Research Article • 10.2478/ijcm-2025-0006 IJCM • 61(1) • 2025 • 42-49

"Robocracy" - a model of efficiency or a synonym for soulless processes in public administration?

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Abstract *The rapid development of artificial intelligence requires public administration to constantly adapt to new technologies, while also raising a number of challenges related to ethics, data security, and the reconstruction of existing processes. The aim of this article is to comprehensively analyze the phenomenon of increasing automation of administrative processes, referred to as "robocracy." This study focuses on the bipolar perception of this phenomenon: On the one hand, its role in increasing the efficiency of public administration, reducing human errors, and accelerating the provision of services is emphasized. On the other hand, attention is drawn to potential negative consequences, such as the dehumanization of the relationship between citizens and administration, loss of flexibility in decision-making, and an increased risk of social exclusion of people less familiar with new technologies.*

Keywords Robocracy, model, efficiency, synonym, soulless, processes

INTRODUCTION

Algorithms, bots, and robots are increasingly shaping our lives, from search engines that filter information to recruitment tools that decide on employment. They influence what we see on social media, what news we receive, and what products are offered to us. Financial algorithms manage our money, deciding on investments and loans, and when contacting a salesperson, there is no certainty whether the support is provided by a human or a robot. The operation of robots is often invisible, and those in contact are unable to distinguish who they are talking to, while at the same time, it is robots that have an increasing influence on decisions or choices.

The concept of "robocracy" is a neologism composed of two roots: "robot" and the Greek "kratos", meaning power. In an era of increasing process automation and the ongoing digitization of society, this term is increasingly appearing in discussions about the future of work, the economy, and public administration. Robocracy suggests a scenario in which machines, controlled by algorithms, take over a significant part of the tasks previously performed by humans, including those related to decision-making. In the context of public administration, robocracy means the gradual replacement of traditional work methods by automated processes. Artificial intelligence, machine learning, and robotic process automation (RPA) are tools that enable the optimization of office work, acceleration of customer service, and increase in efficiency. However, with the growing use of technology, many questions arise regarding the ethical, social, and legal consequences of such a transformation. Does robocracy mean the end of bureaucracy or just its evolution? What are the potential risks associated with transferring power to machines? What challenges does society face in the face of the coming era of robotization?

This article aims to introduce the concept of "robocracy", taking into account its possible functioning in public administration. Considering that public administration, responsible for organizing and providing social services, can operate more efficiently and precisely thanks to robotization, the study discusses both the benefits of process robotization and the potential risks. In addition, this article will present different perspectives on the future of robocracy and propose solutions that can help manage changes and minimize negative effects.

A key aspect of robocracy is that algorithms are the source of acquiring and processing information, which is then used to make decisions. In such a system, algorithms define evaluation criteria, set priorities, and generate solutions. This means that the quality of decisions made and the fairness of the entire system depend on the objectivity and transparency of these algorithms.

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This study presents an analysis of the phenomenon of increasing robotization of administrative processes, called “robocracy”. Based on a review of the literature and analysis of practical cases, the benefits of implementing robotization in the public sector, as well as the challenges associated with it, are indicated. Key success factors and implementation barriers have been identified. A comparative analysis of selected cases of implementing robotization solutions in different countries allowed for the development of recommendations for the optimization of processes in public administration.

METHOD

A case study is a research method that allows for an in-depth analysis of a specific economic phenomenon, such as the functioning of an organization, the course of the management process, or interactions between an organization and its environment. It is an extremely useful tool in management sciences, because it allows researchers to understand the complexity of real situations and draw practical conclusions from them. Starting from detailed analyses of individual cases, we will arrive at the formulation of general regularities that explain the observed phenomena (Kostera, 2011). By examining selected cases, we will be able to distinguish common patterns that will allow us to create a broader theory explaining the studied phenomenon (Wójcik, 2013). Based on detailed case studies, we will be able to demonstrate that the processes taking place in public administration are becoming increasingly automated and centralized, which allows us to formulate a thesis about the growing tendency towards robocracy.

“Robocracy” as an ideal type of bureaucracy

If we assume that political processes can be divided into those related to gaining and maintaining power (politics) and those related to public policy (policy), robocracy can also be considered in two layers (Szarfenberg, 2007). The participation of artificial intelligence in democratic processes can be seen in the functioning of political parties with programs created by artificial intelligence and headed by a chatbot. Det Syntetiske Parti is a Danish political party whose political program was learned by machine from the texts of Danish political parties operating since 1970 and representing about 20 percent of Danes who do not vote in elections. In turn, the party is headed by Lars - a chatbot[1].

Already, the first studies by Fayol, such as *Industrial and General Administration* (1917) and *Administrative Doctrine in the State* (1923), were an attempt to combine the principles of management applicable to both enterprises and public administration. Fayol is considered the founder of the so-called administrative school of management, which focused on the analysis of managers’ work and the identification of universal principles of management. It can be said that since then, the approach to administration has ceased to be based only on intuitive action, and has become a field that can be studied, analyzed, and learned. Increasing the efficiency of public administration, as well as streamlining its processes and increasing the fairness of functioning is a complex issue that has been considered by many researchers. The New Public Management (NPM) movement, born in the 1970s, introduced a number of concepts to public administration taken from the private sector, such as results orientation, recognizing citizens as customers whose needs should be met in an efficient and professional manner, or decentralization of activities, as well as assessing the efficiency and quality of activities, caused the administration to change towards a market approach (Osborne & Gaebler, 1993). The pioneering works of Osborne and Gaebler, including *Reinventing Government*, inspired many administrative reforms around the world. Other researchers have pointed out that NPM proposes that the public sector should operate more like an enterprise that is results-oriented, flexible, and better responds to the needs of society. Instead of focusing on procedures, NPM emphasizes achieving specific goals and measurable results. The introduction of modern management techniques, such as strategic planning, cost-benefit analysis, and performance evaluation systems, is becoming an integral part of the functioning of public administration. Establishing clear standards and indicators allows for objective evaluation of the work of the administration and monitoring of progress in the implementation of tasks. Rational management of public resources and searching for new, more effective solutions is another key element of NPM. The point is to achieve the best possible effects at the lowest possible costs (Hood, 1991). In turn, Zawicki believes that public management focuses on the results of undertaken actions, which is aided by the achievements of management in the market sector (2011). Zalewski notes that the NPM concept is also defined by the terms: “entrepreneurial management”, “managerial management”, “market-based public administration”, which may mean that the meaning of this concept is to adapt corporate solutions to the needs of public administration (2005). In turn, Kożuch indicates that in the NPM model, public organizations operate like companies, guided primarily by the principles of economics. Their activities are aimed at meeting the needs of citizens, who are

1 Zob. https://detsyntetiskeparti.wordpress.com/program/

also clients of public services. To achieve this goal, these organizations are more independent in making decisions and have greater freedom of action. At the same time, they are subject to control, which is to ensure that they operate in accordance with applicable regulations and standards (Kożuch, 2010). This means that in the search for a better functioning administration, attempts were made to draw from market patterns of principles of operation and procedures and accountability mechanisms in order to improve the problems identified at that time.

The response to the excessive adoption of market assumptions was the emergence of the concept of New Public Governance (NPG). While governance itself is a term used already in the Middle Ages, it became popular in the 1990s, indicating the actual performance of government tasks from the point of view of methods of action, processes, and quality of "governance". References can also be found in the literature that NPG is "the task of managing complex communities" by coordinating the activities of entities belonging to different sectors (Hague et al., 1998). Importantly, according to this concept, the implementation of public tasks does not necessarily have to be performed by public authorities, and their performance can be carried out by private companies, associations of companies, and non-governmental organizations and their associations, often without an order from public authorities (Keohane & Nye, 2000). In turn, Izdebski notes that the idea of good governance is a key element of contemporary political systems, encompassing such aspects as transparency, citizen participation and government accountability. In practice, this means ensuring broad access to public information (open government), responding to the needs of citizens (responsive government) and performing public tasks based on the principles of ethics and honesty. This concept is closely related to the principle of subsidiarity, which assumes delegating public tasks to lower levels of government or non-governmental organizations, if possible and effective. Such a model not only increases citizen involvement but also contributes to the decentralization of power and deregulation. Civil society plays an important role in this process, taking over some of the responsibility for the provision of public services, while maintaining supervision by the authorities (Izdebski, 2007). Hutton (1996), Sullivan et al. (1999), and Gulledge and Sommer (2002) present a process approach to public administration management as a response to some of the assumptions of the so-called NPM. They point out that the key advantage of this approach is the possibility of increasing the effectiveness and efficiency of the organization by transforming its structure into cross-functional teams focused on the implementation of specific processes. Hammer, in his groundbreaking article "Reengineering Work: Don't Automate, Obliterate" (1990), proposed a radical approach to redesigning business processes. Instead of automating existing, often inefficient processes, Hammer postulated their complete elimination and replacement with new ones, better suited to the needs of the business. Hammer's theses were developed by Davenport and Short, who emphasized the need for fundamental changes in the organization, with an emphasis on customer orientation and continuous improvement of processes. Jansen-Vullers and Netjes defined business process management as supporting processes using methods, techniques and software by designing, establishing and analyzing operational processes with the participation of people, applications, documents and other sources of information (Jansen-Vullers and Netjes, 2006).

The concepts of NPM, NPG, process management, and the use of new technologies, such as artificial intelligence, offer a number of tools and solutions that can contribute to improving the quality of public services. Assuming that public administration is an organized system of public institutions that perform tasks ensuring the functioning of the state, it can be considered a kind of state apparatus. This apparatus provides public services by enforcing the law and implementing the decisions of the government and central administration. As a precise mechanism, public administration should operate on the basis of clearly defined procedures, ensuring the repeatability of actions and effective achievement of goals. It is the standardization of state apparatus processes that should ensure impartiality, objectivity, and justice. An approach to management in public administration based on the standardization of processes and the use of new technologies is necessary to ensure high quality public services and build trust between citizens and the state. Taking such an approach to management in public administration is in line with Max Weber's concept of bureaucracy, where clearly defined procedures, hierarchy and specialization are key to the effective functioning of the organization. However, modern tools and technologies allow for the transformation of traditional bureaucracy into a more dynamic and citizen-oriented structure.

The creator of the ideal type of bureaucracy, Max Weber, indicated that an official should be, above all, impartial, professional, and completely dedicated to public service. Bureaucracy, in his vision, is a strictly hierarchical organization, where each employee has clearly defined duties and operates in accordance with established procedures. All decisions should be made on the basis of objective criteria, without the influence of personal preferences. Weberian bureaucracy is based on several key principles:

- division of labor, because each employee specializes in a specific task,
- an extensive hierarchy with a clear management structure, where each subordinate has their own superior,
- formal rules defined by regulations and procedures,

- decisions and actions documented in writing,
- high qualifications of officials and continuous training,
- decision-making based on objective criteria,

and work in public administration itself is treated as a long-term career (Weber 2002).
Until the revolution of artificial intelligence, it seemed that the Weberian vision of bureaucracy was only an unattainable ideal type that could not be achieved in reality. Human errors, discretionary decisions, corruption, nepotism or excessive bureaucracy are just some of the problems that modern organizations struggle with. Therefore, it is reasonable to pay attention to artificial intelligence and robotization of processes in public administration, which can make the principle of rationality in decision-making increase the justice, objectivity, and standardization of public administration activities.

Conditions of robocracy

At the threshold of a new era in which automation and artificial intelligence are revolutionizing almost every aspect of our lives, including the functioning of public administration, traditional, paper bureaucracies are giving way to modern, digitalized systems in which robots play a key role. Modern technologies, including robotics, are revolutionizing the way offices function. Thanks to the automation of many processes, citizens can count on more efficient and effective handling of their affairs. Robots, performing precisely repetitive tasks, allow administration employees to focus on the individual needs of residents.
Roboticization can be described as a form of automation. Initially limited to production halls, industrial robots have evolved over time, giving rise to service robots and humanoids, which are increasingly entering our homes and workplaces. The use of robots, originally focused on the automation of industrial processes, has expanded to the sphere of services, where service robots and humanoids support people in everyday activities (Maruti Techlabs, 2018).
In order to define what robotization is, it is worth starting with the fact that it is a form of process automation using bots (robotic process automation—RPA). This means that a machine reproduces or imitates human behavior based on a given algorithm. This algorithm is nothing more than automated activities that a robot performs step by step. Similar to a human performing a specific task, the algorithm processes data and achieves a specific goal. The difference is that the robot performs these tasks much faster and more accurately. As noted by Kaczmarski, RPA is software that allows copying repeatable and standardized human behavior. Thus, RPA is neither an autonomous activity of the machine nor artificial intelligence. It is simply a given scheme of action implemented by a computer program (Kaczmarski, 2020).
Referring to the use of algorithms, it is worth emphasizing that Kreft notes that the widespread presence of algorithms encourages the formulation of opinions about the upcoming “era” of algorithmic management, in which their role in exercising power will increase. It can be seen that the development of technology leads to increased social discipline or the automation of social control. The concept of algocracy, or management based on algorithms proposed by Kreft, refers to automated systems that collect, analyze, and interpret data, making decisions based on them. This trend covers more and more areas of our lives related to information (Kreft, 2018).
Automation of business processes using bots is an increasingly popular solution that allows for a significant increase in work efficiency and effectiveness. You can imagine that a robot is tasked with preparing a financial report. After appropriate configuration, the bot will independently collect data from various systems, process them according to specific algorithms and generate a ready report in the required format. Thanks to this, employees will be released from routine tasks and will be able to focus on more creative and strategic activities. In subsequent periods, this report will be able to be fed with new data and will generate their visualization.
However, it is necessary to point out that from a management perspective, the development of robocracy requires the creation of a comprehensive ecosystem in which robots will be able to operate in a coordinated manner. The 5G network will provide the necessary infrastructure, enabling the rapid flow of information and effective management of complex systems. Thanks to this, organizations will be able to optimize their processes, and public organizations will be able to provide more effective services to citizens (Kolek, 2019).
It is worth noting here that artificial intelligence, which is an advanced IT system that can process large amounts of data, both structured and unstructured, should also be an element of robotization. Based on this data, the system learns, draws conclusions, and makes decisions that aim to achieve a specific goal. Artificial intelligence can function in both the virtual and physical worlds, depending on its application (Ministry of Digital Affairs, 2019). This means that the robot should not only perform repetitive activities but also learn and improve its work. Goolsbee notes that artificial intelligence should not significantly affect political decision-making processes. Although artificial intelligence is an undeniably powerful tool, its application in politics faces significant limitations, which results from the fact that the most important political issues, such as choosing between

different options or making value judgments between different action scenarios, require more than the ability to predict. Artificial intelligence can perfectly analyze large data sets and predict the potential effects of different actions, but it is not able to make moral or ethical considerations on its own (Goolsbee, 2018).
It can therefore be pointed out that in order for robocracy to be realized, it is necessary to create an appropriate technological ecosystem. In addition to the use of robots and artificial intelligence, the following are also necessary:

- A 5G network, which will ensure fast and reliable data transfer, necessary for the functioning of advanced systems.
- Other new technologies, such as the Internet of Things and cloud computing, which will enable the integration of various systems and devices.

Therefore, for the purposes of this study, it can be assumed that "robocracy" is a term that describes a hypothetical socio-political system in which decisions regarding the management of the state, economy, or other spheres of life are made primarily by artificial intelligence and robots. In such a system, robots, algorithms, and automatic systems take over many functions in public administration, which were previously performed by people.

Practical application of robots in public administration
The subject of considerations related to the practical applications of robocracy is the use of robots in public administration organizations responsible for managing public finances. The choice of these specific entities for analysis is not accidental. Institutions responsible for collecting taxes and contributions and paying social benefits are, in a way, the face of the state for citizens. It is through their activities that citizens directly experience the functioning of public administration. Why these institutions?

- Cyclical tax obligations and the need to apply for benefits generate a huge number of interactions between citizens and the administration. Automation of these processes can significantly improve service, while reducing the risk of errors.
- The tax and contribution system and the rules for granting benefits are often complex and subject to frequent changes. Artificial intelligence can help interpret these regulations, ensuring more precise and fair settlements.
- Automation of many processes can lead to significant cost savings by reducing employment, speeding up service and reducing the risk of errors.
- Using algorithms and large data sets, it is possible to create more personalized services that better meet the individual needs of citizens. The following sections present an analysis of selected aspects of robocracy in the context of public institutions related to public finances.

Among the practical applications of robotization in public administration, one can indicate advisors on the websites of offices (ZUS, 2012) allowing for quick and automatic answers to the most frequently asked questions regarding procedures, deadlines, and required documents. Robots that streamline document flow may also be worth noting. The implementation of a virtual advisor in ZUS allowed for the optimization of internal processes through the automation of customer service. The robot advisor, based on advanced artificial intelligence algorithms, effectively answered the most frequently asked questions, relieving employees and allowing them to focus on more complex problems. At the same time, it ensured the consistency of information provided to customers, opening the way for the further development of the ZUS' digital services. Thanks to automation, the flow and acceptance of correspondence in the office have become much more efficient. Instead of traditional, paper document flow, electronic systems have been introduced that allow applications to be submitted using the Electronic Services Platform (PUE ZUS). Thanks to this, employees can focus on more valuable tasks instead of accepting paper forms, and documents are processed faster and more securely (ZUS, 2023).
In the area of human resources management, the Ministry of Finance has robots that support the so-called back-office processes, including automatic generation of referrals for occupational health examinations, preparation of recruitment advertisements, and automatic entry of invoices using OCR. In addition, robots streamline activities aimed at external clients consisting in collecting, processing and publishing data, e.g., automatic compilation of data for the announcement of the Minister of Finance on average prices of minerals, or automatic compilation of data for the analysis of the split payment mechanism in VAT (Ministry of Finance, 2023).
Also worth noting is the implementation of Robot R32, whose task is to automatically verify the timely initiation of proceedings. Robot R32 revolutionized the way transactions are handled, reducing their execution time to 50 seconds. Automation of this process not only increased efficiency but also had a positive impact on the quality of data in IT systems. This solution is currently being implemented on a wider scale, covering all tax administration chambers and tax offices (MF, 2023).

Łada and Mierzejewska point out that tax processes are perceived as labor-intensive, repetitive, performed on a large scale, and burdened with a high risk of errors or lack of documentation compliance (2021). This approach to tax processes favors the use of virtual robots, which reduces the costs of implementing tax processes and reduces the risk of errors and penalties. In addition, frequent changes in regulations and increasing obligations in the field of electronic reporting encourage the use of more flexible forms of automation, such as the use of bots (Łada & Mierzejewska, 2021). This means that the use of robots applies not only to the administration, but also to taxpayers performing specific activities that are in fact the tasks of the administration but transferred to payers. At the local government level, it is worth noting the example of the city of Bydgoszcz, which indicates that new technologies can improve the work of the office. Thanks to three robots that have automated many processes, the city has increased its efficiency and saved money. The robot replaces human work by performing repetitive work automatically. Its implementation allows for the detection of errors, collection and comparison of data, and the main task of automating the process of digital invoice circulation.

DISCUSSION

Artificial intelligence and robotization have the potential to revolutionize the way public administration functions. First of all, artificial intelligence can significantly improve decision-making processes by analyzing huge amounts of data in real time, which will make it possible to automatically verify applications and make decisions. The use of artificial intelligence as an application verifier can be used both in civic matters related to issuing documents, as well as in the case of considering cases regarding benefits or settling public levies. Robotization of routine tasks, such as document processing or handling applications, will allow employees to focus on more complex problems requiring human judgment. As a result, the administration will become more efficient, transparent, and citizen friendly.

It can be seen that artificial intelligence is particularly useful in the case of problems that can be reduced to the analysis of numerical data. For example, it can help in assessing risks in the financial sector or in forecasting the effects of changes in economic policy. However, in the case of complex political problems, such as shaping social or international policy, the possibilities of artificial intelligence are significantly limited.

In order for a process to be automated using RPA technology, two key criteria must be met. First, the process must be based on strictly defined rules and procedures. This means that the tasks must be repeatable and must not require human intuition or subjective assessment, which robots lack. Second, all data necessary to perform the process must exist in digital form. A robot, as software, cannot directly interact with paper documents. In many cases, it may be necessary to implement OCR (optical character recognition) technology to digitize documents and enable the robot to read the information contained in them. It is also important that the development of artificial intelligence brings with it new political challenges. Issues related to data privacy, market monopolization, and ethical aspects of artificial intelligence use will become key topics of public debate. Although artificial intelligence can be a useful tool supporting decision-making processes in politics, it cannot replace human judgment and values. The role of politicians is not only to analyze data, but also to make difficult decisions that have far-reaching consequences for society. The evolution of management in public administration from traditional approaches, through NPM and NPG, shows continuous adaptation to new concepts and technologies. Artificial intelligence has the potential to revolutionize public administration, increasing efficiency, transparency, and objectivity of decision-making, bringing reality closer to Max Weber's ideal model of bureaucracy. Although artificial intelligence brings many benefits, its implementation in the public sector requires a cautious approach and consideration of potential threats, such as the loss of privacy or algorithmic discrimination.

CONCLUSION

Robocracy, or the increasingly widespread implementation of robots and automation in management processes, raises both hopes and fears. On the one hand, it promises increased efficiency, precision, and objectivity in decision-making. On the other hand, it raises questions about the loss of jobs by people, the dehumanization of public services and the limitation of opportunities for creativity. This article attempts to answer the question of whether robocracy is a model of efficiency or rather leads to the creation of a soulless public administration. The analysis carried out in this article indicates that the answer is not clear-cut and depends on many factors, such as

- Scope of automation: The greater the scope of processes that are automated, the greater the risk of dehumanization. However, properly designed systems can support human work, not replace it.
- The nature of the tasks performed: Repetitive and routine tasks can be successfully performed by robots, freeing people for more creative and demanding soft-skills tasks.
- Human supervision: The key role is played by humans who supervise the work of robots, make strategic decisions and are responsible for the ethical aspects of the use of technology.
- Impact on interpersonal relationships: Automation can affect the quality of interpersonal relationships, both in the workplace and in customer interactions.

The findings of this research suggest that robocracy has the potential to significantly increase the efficiency of organizations. However, to avoid negative effects such as job losses or dehumanization of services, it is necessary to implement appropriate safeguards and regulations. It is crucial to remember that technologies are tools that serve humans, not the other way around. Robotization in public administration, understood as "robocracy", opens up both new opportunities and poses significant challenges. Future research should focus on a comprehensive analysis of this phenomenon, taking into account economic, social, and ethical aspects. It is particularly important to understand how artificial intelligence can affect the transparency and accountability of decisions made by administrations. In addition, it is necessary to examine how robotization can affect the quality of public services and how to ensure that its implementation does not lead to deepening social inequalities. In this context, it is crucial to develop a legal and ethical framework regulating the use of artificial intelligence and to ensure appropriate training of public administration employees.

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