

ARTIFICIAL INTELLIGENCE VERSUS PUBLIC ADMINISTRATION: LIMITATIONS OF APPLICATION

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Abstract

Purpose of Study: The present study was designed to study possibilities, conditions, grounds and limitations regarding the use of technologies and units of artificial intelligence in public administration. Determinants of the need to use such technologies in public administration were also considered. In this study, directions of realizable engagement which is already implemented, as well as directions of the possible use of artificial intelligence units in the future for public administration were investigated to ensure the functioning of system of state executive bodies.

Methodology: The present research carried out based on the application of research methods such as system analysis, synthesis, and classification. Using these research methods, the concepts of describing conditions, possibilities, modes and functional-target load of using technologies and units of artificial intelligence in public administration, as well as limitations of its application in public administration were developed.

Results: It was found that the use of artificial intelligence by the state for performing its various own tasks is highly relevant as it might lead to finding many positive approbations. However, despite the fact that technologies and artificial intelligence units have been developed for a relatively long time, and some of them are already widely used, it is still impossible to talk about the integrated, fully tested and properly regulated implementation of this kind of technology and units for management, therefore, it is suggested to further investigate on this issue from a theoretical (prognostic) point of view, taking into account potential directions and possibilities regarding the use of such technology and units.

Implications/Applications: The use of technologies and units of artificial intelligence does not necessarily take into account as a panacea for solving the problems and may not lead to solving some systemic problems in public administration, but, on the contrary, may even aggravate some existing problems in public administration and contribute to the emergence of new problems and risks.

Keywords: *Public Administration, Administrative Law, Civil Law, Artificial Intelligence, Applications*

INTRODUCTION

Trends and objectively-determined needs with respect to the introduction of the latest information about computersoftware and other technologies, including artificial intelligence technologies into system and process of public administration have been established or reflected in many conceptual, doctrinal and program documents in the field of public administration in a number of countries including Great Britain [[Building our Industrial Strategy, 2017](#)], [AI in the UK: ready, 2017](#)], [Denmark \[2018\]](#), India [2017], Kazakhstan (Digital Kazakhstan Program, established in December 12, 2017, etc.), China [[Notice of the State Council on Printing and Distributing a New Generation of Artificial Intelligence Development Plan Guofa \[2017\]](#)]; [Notice of the Ministry of Industry and Information Technology on Printing and Distributing the Three-Year Action Plan for Promoting the Development of a New Generation of Artificial Intelligence Industry \(2018-2020\)](#)], United Arab Emirates [[Emirates Artificial Intelligence Strategy](#)], Russia (Scientific and Technological Development Strategy of the Russian Federation approved in December 1, 2016, Program “Digital Economy of the Russian Federation” approved in July 28, 2017, etc.), Sweden [2018], as well as in reference documents on a range of issues of international organizations including UN specialized agencies (World Intellectual Property [2019], International Telecommunication Union [2018], etc.), European Union [[Report of the European Parliament with recommendations to the Commission on Civil Law Rules on Robotics \(2015/2103 \(INL\)\)](#)], 27.01.2017; [Artificial intelligence – 2017; European Parliament Resolution of 16 February 2017](#)], and World Bank [2019].

However, there is limited number of studies on these issues from the standpoint of legal science and theory of public administration (a few studies focused on [[Barth, Arnold 1999](#); [Eggers, Schatsky, Viechnicki 2017](#); [Kupriyanovsky, Volokitin, Sinyagov. etc. 2018](#); [Mopxar 2018](#); [Ponkin 2017](#); [Markhgeim, Novikova, Tonkov, Kravec 2016](#)]) significantly

reducing the possibilities and parameters regarding the effectiveness of introducing these technologies into the public administration system and using such technologies in the public management). There is scarce evidence on the use of artificial intelligence (the nature and content of this concept has been understood according to [\[Ponkin, Redkina 2018, Selomo and Govender, 2016\]](#)). Therefore, this study was aimed to address the gap in the literature.

RESEARCH METHODOLOGY

The present research carried out based on the application of research methods such as system analysis, synthesis, and classification. Using these research methods, the concepts of describing conditions, possibilities, modes and functional-target load of using technologies and units of artificial intelligence in public administration, as well as limitations of its application in public administration were developed. Using the method of scenario prognostic analysis, a line of methods and functionally-targeted purposes of using artificial intelligence in public administration were formulated. The main empirical data included arrays of legislation, judicial practice, and other official documents related to 8 countries (Great Britain, Denmark, India, Kazakhstan, China, United Arab Emirates, Russia, and Sweden), reflecting fundamentals and conditions, paradigms and possible modes of using artificial intelligence in public administration.

RESULTS AND DISCUSSION

At the present stage of development of technologies and level of legislation, as well as in near foreseeable future, taking into account the existing trends, it is suggested to exclusively use artificial intelligence in public administration as an auxiliary and security tool while performing certain tasks and functions, i.e. mandatory control by the stakeholders, except certain areas related to provision of information about the population. But artificial intelligence units should not be used to replace people responsible for decision-making in the government [\[Mopxat 2018, p. 406\]](#).

However, it is impossible to narrow down the scope of this approach. More detailed explanations, interpretations, and deeper understanding are needed in this regard.

First of all, the necessity for the introduction of technologies and units of artificial intelligence in government should be addressed as well as determinants of such an interest in the use of artificial intelligence technologies in the context of public administration and the need to use these technologies in public administration.

According to one of the authors of this paper (A.O. Turganbayev), using example of strategic planning in public administration, it is possible to identify the following determinants regarding the necessity, pragmatic value and rational validity of integration, and the use of technology and artificial intelligence units in the process of public administration, which are presented in the following:

- 1) In conditions when key subjects of state administration are increasingly forced to turn and operate with a large volume of information; and scenarios with nonlinear (ambiguous (hysteresis), scalar (stepped), other nonlinear ones) processes that are exponentially increasing and overloaded with key data. A sharp reduction in the time is needed to make responsible management decisions and objectively a solution is required, due to the exhaustion occurring in the intellectual and analytical abilities and opportunities of the human brain (even a large number of individuals) to solve the current problems of strategic planning. Introduction of technologies and artificial intelligence units is considered to be the only possible way to cope with this problem, which allows quickly (in the shortest possible time) processing of huge data arrays, and matching difficult ontologies and objects;
- 2) In conditions when there are diversified complications and increased volume of factors influencing the result of designing, making and implementing management decisions in public administration, as well as complicated ontology of the public administration system, there is an urgent need for a quick solution. A person, who makes a management decision, is no longer able to support (optimally - in the form of a companion-assistant) or design an effective management solution for the future, and also to an even greater extent, monitor the progress and real results of its implementation, and evaluate its effectiveness as well without using computer soft wares (machine);
- 3) In conditions when the measures should be taken to deal with the issues such as determination (fully decisive influence) of priority directions, accents, prevailing ideology, and tendencies in public administration and politics, subjectively formulated political motives (often far from public interests), or even corruption interests in general. Nowadays, it is almost impossible to find another tool other than artificial intelligence, to deal with the above- mentioned issues. Using artificial intelligence is valuable to the state, and effective in meeting the public interest, social needs, and requirements of the approaches and measures in public administration, and validation (confirmation of conformity between the actual requirements and the agreed parameters) of these approaches and actions,

4) Intensive growth of normative mass of legislation has already caused an exhaustion in the potential of intellectual and analytical abilities and capabilities of the human brain (even a significant group of individuals) with respect to operational and integrated control over the quality of legal regulation (a person in an acceptable level of quality is still able to assess the quality of legislation only in some separate and very limited segments of public relations, but the possibilities are already exhausted as a result of intensive growth of normative mass of legislation).

5) Searching and finding the truly new breakthrough technologies of strategic planning in public administration is impossible without involvement of artificial intelligence technologies; today (and for the future) one simply cannot even understand the nature of these promising technologies generally, as well as the tasks solved by them and presentation formats transformed as a result of using these technologies;

6) The tendency of complication and nonlinear changes in chronological ontology of functioning in public administration system, would determine the critically low levels of intellectual and analytical abilities of human brain for strategic management in these conditions, including critically excessive slowness, inflexibility, "sluggishness" and, most importantly, poor operational capability of the strategic planning system.

Here, there is a similarity between the sphere of strategic planning in public administration and the reasons for the involvement of technologies in other segments of public administration.

It is reasonable to single out (according to the previous studies [Mopxar 2018; Turganbaev 2019]) the following directions for realizable engagement today, as well as directions for possible future utilization of artificial intelligence units in the government, which are as follows:

1) In strategic, operational and instrumental current planning and programming in public administration [Turganbaev 2019] including 1.1) implementation of prognostic multi-scenario complex analysis, building scenario forecasts and models in the framework of planning and programming in public administration; 1.2) implementation of operational and instrumental current planning and programming for state administration in real time; appropriate assessment of the current situation, development and adoption of applied solutions; 1.3) planning and programming of public administration in conditions of uncertainties and risks, complex ontologies, as well as in crisis conditions; production of complex and highly complex prognostic scenario modeling (scenario planning), as well as production of such modeling under conditions of substantial uncertainties [Ponkin 2017, p. 136–153, 454–486, 682–707];

2) In design, creation, debugging, implementation and use of methods for integrated multi-lateral assessment of effectiveness, performance and other design qualities of public administration: 2.1) multi-criteria and multi-lateral (multidimensional) dynamic assessment of effectiveness and pertinence of public administration, relevance and quality of management actions; assessment of effectiveness regarding the implementation of state power and government in specific areas; 2.2) monitoring and evaluation of quality related to the functioning of "vertical management"; 2.3) identification of causes, sources, and prerequisites of the current or earlier occurrence regarding a drop in efficiency in one or another part of the public administration process, chronic statelessness of public administration, identification of "Typhoid Mary" (referring to a person whose defective management decision has led to a negative outcome); 2.4) determination of internal budget and financial audit (including Prudential) for activities of government bodies;

3) In control and supervisory activities of state bodies including 3.1) permanent systematic optimization and homologation of control and supervisory activities; 3.2) related to risk-oriented state management, identifying and proposing measures to reduce redundantly or a defective administrative burden, as well as developing approaches to avoid repressive models and replacing such burden with preventive measures; 3.3) implementation and improvement of control and accounting support and maintenance of public administration;

4) Measures for improvement of the public administration system including 4.1) framing (in the most significant issues and areas) and algorithmization of functioning of government bodies and their staff, algorithmization of procedures and modalities for performance of public functions and provision of public services; 4.2) assessment of adequacy, reasonable rationality, relevance of the projects proposed and discussed for making reform in the public administration system, its segments, levels or elements; 4.3) improving topology and intellectual feedback mechanisms in public administration; 4.4) creation, homologation and maintenance of cadastres, registers (including the registration of rights to real estate, property accounting and other objects);

5) Measures for dealing with the hardship occurring in public administration [Ponkin 2016; Hubbard Paquet 2010; Kozhanova, Svechnikova, Akhmetzyanova, Kondrashova, Maksimova, & Zakharova, 2016] and ensuring state administration in difficult (crisis, sanctions, military, emergency and other) conditions, as well as dealing with

ontologically complex spaces [Ponkin 2017, p. 148–153, 416–442; Jenaabadi&Khosropour, 2014; Manso, AlmudenaGarcía, and Artenira Silva, 2018] including 5.1) monitoring, identifying and evaluating errors and other defects of public administration, as well as dysfunctions and imbalances in public administration, conditions and prerequisites for them; 5.2) operational monitoring, identification, assessment, “weighting” and ranking related to the arrays of risks, uncertainties, factors and entropy manifestations in public administration; 5.3) state management of particularly complex processes, ontologies, projects, conflicts; production of complex and highly complex multi-scenario algorithms in the provision of public administration processes; 5.4) entropy management in public administration; [Baroughi&Zarei, 2013]

6) Measure concerning the design, construction, operation and improvement of the system designed for prevention and suppression of corruption in public administration including 6.1) monitoring and identifying conflicts of interest, other conditions and prerequisites for prevention of corrupt actions in the system of state power and government, and in local governments; 6.2) the use of artificial intelligence units in systems of public services, government contracts, public procurement, in allocation of public resources, ensuring the transparency and legality of such functioning; to identify gray and corrupt schemes in these areas; 6.3) ordering, conducting competitive procedures and evaluating the research and development works (R & D) carried out under the state order ;

7) In the field of supporting and maintenance of the experts in public administration: 7.1) processing and intelligent analysis of large and extra-large data arrays, arrays related to incomplete and rapidly changing data, reflecting stochastic data processes; 7.2) processing, evaluation, verification, validation and comparison of the assessments and opinions submitted by the experts.

The present study conducted to study real practices regarding the introduction of artificial intelligence into public administration (as presented in the above-mentioned conditions) led to drawing a number of significant conclusions, which are outlined below.

FINDINGS

Intensive development of artificial intelligence technologies has strongly influenced the life of society and state. There are predetermining challenges, which require the state (in the near future) to use artificial intelligence, neurotechnology, big data technologies, block-chain, and cloud technologies. It was found that the use of artificial intelligence by the state for performing its various own tasks is highly relevant as it might lead to finding many positive approbations. However, despite the fact that technologies and artificial intelligence units have been developed for a relatively long time, and some of them are already widely used, it is still impossible to talk about the integrated, fully tested and properly regulated implementation of this kind of technology and units for management, therefore, it is suggested to further investigate on this issue from a theoretical (prognostic) point of view, taking into account potential directions and possibilities regarding the use of such technology and units. Meanwhile, the use of technologies and units of artificial intelligence does not necessarily take into account as a panacea for solving the problems and may not lead to solving some systemic problems in public administration, but, on the contrary, may even aggravate some existing problems in public administration and contribute to the emergence of new problems and risks.

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