

POTENTIAL FOR USING ARTIFICIAL INTELLIGENCE IN PUBLIC ADMINISTRATION

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ABSTRACT

Artificial intelligence has become a defining technology for the last decade and possibly the next few. Every day, new and new applications are created based on large language models (LLM), a little hastily called artificial intelligence (AI). This reveals new and new opportunities for their use in various spheres of public life. Public administration, despite its inherent conservatism, is also one such area where AI can be used to enhance its administrative capacity and citizens' satisfaction with administrative services. The aim of this article is to address the possibilities of using AI in public sector organizations and to reveal the limitations that hinder it. In this sense, the object of the research is the Bulgarian state institutions, and the subject - the application of AI in their work. A study was conducted that shows that the employees in the Bulgarian state administration still do not know the possibilities of AI and how to use it in their work. Abstention is due to both ignorance and lack of regulation about what apps can be used where, as well as fear of possible risks. The report presents the possibilities of using some AI-based applications in the implementation of basic work processes in administrations and justifies the need to introduce strict regulations for this. The author's hypothesis will defend the claim that the Bulgarian administration does not know well the possibilities of digital transformation and AI, through which their work and efficiency can be improved.

Keywords: *Artificial Intelligence, Public Administration*

1. INTRODUCTION

In the age of quickly developing artificial intelligence (AI), it is imperative that the progress of science in this field is accompanied by the progress of AI in the domain of public administration (Lamovšek, N., 2023). COVID-19 had undoubtedly speeded up adoption of digital technologies (Mičić, L., Mastilo, Z., 2022). Digital transformation is a key moment in the development of the world in recent times, especially in the conditions of complex economic and political relations. Artificial intelligence (AI) has rapidly entered our lives in the past few years and has begun to change it significantly. In fact, when artificial intelligence appears is debatable, depending on the understanding of its nature and its development over the years. As early as 1956, John McCarthy is said to have used the term AI (artificial intelligence) as "the science and engineering of creating intelligent machines" (McCarthy, 2007).

But it is believed that in the modern sense that we now put in this word combination, Andreas Kaplan and Michael Henlein first used the concept of “artificial intelligence” as “the ability of a given system to correctly interpret external data, learn from it and use this knowledge to achieve specific goals and objectives through flexible adaptation’ (Kaplan, 2019).

Like everything, the emergence of AI is preceded by a number of other achievements in the given scientific field, in the case of the development of information and communication technologies (ICT). The emergence of the Database Management System Database management systems (DBMS) was one such achievement, representing a system of computers, computer networks and computer programs used to store, organize, access and use large databases (Big-Data). The history of database management systems dates back to the early 1960s, when computers began to be used for data processing. At the time, the innovative technology was called an information management system. In our time, the capabilities of DBMS are growing a lot with cloud-based data, which increases storage capacity many times over.

Blockchain databases were the next step in the development of digital technology. Blockchain is a system in which records of operations are maintained on several computers that are connected in a peer-to-peer network and can be used anywhere there are established computer networks processing large databases. With numerous new applications built on top of this technology, various solutions such as cloud storage, payment processing and cyber security are available.

First mentioned in 1999, the term Internet of Things (IoT) has also undergone great development in the last 10 years and is considered to be the other trend in information technology that has prepared the emergence of AI. IoT represents the integration between computer networks of physical objects (devices, vehicles, buildings and other objects and things) enabling interaction with each other or with the external environment. The Internet of Everything allows not only processing, but also the generation of data, with possibilities for use in all spheres of public life.

On this basis, it was quite logical that the next generation of technologies emerged, namely the algorithm-based Large Language Models (LLMs) artificial intelligence, which uses deep learning techniques and processing data sets in order to understand, generalize, generate and predict added content. The term generative AI is strongly associated with LLMs specifically designed to help generate textual content. Artificial intelligence is perhaps the fastest growing technology right now. Even just at the time of drafting this article, there are new and new announcements about artificial intelligence software applications that not only create text or audio content, but also pictures, videos, music, manage complex processes, such as car traffic, etc. About artificial intelligence enables consumers to be better informed, make better choices, get better service, and save time. For businesses, the benefits of using AI for their organizational efficiency are obvious, as they can optimize business processes and reduce human error. In addition, AI enables businesses to better personalize customer relationships, and public authorities to connect with users of public services and stakeholders of various policy decisions. The benefits to society as a whole are also obvious, as AI can lead to increased annual economic growth rates. It is estimated that AI will increase labour productivity by between 11% and 37% by 2035, thanks to innovative technologies enabling more efficient time management, creating a new virtual workforce capable of problem solving and self-learning and new opportunities for the diffusion of innovation (Purdy, 2016).

If business organizations are looking for ways to keep up with innovative technologies and thus lose their competitive advantages, then public organizations are more cautious. There are several reasons for this: first, public organizations are conservative, they do not experience competitive pressure from similar structures and therefore are not so open to innovation. Second, public institutions have greater responsibilities to society that are not reduced to reducing market share

or declaring bankruptcy when making inappropriate decisions, and third, the performance of public institution managers is usually valued more by politicians than by “customers” them, i.e. citizens and their organizations, and politicians are more inclined not to take risks at the expense of efficiency.

Despite the enormous potential of artificial intelligence (AI), many public organizations struggle to adopt this technology. Simultaneously, empirical research on what determines successful AI adoption in public settings remains scarce (Neumann, O. Guirguis, K., Steiner, R., 2024).

2. METHODOLOGY

Exploring the possibilities of using different AI applications in public administration requires special attention. If public institutions are not “in step with the times” they risk not only falling behind in terms of innovations in administrative processes, but also harming the users of public services, their socio-economic partners, civil formations and business organizations.

Whether the employees in the Bulgarian structures of the state administration are ready to use artificial intelligence in your work is shown in the non-representative announcement made in the month of April 2024 among 77 employees in public sector organizations in Bulgaria, of which 4 ministries, 6 state agents, 18 executive agencies, 10 specialized structures subordinate to the Council of Ministers and the National Assembly, 11 specialized territorial administrations, 16 regional and 12 municipal administrations. For this purpose, an electronic questionnaire was prepared and distributed with the help of Google Forms, which included 7 questions, each with four possible answers. Responses were worded to describe four possible states, respectively a) poor, b) satisfactory, c) good and d) very good. Qualified on a Likert scale, the answers allow to determine the readiness of public sector organizations to use AI. The questions and answers included in the questionnaire were as follows:

1. Are you familiar with the possibilities of AI and do you think it can be useful for the work of your administration?

- a. I have a vague idea of what AI is, but I don't see how it can help improve the work of administration.
- b. I basically know ChatGPT as a form of artificial intelligence that can process and produce natural language as well as chatbot applications for computers and phones such as Bing, Bard, Gemini, Siri, Alexa, Google Assistant and/or others, but I think, that their application in administrative activity is too limited or still underdeveloped. The administration is not making enough efforts to implement artificial intelligence systems in its work.
- c. I know ChatGPT and chatbots with AI and I think they can support the work of the administration, but there are still no suitable conditions for this - internal rules, standards, digital infrastructure, trained employees, etc.
- d. Yes, I know the capabilities of AI and the latest models of ChatGPT and I think that they can be successfully used in the work of the administration. Management encourages their application under certain conditions and compliance with internal rules and standards. Most employees are interested in using AI in their work.

2. Does your administration have a suitable digital infrastructure for using AI in its work.

- a. In our work, we use computers and peripheral devices necessary for the specific work of employees, but with limited external access.
- b. We use networked computers with the ability to access external databases and browsers

such as Google Chrome, Firefox, Mozilla or others to search for information resources. AI platforms are not used.

- c. The administration has a system of hardware, software and electronic network that ensure the functioning and development of the digital space and the means of information interaction through electronic devices. There are technical possibilities to use AI applications, but they are not implemented due to the lack of guidelines and internal rules.
- d. The administration has the necessary digital infrastructure and encourages the use of AI applications. It has developed guidelines on how AI can be used in managing various work processes.

3. Do you think that the employees of your administration would cope with the use of AI?

- a. No.
- b. Individual employees have knowledge about the use of AI, but do not apply it in their work.
- c. Most employees are familiar with the capabilities of AI but need additional training on its use in administration work.
- d. Employees know and apply various appropriate chatbot applications in their work based on the developed internal rules and standards.

4. Does your administration invest enough funds in digitization and in training staff to use modern software products, work in networks and use AI?

- a. Not enough investment is made in hardware, software and the construction of information networks.
- b. Funds are invested in modernizing computers and peripheral devices, as well as in creating information networks, but not enough, which is why much of the equipment is obsolete.
- c. Sufficient funds are invested in the modernization of computer systems, but not in the creation and/or use of specialized programs with AI and the training of personnel to work with AI.
- d. Sufficient funds are invested in the modernization of computer systems, as well as in the creation and/or use of local models with AI. The staff is periodically trained to work with the latest programs, including those with AI.

5. Do you think special regulations are needed for the use of AI in public sector organizations?

- a. Not different from those for the private sector.
- b. It is sufficient to define employee access levels to AI programs.
- c. It is necessary to establish the special regulations by law and/or by-law, adopted at the central level and valid for all administrations.
- d. Along with the national legislation, it is necessary to define standards for working with AI for each administration, rules for the observance of ethical principles, mechanisms for the protection of internal information and for the protection of the public interest.

6. In which areas of your administration's activity could AI be used? Please indicate three of them that seem most suitable to you.

- a. Analysis and processing of large volumes of data.
- b. Automation of routine and administrative tasks.
- c. Decision support and work process optimization.

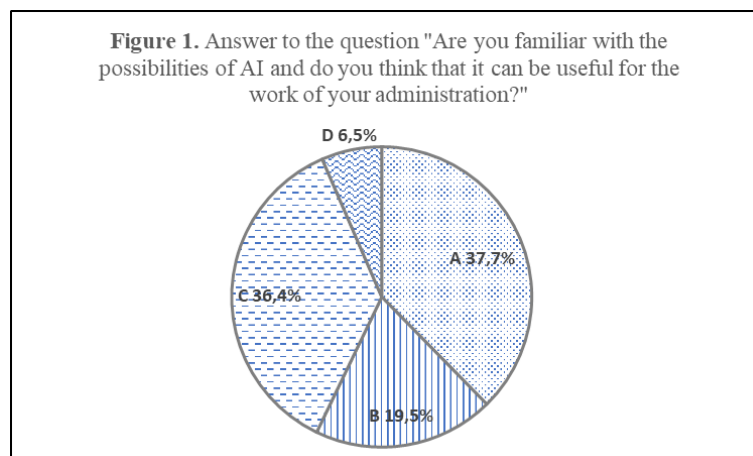
- d. Developing “smart cities” and improving urban mobility, energy efficiency and waste management.
- e. Increasing the transparency and accountability of public bodies.
- f. The management of human resources.
- g. Risk management.
- h. Spatial planning.
- i. Public relations.

7. What do you think are the main risks of using AI? Please indicate three of them that seem most significant to you.

- a. Redundancy.
- b. Over trusting AI and receiving false information when using it.
- c. Violation of the ethical principles of work.
- d. Reducing creativity and creative thinking in employees and turning them into technical operators.
- e. Waiver of personal liability of employees.
- f. Malware infection.

3. RESULTS

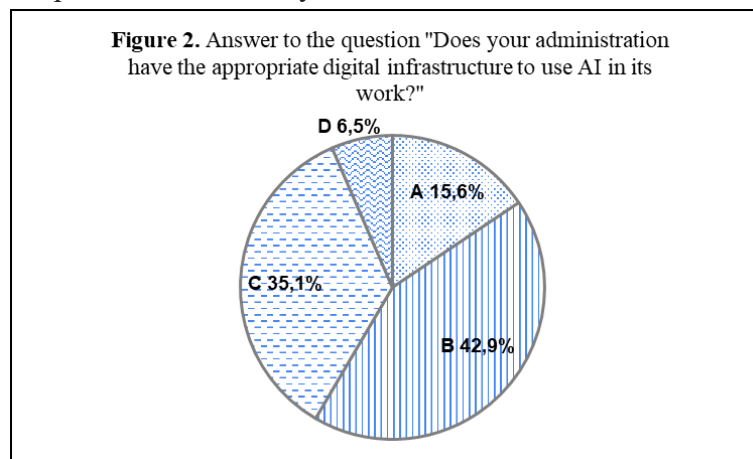
The survey conducted among 77 employees from 7 different types of state administrations in Bulgaria shows interesting results that can be indicative regarding the future use of AI and the need for regulations. To the first question, whether they are aware of the possibilities of AI and whether they think it can be useful for the work of the administration, the overwhelming answers are that the employees have a vague idea of the essence of AI and do not see how it can help to improve work of the administration. Close to the same percentage of respondents answered that they know ChatGPT and chatbots with AI and think that they can support the work of the administration, but there are still no suitable conditions for this. Nearly 20% answer that there are still no suitable conditions for using AI in the work of the administration, by which they mean internal rules, standards, digital infrastructure, trained employees, etc. 6.5% of the respondents answered that they know the possibilities of AI and the latest models of ChatGPT and that they can be successfully used in the work of the administration, and the management encourages their application under certain conditions and compliance with internal rules and standards.



Note: In this figure and the following figures, the letters “A”, “B”, “C” and “D” correspond to the letter designations of the answers to the questions.

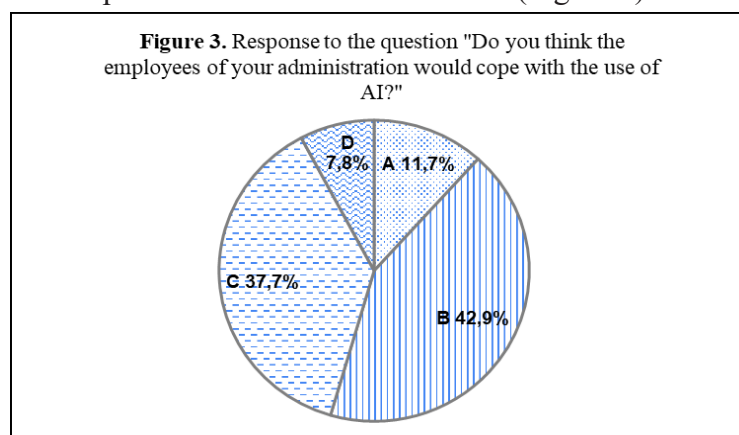
Source: Author’s Compilation

In recent years, e-governance has widely entered the activities of public sector organizations in Bulgaria, but whether the built infrastructure is suitable for the implementation of artificial intelligence programs is shown by the answers to the next question in the research. The largest percentage of respondents (42.9%) answered that they use computers connected to a network with the ability to access external databases and browsers such as Google Chrome, Firefox, Mozilla or others to search for information resources, but platforms with AIs are not used (Figure 2). The percentage of those who answer that the administration has a system of hardware, software and electronic network that ensure the functioning and development of the digital space and the means of information interaction through electronic devices is not small. There are technical possibilities to use AI applications, but they are not implemented due to the lack of guidelines and internal rules (35.1%). Only 6.5% of respondents answered that the administration has the necessary digital infrastructure and encourages the use of AI applications, has developed guidelines on how AI can be used in the management of various work processes. Obviously, this percentage is going to increase if there is an understanding in management that AI can increase the operational efficiency of the relevant administrative structure.



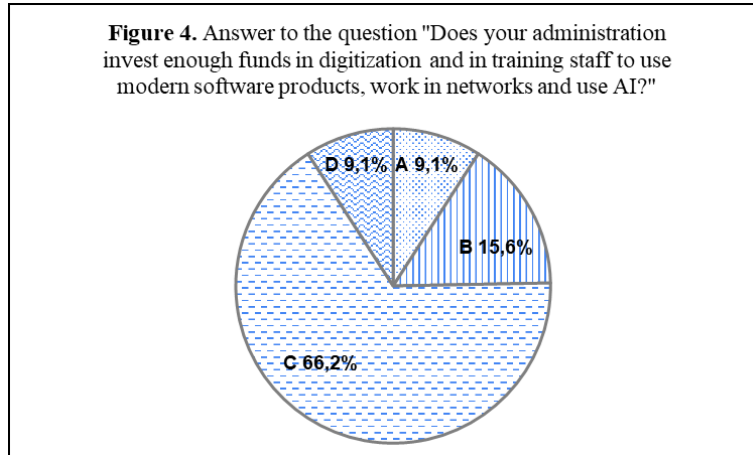
Source: Author's Compilation

The third question in the conducted survey aims to show what the professional preparation of the employees for is using artificial intelligence in their work. A large percentage of them (15.6%) answered that they had no training. The largest percentage (42.9%) admit that individual employees have knowledge of the use of AI but do not apply it in their work, followed by those who believe that most employees are aware of the capabilities of AI but need from additional training for its use in the work of the administration (35.1%). The lowest percentage of employees indicated that they know and apply various appropriate chatbot applications in their work based on the developed internal rules and standards (Figure 3).



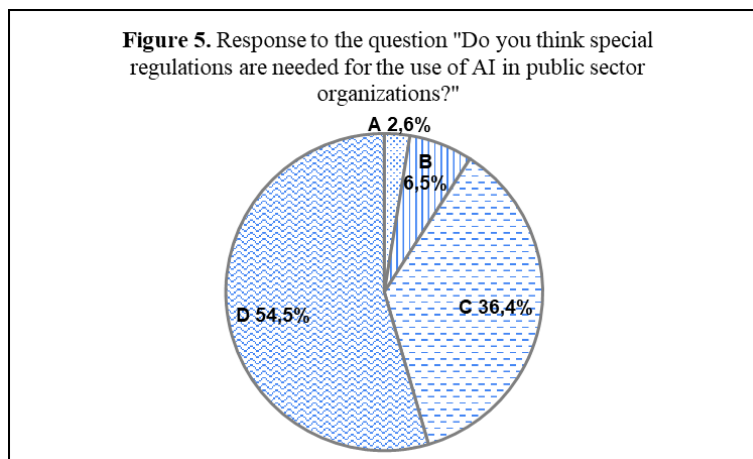
Source: Author's Compilation

The answers to the next question in the survey show whether the administration invests enough funds in digitization and in training staff to use modern software products, work in networks and use AI. Figure 4 shows that more than half of the respondents from the administrations believe that sufficient funds are invested in modernizing computer systems, but not in creating and/or using specialized AI programs and training staff to work with AI (Figure 4). 15.6% believe that funds are invested for the modernization of computer systems and networks, but not enough, and the supporters of the two final answers - that not enough is invested in hardware and software or that the funds for the modernization of computer systems and creation of local models with AIs are sufficient, equally divided (9.1%).



Source: Author's Compilation

Regarding the view of whether special regulations are needed for the use of AI in public sector organizations, the prevailing opinion is that this is absolutely necessary, as alongside national legislation it is necessary to define standards for working with AI for each administration, rules for compliance with ethical principles and mechanisms for the protection of inside information and for the protection of the public interest (54.5%) or that it is necessary to establish special regulations by law and/or by-laws adopted at the central level and valid for all administrations (Figure 5).

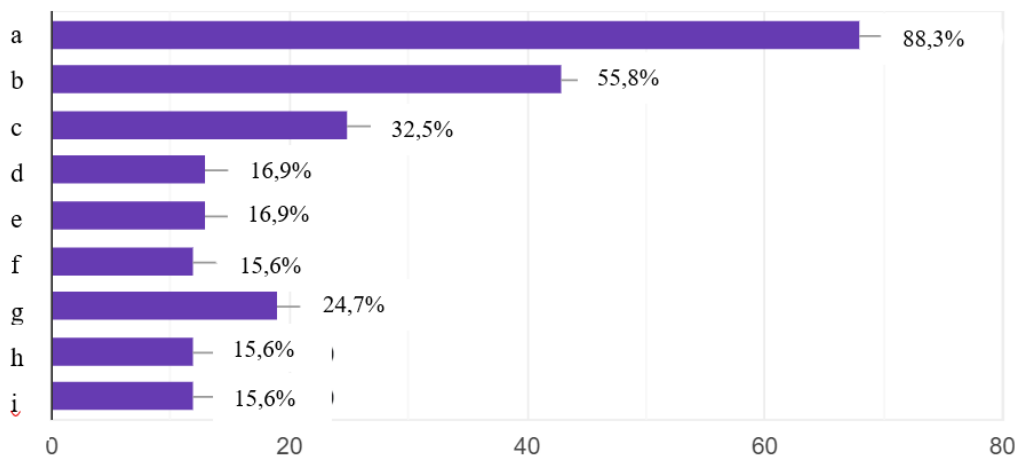


Source: Author's Compilation

The sixth question of the survey asks employees from the administrations to give their opinion on what areas of their work AI could be used. They had to indicate three priority areas out of a total of 9 listed. A very large percentage - 88.3% indicated that they could use artificial intelligence applications in the analysis and processing of large volumes of data, followed by

those who believed that AI can be used in the automation of routine and administrative tasks (55.8%) and those who claim that AI can provide decision support and work process optimization (32.5%). Relatively fewer are those officials who see opportunities for artificial intelligence in developing “smart cities” and improving urban mobility, energy efficiency and waste management, to increase transparency and accountability of public bodies and communication with citizens, as well as for risk management, increasingly important areas with major responsibilities of public authorities (Figure 6).

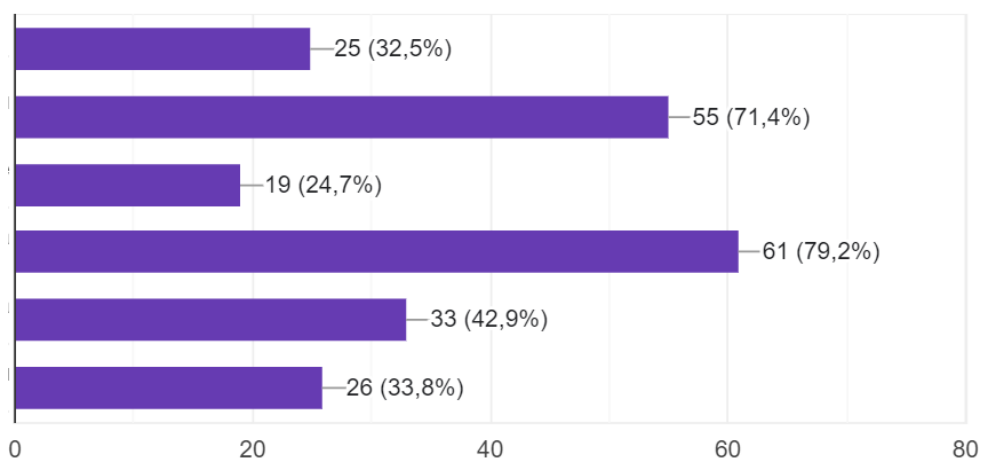
Figure 6. Answers to the question in which areas of administration can AI be used



Source: Author’s Compilation

The final question of the survey addressed the top three risks that government officials believe could occur as a result of the use of AI. Most of them (79.2%) answered that it is reducing creativity and creative thinking in employees and turning them into technical operators. Another 71.4% believe it is the risk of over-trusting AI and receiving false information when using it. But there are not a few of these employees who pay attention to other risks as well, such as the loss of personal responsibility of employees, the danger of infection with malicious software, layoffs and violation of ethical work principles (Figure 7).

Figure 7. Responses to the question “What do you think are the main risks of using AI?”



Source: Author’s Compilation

The answers to the questions asked can guide managers of public sector organizations both in which areas they lag behind others in the use of artificial intelligence in their work, and also in taking preventive measures in order to prevent risks that may occur from this.

4. DISCUSSION

Thanks to digital transformation, networks are becoming increasingly complex, as well as the services delivered by them (Radukić, S., Mastilo, Z., Kostić, Z. 2019). As Mihalis Kritikos points out, there is still no transnational agreement on a commonly accepted working definition of what AI is. A number of definitions have emerged in Europe and around the world that are either too comprehensive or too sector specific. This fragmented conceptual landscape may prevent the immediate development of a *lex robotica* and possibly undermine any efforts to create a common legal nomenclature that is particularly useful for the drafting, adoption and effective application of binding legal norms. Alternatively, a broad and technologically neutral definition that is based on the fulfilment of various structural criteria, including the level of autonomy and function, may be a more plausible option (Kritikos, 2019).

The same is emphasized by the Ad hoc Committee on Artificial Intelligence (CAHAI) of the Council of Europe, according to which no definition of artificial intelligence has been accepted by the scientific community and the term “AI” is often used as a “general term” for various computer applications. based on various techniques that demonstrate abilities usually and currently associated with human intelligence (Council of Europe, 2020).

In Article 3, Paragraph 1 of the Proposal for a regulation of the European Parliament and of the Council laying down harmonized rules on Artificial intelligence (Artificial intelligence act) and amending certain union legislative acts of the European Commission it is said that “artificial intelligence system” (AI system) means software that is developed with one or more of the techniques and approaches listed in Annex I and can, for a given set of human-defined objectives, generate outputs such as content, predictions, recommendations, or decisions influencing the environments they interact with. These techniques and approaches listed in the appendix are:

- a. Machine learning approaches, including supervised, unsupervised and reinforcement learning, using a wide variety of methods including deep learning;
- b. Logic- and knowledge-based approaches, including knowledge representation, inductive (logic) programming, knowledge bases, inference and deductive engines, (symbolic) reasoning and expert systems;
- c. Statistical approaches, Bayesian estimation, search and optimization methods (European Commission, 2021).

Artificial intelligence is one of the fastest growing technologies in the world and has huge potential to transform various industries. Here are some interesting statistics about artificial intelligence, summarized in the publication “Artificial Intelligence - Statistics, Benefits and Harms” on the website bedigital.bg (bedigital.bg, 2024):

- According to McKinsey & Company, by 2030 artificial intelligence can contribute to economic growth in the amount of 13.5 trillion. Dollar;
- According to IDC (International Data Corporation), the size of the market for artificial intelligence solutions could reach \$97.9 billion by 2023;
- Gartner predicts that by 2025, 75% of all enterprises will use artificial intelligence to automate their processes;
- In the healthcare sector, artificial intelligence can reduce mortality by up to 30%, according to Accenture;
- In the manufacturing sector, artificial intelligence can contribute to reducing production costs by 20%, according to the McKinsey Company.
- In the finance sector, artificial intelligence can reduce the cost of operations by 22%, according to Autonomous Research;
- According to Capgemini, by 2020, up to 83% of the world’s consumers will already be using services that use artificial intelligence.

Veselin Mladenov supports his claim about the prospects for the use of artificial intelligence with additional data (Mladenov, 2024):

- Almost a quarter of customer service companies currently use AI;
- Chatbots can reduce customer service costs by almost 30%;
- Chatbots can respond quickly, and 68% of users say they like this speed of interaction;
- Programs like Ada Health are revolutionizing digital counselling services, even though 75% of consumers fear misinformation from information sources;
- Almost two-thirds of people prefer to speak with a live customer service representative;
- 60% of people express concerns about a chatbot’s ability to accurately understand their queries;
- 43% of AI is becoming more affordable and accessible;
- Embedding artificial intelligence in ready-made business applications increased by 37%;
- AI can increase business productivity by 40%;
- The number of AI startups has increased 14 times over the past two decades;
- Investments in AI startups have increased 6 times since 2000;
- In 2017, Netflix saved \$1 billion from using machine learning;
- 41% of consumers believe that artificial intelligence will improve their lives in some way;
- More than half of respondents in a recent survey believe that artificial intelligence can improve written content with the potential to improve text quality, creativity and efficiency in a variety of content creation contexts.

In the Proposal for a regulation of the European Parliament and of the Council laying down harmonized rules on Artificial intelligence (Artificial intelligence act) and amending certain union legislative acts of the European Commission points out the potential application areas of AI, emphasizing that „Artificial intelligence is a fast-evolving family of technologies that can contribute to a wide array of economic and societal benefits across the entire spectrum of industries and social activities. By improving prediction, optimising operations and resource allocation, and personalising digital solutions available for individuals and organisations, the use of artificial intelligence can provide key competitive advantages to companies and support socially and environmentally beneficial outcomes, for example in healthcare, farming, education and training, infrastructure management, energy, transport and logistics, public services, security, justice, resource and energy efficiency, and climate change mitigation and adaptation“ (European Commission, 2021).

A special study by a group of authors commissioned by the European Parliament (Eager, 2020) was devoted to the possibilities of applying AI. These possibilities are described in Table 1:

Table 1. Areas of application of AI

AI technological process	Description
Robotic Process Automation	Application of specific technologies and methodologies that are based on software and algorithms aimed at automating repetitive human tasks.
Computer Vision	Computer vision aims to build autonomous systems that can perform tasks that humans can perform or even surpass the tasks of human vision.
Machine learning	Ability of computer programs to extract knowledge from data. Machine learning relies on applying statistical models to data.
Understanding Natural Language	Text Natural Language Processing (NLP) analyses text through digital means. NLP gathers knowledge based on how people understand or use language.
Virtual agents or conversational interfaces	Conversational interfaces are defined as interfaces relying on dialogue between humans and digital agents, either through speech or text.
Physical Robotics	Refers to the „embodiment“ or physical existence of a body in the field of robotics.

Source: CSES secondary research (2020)

The possibilities of using AI in public administration were indicated by the Deputy Minister of e-Government of Bulgaria Blagovest Kirilov at the opening of the conference “Artificial Intelligence - Policies and Management in Public Administration”, organized by the Institute of Public Administration. He said: “Artificial intelligence is a technology that implies large-scale implementation in all public spheres - public administrations, hospitals, utilities and transport services, as well as financial control sectors offering products and services. By automating some of the processes, an opportunity is created for the rapid exchange of information and the provision of much more data, as well as facilitating the administration in its daily work’ (Institute of Public Administration, 2022). Artificial intelligence should support human autonomy and decision-making processes, especially important for public administration. This requires that it be used as a tool to preserve a just society by supporting and facilitating the daily tasks of users and promoting respect for fundamental rights and allowing continuous human supervision.

Let’s see what the AI itself thinks about itself. In Google’s Gemini AI ecosystem, we asked the question, “What are the application areas of AI?”. The following response was received: “Artificial intelligence (AI) is a branch of computer science that deals with the creation of intelligent agents, which are systems that can reason, learn and act autonomously. AI research has been very successful in developing effective techniques for solving a wide range of problems, from playing games to medical diagnostics. Some of the most promising application areas of AI include:

- Healthcare: AI is being used to develop new drugs and treatments, improve diagnosis accuracy, and personalize patient care. For example, AI is being used to develop virtual assistants that can help patients manage their medications and track their symptoms.
- Finance: AI is used to detect fraud, manage risk and make investment decisions. For example, AI is being used to develop trading algorithms that can automatically buy and sell stocks
- Manufacturing: AI is used to optimize manufacturing processes, improve product quality and forecast demand. For example, AI is being used to develop robots that can perform tasks in factories and to predict when machines are likely to break down so they can be repaired pre-emptively.
- Transportation: AI is being used to develop autonomous vehicles, improve traffic management, and optimize supply chains. For example, AI is being used to develop self-driving cars that can navigate roads and avoid obstacles without human intervention.
- Education: AI is used to personalize learning, provide real-time feedback and automate administration tasks. For example, AI is being used to develop intelligent learning systems that can adapt their content to the individual needs of students.

These are just a few of the many areas where AI has the potential to revolutionize the way we live and work. As AI technology continues to evolve, we can expect to see even more innovative and impactful applications of this powerful technology in the near future.”

As can be seen, a large part of the application areas of artificial intelligence are the responsibility of public authorities. If we look at the main work processes taking place in public administrations we will be able to say more specifically where this new technology can be used. Although, depending on the specifics of individual administrations and their responsibilities, work processes may differ, there are also those that are typical for all of them. The table below presents such typical work processes and the possibilities of using AI in their implementation.

Table 2. Areas of application of AI in public administration

Core processes	Potential to use AI
Activity planning	Generating content about the status of major systems of the external environment, information about possible solutions to solve problems
Human resources management	Generation of public announcements for upcoming competitions for filling vacant positions in the administration, formation of competence profiles of certain positions, generation of job characteristics based on regulatory and internal requirements, improvement of operational efficiency based on functional analysis of the administration.
Budget process	Linking the budget with the goals and measures laid down in the strategic documents for the development of the given area of competence of the given administration, surveying the opinion of the interested parties regarding the priorities of the administration's policy, forecasting the effectiveness of budget expenditures, searching for alternative sources of income, generating messages to taxpayers regarding draft budgets and budget reports.
Financial control	Obtaining up-to-date information on the prices of resources, assets and consumables, analysis of the allowed inconsistencies in spending public funds, preliminary information on the need to assume financial obligations, forecasting the effect of assuming public debt.
Conducting public procurement and public-private partnerships	Obtaining information about the potential executors of public contracts, about the prices of the awarded contracts, about the costs and benefits.
Property and asset management	Analysing multiple documents and input data for the public domain in order to generate effective solutions based on information channels in real time and improve its quality.
Risk management	Generating content about potential risks and how to counter them.
Information and communication management	Generation of advertising messages, information on trust in public authorities. Creation of avatars for communication with citizens, companies and various public organizations. Creation of specific messages to interested users of given services, citizens and organizations. Translations of documents and correspondence in different languages, holding meetings, briefings, press conferences, etc.
Provision of public services	Survey of opinions and sentiments regarding the quantity and quality of public services, comparative analyzes of prices and costs, information on the degree of satisfaction with the services provided. Automated service to citizens, automated generation of answers to questions of interested persons.
Knowledge management	Information on good practices, new knowledge on achievements in the field of good governance. Create an employee training video.

Source: Author's Compilation

The conditions for creating a suitable environment for the application of artificial intelligence include access to knowledge, technology, data, computing power and access to comprehensive AI solutions. Along with this, there are also a number of barriers preventing the use of AI. In the European Parliament document Opportunities of Artificial Intelligence cited above, it is said that the most significant barriers to the use of artificial intelligence applications are:

- Lack of a clear AI strategy;
- Functional silos in organizations;
- Cultural resistance;
- Lack of talent needed for AI solutions;
- Budget restrictions;
- Size of the organization (Eager, W., 2020).

The use of artificial intelligence software applications also poses some risks, which are the basis of the reluctance of some employees and organizations to use them. The question of how to ensure that AI systems are transparent and accountable in their operations is closely related to the debate about the distribution of responsibility in the context of AI. The autonomous and unpredictable nature of the operation of AI systems can lead to questions about causality, contingencies and unclear attribution of responsibilities. Who will be held responsible when an AI application causes physical or moral damage? Who will be responsible if an AI system suggests a plan that turns out to be harmful, the administration or the creators of the software product based on LLMs? Shouldn't AI developers uphold and protect the right to privacy and obtain clear, unambiguous and informed consent, especially given the placement of some of its applications in traditionally protected databases? Can an algorithm be sued for abuse etc?

These questions and concerns about the rapid penetration of AI into all spheres of public life have forced the regulation of AI to become a central political issue in the European Union. Policymakers have called for a "human-centric" approach to AI to be developed to ensure that Europeans can benefit from new technologies developed and operating according to EU values and principles. In its 2020 White Paper on Artificial Intelligence, the European Commission committed to promoting the adoption of AI and addressing the risks associated with certain uses of this new technology. While the European Commission initially adopted a non-binding approach, with the publication of its non-binding ethical guidelines on trustworthy artificial intelligence and policy and investment recommendations, it has subsequently moved to a legislative approach, calling for the adoption of harmonized rules for developing, placing on the market and use of AI systems (European Commission, 2021).

In March, The European Parliament approved in a legislative act on artificial intelligence (AI). The European AI law imposes several restrictions on all cases of the requirement that is deemed to be excessive. Its main objective is to protect fundamental rights, democracy and the rule of law, while promoting innovation. The new rules ban some AI applications that threaten citizens' rights, such as biometric categorization systems, facial recognition from the Internet or from video surveillance footage used to create facial recognition databases. The regulations include control over the use via biometric data. Also prohibited are workplace and school emotion recognition systems, social assessment or crime prediction systems. Obligations of the developers are introduced for the patchwork and patch-tests. In this regard, the US has been slower to adapt to AI, rather than allowing the technological bottleneck to push development. For its part, China introduced new rules for genetic human intelligence as recently as August last year but has yet to get a full law on the technology. As a result, the EC's comprehensive AI Law is the first ever. The fact that in the next three years, Serbia will lead the Global Partnership for Artificial Intelligence (GPA), which will try to establish common standards and guidelines for the development of artificial intelligence. your intelligence and to accelerate its development, and that at the beginning of 2024 INSAIT developed the first specialized Bulgarian language model VgGRT speaks eloquently that the small countries of the Balkans strive not to lag behind world trends in the development of artificial intelligence.

5. CONCLUSION

The use of chatbots and artificial intelligence is becoming increasingly relevant in all spheres of public life and public administration is no exception, especially due to the increasing competitive pressure and digital demands of citizens. They can improve the efficiency of executive bodies, reduce their costs, and increase voter loyalty and trust. However, there are some challenges, such as semantically incorrect information and lack of appropriate responses, which can be solved by advanced AI and machine learning.

Implementing a generative chatbot via text is considered to influence human consciousness and can guide preferences towards certain decisions. Humanizing survey chatbots improves human perception, increases interaction time between public sector organizations and citizens, and improves data quality, but also introduces more social preference bias. The survey of the attitudes of employees in public sector organizations in Bulgaria shows that most of them do not know the possibilities of artificial intelligence and do not use AI applications in their work. However, they are adamant that the introduction of artificial intelligence in the work of the administration must be accompanied by rules and regulations that would prevent the occurrence of unwanted risks.

Artificial intelligence can be effectively used to assist the employees in the administrations, but not to replace them. Anthropomorphism and the development of technology increase the likelihood that citizens will correspond with the administration through a chatbot on routine issues, but the responsibility for the information provided must be personified with a specific official.

The adoption of AI in public administration is challenging, especially due to privacy and security requirements. The author's hypothesis has been proven, the majority of respondents are not aware of the possibilities that digital transformation and AI can provide to their administrations in order to facilitate their work and increase their efficiency. These capabilities can also lead to cost savings by offering self-service options to citizens. A special contribution and application of AI in the state administration, as well as in business, can be sought in the provision of financial security and data security.

The main conclusion is that AI and chatbots have the potential to significantly improve the efficiency of public sector organizations and the satisfaction of users of public services. They can answer their questions, direct them to necessary actions to solve their administrative problems, improve their service and satisfaction. However, further research and improvements are needed in terms of technical implementation, privacy and security requirements, and user experience.

It should not be forgotten that AI lacks emotional intelligence, which is sometimes particularly important for building trust between the administration and citizens, and that AI compiles already created knowledge and does not create entirely new ones, i.e. creativity is still a human activity. But one thing is clear – artificial intelligence is one of those concepts that are born to change reality. In what direction - remains to be seen.

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