

PROSPECTS FOR THE CREATION OF "SMART MINISTRIES" WITH THE IMPLEMENTATION OF ARTIFICIAL INTELLIGENCE IN THE REPUBLIC OF ARMENIA

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Key words: artificial intelligence, technological progress, public perception, public administration system, algorithms, database, smart ministry

Introduction. AI refers to replicating human intelligence, programmed to think and learn like humans. AI technologies include machine learning, natural language processing, computer vision, and robotics [The Federal Government, 2020, 10]. These technologies allow computers to perform tasks that normally require human-like intelligence, such as understanding language, recognizing objects, and making decisions based on data. "Artificial intelligence is a system that can make predictions, recommendations or decisions for a certain set of goals defined by a person, influencing reality" [Araya, 2022, 8]. AI is used in almost every industry, including healthcare, finance, manufacturing, transportation, and more. AI has the potential to improve efficiency, productivity and accuracy in many aspects of daily life, and is expected to have a significant impact on the economy and society in the coming years. AI is transforming the world we live in and it is becoming more and more common in our daily lives. AI is changing the way we interact with technology, from virtual personal assistants like Siri to self-driving cars and automated customer service bots. However, AI not only has the potential to revolutionize our personal lives, but it can also develop key sectors in the country if it is applied effectively in the public administration system.

Research methodology. The study of AI, as well as its improvement, will allow us to process huge amounts of data within seconds, through which analyzes will be made and decisions will be made, in which there will be little or no chance of error. Foreign professional literature on artificial intelligence, scientific, analytical and online publications of researchers, as well as the world index of AI served as an information base for the study. For the sake of scientific analysis, the subject of research was divided into separate parts, and each of these parts was studied. During the study, the separately studied parts were put together, as a result of which conclusions were made.

Literature review. As such, there are no Armenian researches on the topic of the application of AI in the state administration system, the main studies were carried out by foreign authors and through this research, reference was made to the strengthening of the state in the case of the latter's significant application in the state system of the Republic of Armenia (hereafter RA). AI has become one of the most talked-about and fast-growing areas of technology in recent years. It involves creating computer systems that can per-

form tasks that normally require human intelligence, such as language comprehension, visual perception, decision making, and problem solving. The concept of AI dates back to the mid-20th century, when John McCarthy, Marvin Minsky, and Allen Newell began developing computational models of intelligent behavior. The term was coined in an academic context in the 1950s to denote an emerging field of research that explored how robots are able to perform tasks by exhibiting intelligent, human-like behavior [Russell, 2016, 15] and the ability of machines to act as intelligent agents [Tzafestas., 2016, 24].

AI includes such methods as supervised and unsupervised machine learning [Smola, 2005, 30], artificial neural networks [Priddy, 2005, 12], case-based reasoning [Kolodner, 34], machine reasoning [Bottou, 2014, 133]. AI also includes cyber-physical systems such as robotics, image and face recognition, speech recognition, virtual assistants and autonomous vehicles [Radanliev, 2020, 3]. However, it is only in the last decade that AI has gained much attention due to advances in deep learning algorithms and massive increases in computing power. One of the earliest and most famous applications of AI was IBM's Deep Blue chess program, which defeated world chess champion Garry Kasparov in 1997. Since then, AI has been applied in a wide range of domains, including natural language processing, image and speech recognition.

AI can play a major role in public administration through analysis, monitoring, decision-making processes and other managerial tasks. Dealing with AI requires a paradigm shift in public administration to collect, store and analyze data, train public employees and make them competitive.

Scientific novelty. The scientific novelty of this article is the prospects for the creation of "Smart Ministries" through the introduction of AI, which can breathe new "breath" into the efficiency of the management system.

Analysis. The government's strategies focused on the AI is a relatively new phenomenon and the states have started to implement it in their strategic plans since 2016. In 2023, the global index of AI (hereinafter: Index) defines the 62 countries (among which the Republic of Armenia is also included) that implemented AI. This list includes only Turkey (table 1) from neighboring countries of Armenia [Tortoise Media, 2021].

Table 1. World Index of AI

Table 1	Total score	Place
United States	100	1
China	61.5	2
Singapore	49.7	3
United Kington	41.8	4
Turkey	20.6	39
Armenia	14.5	54

The global index of AI is based on 143 indicators, which are divided into seven sub-pillars:

Talent - focuses on the availability of skilled professionals to deliver AI solutions.

Infrastructure - focuses on the reliability and scale of access infrastructure, from electricity and Internet to supercomputing capabilities.

Operating environment - focuses on the regulatory context and public opinion around AI.

Research - focuses on the volume of specialized research and researchers by examining the number of publications and citations in credible academic journals.

Development - focuses on developing the fundamental platforms and algorithms on which AI's innovative projects are based.

Government strategy - focuses on the depth of the government's commitment to AI based on investments and strategic plans.

Commercial - Focuses on startup-level, investment- and AI-based business initiatives.

The European approach to AI is often referred to in the context of the "global AI race", which also includes the USA and China [Craglia, 2018]. Although the USA has the highest private sector investment in AI [McKinsey, 2020], the use of AI in public sector is lower, partly due to the fact that the current and planned use of AI in public administration much less research and official information is available [Cath, 2018, 505-528].

The deployment of governmental AI initiatives in China is often cited as the most up-to-date of those in Europe and the United States. In general, the creation of surveillance systems using AI are often cited as initiatives that limit the rights of citizens and threaten the global balance of power [Creemers, 2018, 59-71].

From the indicators in Table 1, we can conclude that the use of AI in RA is at a fairly low level, and at the same time we can state that AI still has a development trend and those states that will give a greater role to its use will have a strong economy.

AI can help the state in different ways. One of the most promising applications of AI is data analysis, which is capable of processing vast amounts of data in seconds and can reveal patterns and trends that humans would be unable or hard to spot. In addition, AI can be used to automate many routine administrative tasks. For example, Chatbots [Deep Blue, 2023] can be used to answer frequently asked questions from citizens, freeing up civil servants to work on more complex issues.

Similarly, AI can be used to automate document management, such as the processing of permit or license applications. It can save time and money for both citizens and government, and it can be used to improve the accuracy and fairness of decision-making in public administration. AI algorithms can be used to identify patterns of discrimination in public policy and practice, such as hiring bias or unfair distribution of public services.

This can help public administration identify areas for improvement and ensure that their policies are fair and equitable for all citizens.

Conclusion. After the initial phase of the implementation of the AI, we are witnessing the design of steps aimed at the implementation of the AI in the government. This is a very important circumstance, as the AI assumes an increasingly central role in the state system, including administrative processes, provision of services to citizens and decision-making. Given the current state of policy and research on AI in the public sector, we highlight a number of areas that deserve further attention. We aim not to be comprehensive in our study, but to focus more on research-worthy issues that are becoming relevant.

The Armenian government has started using artificial intelligence and automation to improve its public services. However, the implementation of artificial intelligence in the RA public sector is still at an early stage, and there is a need to increase investments in technological infrastructure, develop skills and political frameworks.

The Government of the Republic of Armenia can use the AI in different ways.

Healthcare. AI can be used to improve health services by developing predictive models that can identify potential health risks and recommend preventive measures. It can also help diagnose diseases and develop personalized treatment plans for patients.

Smart transport. AI can be used to manage traffic flows and optimize public transport routes. It can also help reduce accidents and improve safety by analyzing data from cameras and sensors in real time.

Education: AI can be used to personalize student learning, improve assessment tools, and develop individualized curriculum based on individual strengths and weaknesses.

In addition to the above, AI can be used to optimize public services, such as application processing, records management and data analysis to support policy decisions. In general, AI can be used to improve public services and improve the quality of life of citizens.

The Armed Forces have a great role in the security of the country and considering this circumstance, it can be used to strengthen the security of the country. In particular, AI can be used to monitor borders, detect enemy movements and collect intelligence data. It can help the Ministry of Defense (MoD) to prevent any possible external threats. At the same time, AI can be used to analyze data and provide information that can help military leaders make the most accurate decisions possible. It can help the MoD optimize its resources and respond quickly to changing situations.

Based on the indicators of Hamatvi, as well as the analysis, we consider it necessary to propose the creation of Smart Ministries through the use of AI, which will include the following principles:

1. *Define the vision and goals*: the first step is to define a clear vision and specific goals for the Smart Ministry. The vision must be aligned with national priorities and address citizens' most pressing concerns. Goals should be reasonable (specific, measurable, attainable, relevant and time-bound).

2. *Conduct a needs assessment*: conduct a thorough needs assessment to identify gaps and issues in the ministry. This assessment should include the involvement of stakeholders such as citizens, civil society organizations and other government agencies.

3. *Develop a strategic plan*: develop a comprehensive strategic plan for the "Smart Ministry" based on the needs assessment. The plan should include the key strategies, tasks, and actions needed to achieve specific goals. Moreover, the required financial and human resources, as well as the necessary institutional mechanisms and partnership relations, should also be taken into account.

4. *Create a management framework*: create a management framework that will ensure the effective management of the "Smart Ministry". This will include defining roles and responsibilities, establishing clear lines of communication, and promoting transparency and accountability.

5. *Invest in technology*: invest in appropriate technological infrastructure, including hardware, software and networks, to support the implementation of the Smart Ministry. This should include a focus on data analytics, cloud computing, cyber security and other emerging technologies.

6. *Capacity building*: invest in capacity building of employees and stakeholders to effectively use technology and effectively implement Smart Ministry initiatives.

7. *Monitoring and evaluation*: develop a comprehensive monitoring and evaluation framework to track progress of smart ministry initiatives against established goals and objectives. This framework should include regular reporting and feedback mechanisms to ensure continuous improvement and learning.

Across the world, research and policy initiatives focused on AI in the public sector are rapidly developing and gaining increasing relevance. Given the dynamic nature of this complex phenomenon, it is necessary to consider the body of existing knowledge and monitor the evolving literature to ensure that we move forward in ways that maximize the benefits while mitigating the risks of AI.

References:

1. Promoting the Use of Trustworthy AI in the Federal Government, December 2020
2. Araya D., King M. The Impact of AI on MDS, CIGI Papers No. 263, March 2022,
3. Russell S., Norvig P. Artificial intelligence: A modern approach, global edition. Pearson Higher Ed, 2016, p. 18,

4. Tzafestas S. G. Roboethics. A navigating overview. Springer, 2016, p. 24,
5. Smola A., Vishwanathan S. Introduction to machine learning. Cambridge University, 2008,
6. Priddy K., Keller P. Artificial neural networks: An introduction. SPIE Press, 2005, p. 12,
7. Kolodner J. L. An introduction to case-based reasoning. AIR, 6(1), p. 3–34, 1992,
8. Bottou L. From machine learning to machine reasoning. Machine Learning, 94(2), p. 133–149, 2014 <https://doi.org/10.1007/s10994-013-5335-x>,
9. Radanliev P., De Roure D., Van Kleek M., Santos O., Ani U. Artificial intelligence in cyber physical systems, 2020 AI & Society, p.3,
10. The Global AI Index Methodology, Tortoise Media 2021, <https://www.tortoisemedia.com>,
11. Craglia M., Annoni A., Benczur P., Bertoldi P., Delipetrev B., De Prato G., Feijoo C., Fernandez Macias E., Gomez Gutierrez E., Iglesias Portela M., Junklewitz H., Lopez Cobo M., Martens B., Figueiredo Do Nascimento S., Nativi S., Polvora A., Sanchez Martin J. I., Tolan S., Tuomi I., Vesnic Alujevic L. (2018). AI: A European perspective. Publications Office of the EU. <https://ec.europa.eu/jrc/en/publication/artificial-intelligence-european-perspective>,
12. McKinsey. (2020). Global survey: The state of AI in 2020. <https://www.mckinsey.com> Cath C., Wachter S., Mittelstadt B., Taddeo M., Floridi L., Wachter S., Taddeo M., Mittelstadt B., Cath C. (2018). AI and the “good society”: The US, EU, and UK approach. SEE, 24(2), p. 505–528,
13. Creemers R. (2018). China’s social credit system: An evolving practice of control. SSRN Electronic Journal, 222(2015), p. 59–71,
14. IBM, Deep Blue, <https://www.ibm.com/topics/chatbots>.

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In the modern world, the role of artificial intelligence (AI) has a great impact on all existing sectors, and the impact of AI on the public administration system is even more important, considering the fact that the main functioning of the country depends on the improvement of the efficiency of the public administration system the development of sectors. AI can be applied in the public administration system in different ways. One of the most promising applications of AI is data analysis, and AI algorithms are capable of processing huge amounts of data in seconds and can identify patterns and trends that humans would not be able to spot. This can be invaluable for government agencies that can collect and manage large amounts of data, such as the Statistics Committee, the State Revenue Committee, the State Audit Service, the Ministry of Health, the Ministry of Territorial Administration and Infrastructure, and a number of other government agencies. Through the implementation of AI in the public administration system, problems can be identified more quickly and solved more efficiently. The article is dedicated to the introduction of artificial intelligence in the state administration system, its positive aspects and features. In the article, the main attention was paid to the creation of smart ministries through the AI, as well as the mechanisms to make the work in state structures more efficient, taking into account the studies of international experience.