

No.	Name of the Romanian university	Ranked for AI*	
		in Europe	Globally
1	Politehnica University of Bucharest	239	625
2	Technical University of Cluj-Napoca	315	809
3	Politehnica University of Timișoara	341	882
4	Babeș-Bolyai University in Cluj-Napoca	362	956
5	University of Bucharest	370	981
6	University of Craiova	415	1146
Other notable universities include Transilvania University of Brașov, Alexandru Ioan Cuza University in Iași, West University of Timișoara, and University of Oradea			

Source: made by author using data from <https://edurank.org/cs/ai/ro/>

In August 2023, the Romanian government approved new specializations and university programs, including Cybersecurity and Artificial Intelligence.

The “National Strategy for Artificial Intelligence 2024-2027” typically includes goals, objectives, and initiatives to promote the development and adoption of AI technologies in various sectors such as healthcare, education, transportation, and national security. It may also include measures to address ethical, legal, and societal implications of AI, as well as strategies to foster research and innovation in the field. This strategy is designed to drive economic growth, improve public services, and enhance the quality of life for its citizens through the responsible and effective use of AI technologies. The strategy also include partnerships with industry, academia, and other stakeholders to achieve its goals and ensure that the country remains competitive in the rapidly evolving AI landscape.

3.Types of chatbots that can optimize processes in public institutions in Romania

Public institutions in Romania can utilize various types of chatbots to optimize processes and enhance citizen services. The following alternatives are available for consideration:

- multilingual chatbots - ENRICH4ALL is a project that aims to develop multilingual chatbot services for public administration. These chatbots can be deployed in large numbers, operate 24/7, provide up-to-date information, and help reduce operational costs. They are particularly useful for handling user queries related to administrative services and other relevant topics. The integration of machine translation (MT) services, such as eTranslation, enhances their multilingual capabilities⁵. These chatbots can assist citizens in various languages, making them valuable for a linguistically diverse country like Romania.
- local-level chatbots - digitization remains a constant goal for public authorities in Romania, and chatbots can play a crucial role in achieving this purpose⁶. At the local level, chatbot systems can serve multiple purposes like: referral services: chatbots can guide citizens to relevant institutions or services, such as hospitals or other government agencies; information dissemination: can provide information about local events, regulations, and community services.
- specialized chatbots - depending on the specific needs of a public institution, specialized chatbots can be developed: healthcare chatbots: can assist with medical inquiries, appointment scheduling, and health-related information; legal chatbots: designed to address legal queries, provide legal advice, and guide users through legal processes; financial chatbots: assist with tax-related questions, financial planning, and budget management; government service chatbots: handle requests related to permits, licenses, and administrative procedures; emergency response chatbots: provide real-time information during emergencies or natural disasters.
- integration with existing platforms - chatbots can be integrated into existing communication platforms used by public institutions. They can supplement other

⁵ D. Anastasiou, A. Ruge, R. Ion, S. Segărceanu, G. Suci, O. Pedretti, P. Gratz, H. Afkari, A Machine Translation-Powered Chatbot for Public Administration, EAMT 2022 - Proceedings of the 23rd Annual Conference of the European Association for Machine Translation, pp. 329-330, 2022.

⁶ Public Administration Chatbots. Practical scenarios. Available at: <https://rolaxit.com/chatbots-public-administration-scenarios/>

channels (websites, phone lines, etc.) to provide quick and accurate answers to frequently asked questions. Proper integration ensures seamless communication and efficient service delivery.

- AI-powered chatbots, like: leveraging artificial intelligence (AI) techniques, chatbots can learn from user interactions, improve over time, and adapt to changing needs; natural language processing (NLP) allows chatbots to understand user queries and provide relevant responses.

The adoption of AI in Romania's public sector has the potential to significantly improve bureaucratic processes and digital efficiency. By leveraging AI technology, government agencies can modernize their operations, reduce costs, and deliver better services to citizens. However, it is important for policymakers and officials to carefully consider the ethical implications of AI adoption and ensure that appropriate safeguards are in place to protect citizen privacy and rights.

4. Conclusions

Implementing AI in the public sector is part of the objectives of the Romanian Authority for Digitalization. One example of AI implementation in Romania is in the healthcare sector, where AI-powered tools are being used to improve diagnostic accuracy, streamline patient care, and optimize resource allocation. In law enforcement, AI technology is being used to analyze vast amounts of data to identify patterns and trends, helping to prevent and solve crimes more effectively.

Moreover, Romania has been actively participating in European AI initiatives and collaborating with other countries to promote the ethical use of AI technologies. The European Commission's AI strategy and the development of a European AI ecosystem are also guiding Romania's AI policies and strategies.

Overall, Romania is recognizing the potential of artificial intelligence to drive innovation, boost economic growth, and improve public services. As AI continues to evolve and become more mainstream, it is expected to play an increasingly important role in shaping the future of public institutions in Romania.

In conclusion, Romania has potential in the field of artificial intelligence, and ongoing efforts in research, education, and collaboration between universities and public institutions will contribute to effective AI development and adoption in the country.

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