



**Fundacja  
Moje Państwo**

ARTIFICIAL INTELLIGENCE AND AUTOMATIC  
DECISION MAKING IN PUBLIC PROCUREMENT  
- GUIDELINES FOR THE PUBLIC SECTOR.



# Fundacja Moje Państwo

Publisher:

Moje Państwo Foundation (December, 2021)

The Moje Państwo Foundation is an organisation working for the development of democracy, open and transparent public authorities and civic society.

We believe that the state should be efficient and useful to the people. We create tools that facilitate the use of the state resources and data. We care about the culture of using technology by the state.

Authors :

Moje Państwo Foundation representative:

- attorney at law Magdalena Siwanowicz-Suska

Maruta Wachta Law Office representatives:

- attorney at law Bartłomiej Wachta,
- attorney at law Dr. Jakub Krysa,
- Tomasz Czarnota,
- Ewelina Sałaj,
- attorney at law Michał Nawrocki

Graphic design:

Małgorzata Trzcińska – “Moje Państwo” Foundation

The author's property rights to the report belong to the Moje Państwo Foundation.

The project has been supported by the European AI Fund, a joint initiative of the Network of European Foundations (NEF).

The sole responsibility for the project lies with the organizer(s) and the content does not necessarily reflect the position of the European AI Fund, the NEF or partner foundations of the European AI Fund.



# INDEX

I Introduction .....	4
II What is AI? .....	4
III Public procurement of AI solutions in the world .....	6
IV Public procurement of AI solutions in Poland .....	9
V The benefits of using AI by the public sector .....	12
VI Guidelines for purchase of AI solutions by the public entities .....	13
VII Solution suitability assessment .....	14
• Dialogue with the market .....	16
• The use of procurement tools that favour innovation .....	17
• Product life cycle analysis .....	19
• Avoiding Black-Box and Vendor Lock-In .....	21
• Providing access to data and their protection .....	22
• Ensuring the transparency and ethics of the applied solution .....	23
VII Summary.....	25
VIII Sources.....	27



## I. Introduction

---

1. Artificial intelligence and automatic decision-making systems are increasingly popular in the execution of tasks by the state authorities. Public entities face the ambitious task of responsible implementation of these innovative technologies. The issue is complex and requires interdisciplinary cooperation and the consideration of many aspects, including: legal, business, technological, as well as ethics and transparency.
2. The situation of many citizens who will be affected by the implemented AI solutions depends on how public entities will develop, introduce and use artificial intelligence. Any success or failure of such an initiative can influence the level of public confidence in AI-based systems. A positive attitude of citizens to artificial intelligence is, in turn, crucial for the development of this technology, both in business and in public institutions.
3. The aim of the report is to draw attention to good practices in the public procurement of AI systems and to propose guidelines that may constitute a better, more effective and more transparent way of implementing such solutions in the public sector.

## II. What is AI?

---

1. Giving a precise and universal definition of "artificial intelligence" is difficult, and many definitions of AI have been developed in recent years.
2. At the level of national and European law, there is currently no legal definition of the concept of artificial intelligence. According to the definition proposed by the OECD,<sup>1</sup> artificial intelligence is "*A machine-based system that can, for a specific set of human-defined goals, predict, recommend or make decisions affecting real or virtual environments. AI systems are designed to operate with different levels of autonomy.*"
3. However, according to the definition adopted in the European draft regulation on artificial intelligence,<sup>2</sup> *artificial intelligence system means "software developed using one or more of the techniques and approaches listed in Annex I, that can, for a given set of human-defined objectives, generate outcomes such as content, predictions, recommendations or decisions affecting the environment with which it interacts"*.

---

<sup>1</sup> OECD (2019), *Artificial Intelligence in Society*, [www.oecd.org/going-digital/artificial-intelligence-in-society-eedfee77-en.htm](http://www.oecd.org/going-digital/artificial-intelligence-in-society-eedfee77-en.htm); OECD (2019), *Recommendation of the Council on Artificial Intelligence*, <https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0449>. (access: 20/10/2021).

<sup>2</sup> <https://eur-lex.europa.eu/legal-content/PL/TXT/?uri=CELEX:52021PC0206> (access: 20/10/2021).

4. The techniques referred to in the definition include:
  - machine learning mechanisms, including supervised learning, unsupervised machine learning and reinforcement learning, using a wide range of methods, including deep learning;
  - logic and knowledge-based methods, including knowledge representation, inductive (logical) programming, knowledge bases, inferential and deductive engines, (symbolic) reasoning and expert systems;
  - statistical approaches, Bayesian estimation, search and optimization methods.
5. In the public sector, however, the following types of AI may particularly be used:
  - **Natural language processing (NLP)** - also called computational linguistics and presents solutions to understanding human languages through computational models and processes.
  - **Speech recognition** - allows the computer to identify the words that a person says into a microphone or telephone and convert them into written text.
  - **Computer vision** - AI applications in this category use some form of image, video or face recognition to obtain information about the external environment and/or the identity of specific people or objects.
  - **Machine translation** - a sub-field of computer linguistics that focuses on the use of software to translate text or speech from one language to another.
  - **Robotics** - an interdisciplinary field that integrates mechanical engineering, electrical engineering, information engineering, mechatronics, electronics, bioengineering, computer engineering, control engineering, software engineering and includes the design, construction, operation and use of robots.
  - **Rule-based systems** - also known as production systems or expert systems, as the simplest forms of artificial intelligence. A rule-based system is a way of coding expert knowledge in a fairly narrow area into an automated system.
  - **Machine learning** - a data analysis method that automates the building of analytical models. It is a branch of artificial intelligence based on systems that can learn from data, identify patterns and make decisions with minimal human involvement.

6. The specific application and the public sector's needs will therefore determine the application of a given type of artificial intelligence solution.

### III. Public procurement of AI solutions in the world

---

1. Public sector entities more and more often use AI to perform their tasks. The report "*Who is Winning the AI Race: China, the EU or the United States?*" prepared by the Center for Data Innovation<sup>3</sup> shows that the United States is in the lead among the world's giants at implementing artificial intelligence in the public sector. China is in second place, while the European Union lags behind the largest economic powers. The report indicates the lack of sufficient financing of AI projects in the EU as the major reason. The potential of using AI in the public sector is therefore closely related to the economic strength of a given country. Against this background, the notable exceptions among European countries using solutions based on artificial intelligence include Finland and Estonia.
2. According to a survey conducted at the end of 2019 by the IDC European Tech and Industry Pulse Survey,<sup>4</sup> in Western Europe 30% of public sector entities had already used AI-based solutions in their daily operations, and another 20% planned to implement them in the next 12 months. Whereas in Central and Eastern Europe, 3% of public entities used solutions based on artificial intelligence, and 8% planned to implement them.
3. The implementation of AI-based solutions by public sector entities covers particularly the areas of public finance, social welfare, health care, justice and agriculture. Research conducted by the IDC European Tech and Industry Pulse Survey shows that in Europe, AI-based tools are used primarily to (1) detect and reduce fraud, (2) improve the efficiency of public levy collection, (3) personalize services for citizens (including virtual assistants), (4) track and report events and accidents in real time, (5) determine the optimal level of social spending, (6) determine the optimal level of taxes/fees, (7) improve the efficiency of internal processors, and (8) protect and respond to cyber threats.<sup>5</sup>

---

<sup>3</sup> <https://www2.datainnovation.org/2019-china-eu-us-ai.pdf> (access: 20/10/2021).

<sup>4</sup> <https://www.sas.com/content/dam/SAS/documents/marketing-whitepapers-ebooks/sas-whitepapers/pl/how-ai-change-the-public-sector.pdf> (access: 20/10/2021).

<sup>5</sup> <https://www.sas.com/content/dam/SAS/documents/marketing-whitepapers-ebooks/sas-whitepapers/pl/how-ai-change-the-public-sector.pdf> (access: 20/10/2021).

### **[MORA - a tool for reporting problems in public space in Amsterdam]**

4. One of the examples of the implementation of solutions based on artificial intelligence in the public sector is a project implemented by the city of Amsterdam, which consists in launching a tool for reporting problems in public spaces using social media, mobile applications, online forms and by phone (*Melding Openbare Ruimte Amsterdam - MORA*).<sup>6</sup>
5. This tool is based on an algorithm that recognizes keywords, on the basis of which the system automatically classifies the problem reported by the inhabitants of Amsterdam, and then sends a report directly to the appropriate municipal department responsible for the execution of a given public task.
6. By using the tool, residents can anonymously report a number of problems occurring in public spaces, such as disturbances to public order, changes in technical infrastructure, including damaged elements of roads, bicycle paths and pavements, problems with moving in public space for people with disabilities, traffic lights, street lights and clocks requiring repair or replacement, full or damaged rubbish bins and waste containers and violations of sanitary rules in connection with the COVID-19 pandemic.
7. Statistics show that thanks to this solution, the inhabitants of Amsterdam were much more likely to report a problem in the public space. In 2020, the city received 385,000 applications, an increase of 88% compared to 2018.<sup>7</sup> Nevertheless, due to the ever-growing number of reported problems, the ability of the public administration to handle them all is, according to the 2020 report,<sup>8</sup> insufficient. The assumptions of the project were that 95% of the collected notifications would be processed immediately, 80% of these within 2 days, but in practice the lead times are longer. However, it is estimated that since the solution has been implemented, the satisfaction of residents with the execution of public tasks by public administration entities has increased by 30%.<sup>9</sup>

---

<sup>6</sup> <https://meldingen.amsterdam.nl/incident/beschrijf> (access: 20/10/2021).

<sup>7</sup> (accessed: 20/10/2021).

<sup>8</sup> <https://publicaties.rekenkamer.amsterdam.nl/afhandeling-meldingen-openbare-ruimte-amsterdambestuurlijk-rapport/> (accessed: 20/10/2021).

<sup>9</sup> <https://signalen.org/> (accessed: 20/10/2021).



8. The effectiveness and efficiency of such a solution has been noticed by *Vereniging van Nederlandse Gemeenten* (VNG), for example, an association of municipalities in the Netherlands, which resulted in the implementation of such a tool in other cities and municipalities in the Netherlands, such as Den Bosch and Almere for example.<sup>10</sup>

#### **[Automation of the process of funds disbursement by the Agency for Financing Rural Investments in Romania]**

9. Another example of the use of AI in the public sector is a tool to automate the disbursement of EU funds for the development of rural areas in Romania. This tool was implemented by the Romanian Agency for Financing Rural Investments (AIF) in order to distribute EU funds in the average amount of EUR 2 billion annually among Romanian farmers and enterprises from the agricultural sector.<sup>11</sup> The operation of this tool is based on an AI-based payment prediction mechanism.
10. The implementation of this tool has facilitated the work of the Agency's team in the preparation of grant documentation from an average of 10 days to 10 minutes. In addition, the accuracy in forecasting expenses and financial needs increased by 80% from 25,000 projects per year, which led to the achievement of high efficiency in the management of EU funds.<sup>12</sup>

#### **[Intelligent processing of historical handwritten documentation in the Swedish Land Registry]**

11. In order to analyse and evaluate historical, handwritten and often illegible property files, the Swedish Land Registry (SLR) has implemented an AI-based tool. This tool processes historical files to improve their quality, recognise handwritten text using the HTR system and then fill in the missing words that have not been previously recognised by the system. Based on the entered document templates and key words, the tool indicates the most important information in the document and supplements it by correcting words and associations.

---

<sup>10</sup> <https://www.elements.nl/cases/gemeente-amsterdam-platform> (accessed: 20/10/2021).

<sup>11</sup> <https://customers.microsoft.com/en-us/story/755575-afir-government-azure-dynamics365-powerbi-romania> (accessed: 20/10/2021).

<sup>12</sup> [https://think-tank.pl/wp-content/uploads/2020/06/Raport\\_Iloraz-sztucznej-inteligencji\\_vol-III\\_THINKTANK.pdf](https://think-tank.pl/wp-content/uploads/2020/06/Raport_Iloraz-sztucznej-inteligencji_vol-III_THINKTANK.pdf) (accessed: 20/10/2021).

12. This solution has significantly streamlined the process of examining the legal status of real estate in SLR. The toll has proved to be very helpful, according to statistical data, as officials spent about 48,000 hours a year on manual analysis and the evaluation of historical files.<sup>13</sup> Since the AI-based tool was introduced, applications submitted to the Registry have been processed much faster, which also translates into lower costs.

#### **[Intelligent train delay warning system at London railway stations]**

13. An AI-based tool has been implemented at London railway stations to report possible train delays, so that controllers can more effectively direct the traffic of oncoming trains.
14. The operation of the implemented solution is based on three interacting systems: (1) a system for predicting train arrival time based on historical data, including actual and planned train arrival time and lateness; (2) a system that creates patterns to visualize the operation of the railway network and to indicate the causes of delays; and (3) a system that identifies solutions to optimize the train traffic at stations.
15. The project assumptions indicated an increase in the percentage of trains arriving on time at their destination by almost 10%. It is estimated that the introduction of this tool has contributed to the reduction of train delays at all London railway stations by up to 200 minutes each day.<sup>14</sup>

## **IV. Public procurement of AI solutions in Poland**

---

1. Solutions using AI are also boldly implemented by public sector entities in Poland. Oxford Insights and the International Development Research Center (IDRC) in "*Ranking of governments' readiness to introduce AI*", developed in 2019, classified Poland in 27th place out of 194 countries and regions of the world in terms of their preparation for the use of artificial intelligence in the public service sector.<sup>15</sup> The ranking included such categories as management, infrastructure, data, qualifications, education, government and public services.
2. In recent years, a number of solutions based on artificial intelligence have been implemented in the Polish public sector.

---

<sup>13</sup> <https://www.gov.uk/government/case-studies/natural-language-processing-for-land-registry-documentation-in-sweden> (accessed: 20/10/2021).

<sup>14</sup> <https://www.gov.uk/government/case-studies/how-a-signalling-company-used-ai-to-help-trains-run-on-time> (accessed: 20/10/2021).

<sup>15</sup> [https://think-tank.pl/wp-content/uploads/2020/06/Raport\\_Iloraz-sztucznej-inteligencji\\_vol-III\\_THINKTANK.pdf](https://think-tank.pl/wp-content/uploads/2020/06/Raport_Iloraz-sztucznej-inteligencji_vol-III_THINKTANK.pdf) (accessed: 20/10/2021).

### **[Innovative solutions for the National Revenue Administration]**

3. In 2019, the National Revenue Administration asked for support in the search for solutions based on artificial intelligence to help in combating cybercrime.
4. In response to this demand, the Tax Administration Chamber in Opole implemented a tool to search the Web and the *Dark Web* based on an adopted pattern, i.e. using key words and pictures. The tool was also equipped with self-learning mechanisms to automatically expand the available models, and thus increase the detectability.
5. This tool, known as the "intelligent robot to fight cybercrime", identifies cases of breaking the law on the Internet that are of interest to the National Revenue Administration.<sup>16</sup>
6. The guidelines of the National Revenue Administration "Directions of operation and development of the National Revenue Administration for the years 2021 - 2024" show that in the coming years, through the use of artificial intelligence to support activities aimed at sealing the system of taxes, duties and fees, there will be a significant increase in the effectiveness and efficiency of collecting these receivables.<sup>17</sup>

### **[Automatic analysis of contract templates used in consumer trade]**

7. Another example of the use of artificial intelligence in the Polish public sector is a competition announced by the Office of Competition and Consumer Protection as part of the project co-financed by the EU entitled "*Artificial Intelligence for Consumer Protection Empowerment*". Its purpose is to create a tool that utilizes artificial intelligence for the text analysis of contract templates used in consumer trade, in terms of prohibited clauses. As a result of the competition, a tool will be created that will detect violations of consumer rights in an effective and efficient way through automatic analysis of contract templates.
8. The assumptions of the system include editing of contract templates, expanding the set of abusive clauses and correct contractual provisions, training the model detecting prohibited clauses, controlling its sensitivity, etc. The modernization and further development of the application is also planned in the future.

---

<sup>16</sup>[https://www.opolskie.kas.gov.pl/izba-administracji-skarbowej-w-opolu/ogloszenia/zamowienia-publiczne/zamowienia-publiczne-powyzej-30-tys-eur/-/asset\\_publisher/v1Cq/content/konkurs-dwuetapowy-w-ramach-programu-govtech-polska-ktorego-przedmiotem-jest-inteligentny-robot-do-walki-z-cyberprzestepczoscia?redirect=http%3A%2F%2Fwww.opolskie.kas.gov.pl%2Fizba-administracji-skarbowej-w-opolu%2Fogloszenia%2Fzamowienia-publiczne%2Fzamowienia-publiczne-powyzej-30-tys-eur%3Fp\\_p\\_id%3D101\\_INSTANCE\\_v1Cq%26p\\_p\\_lifecycle%3D0%26p\\_p\\_state%3Dnormal%26p\\_p\\_mode%3Dview%26p\\_p\\_col\\_id%3Dcolumn-2%26p\\_p\\_col\\_count%3D1](https://www.opolskie.kas.gov.pl/izba-administracji-skarbowej-w-opolu/ogloszenia/zamowienia-publiczne/zamowienia-publiczne-powyzej-30-tys-eur/-/asset_publisher/v1Cq/content/konkurs-dwuetapowy-w-ramach-programu-govtech-polska-ktorego-przedmiotem-jest-inteligentny-robot-do-walki-z-cyberprzestepczoscia?redirect=http%3A%2F%2Fwww.opolskie.kas.gov.pl%2Fizba-administracji-skarbowej-w-opolu%2Fogloszenia%2Fzamowienia-publiczne%2Fzamowienia-publiczne-powyzej-30-tys-eur%3Fp_p_id%3D101_INSTANCE_v1Cq%26p_p_lifecycle%3D0%26p_p_state%3Dnormal%26p_p_mode%3Dview%26p_p_col_id%3Dcolumn-2%26p_p_col_count%3D1) (accessed: 20/10/2021).

<sup>17</sup> <https://www.gov.pl/web/kas/strategia-kas> (accessed: 20/10/2021).

9. As emphasized by the Polish Office of Competition and Consumer Protection (UOKiK), the project addresses the identified need to accelerate the process of analysing large amounts of data processed by the Office, as well as to automate activities that can be performed using artificial intelligence to free up limited human resources. The cost of implementing the entire system will be almost PLN 1.5 million.<sup>18</sup>

### **[TRAPPER - a tool for the observation of fauna and flora in the Białowieża Forest]**

10. AI-based solutions are also used to protect the natural environment in Poland.
11. One of the tools aimed at protecting the natural environment is the TRAPPER system, which allows scientists from the Polish Academy of Sciences and the Białystok University of Technology to collect data on the fauna in the Białowieża Forest.
12. The tool utilised cameras with motion sensors to observe animals and collect information about their life and behaviour in their natural environment. The TRAPPER tool is based on a system equipped with artificial intelligence that selects images and video materials in order to extract specific information, and then classifies them based on the indicated criteria (e.g. type, genre, gender, age).<sup>19</sup>
13. Thanks to the application of this solution, it is possible to conduct research over wide spatial and time scales, which significantly increases the probability of obtaining accurate results. At the same time, thanks to the automation of the process of collecting and classifying the collected information, significant cost optimization is achieved.<sup>20</sup>

---

<sup>18</sup> [https://konkursy.govtech.gov.pl/start/postepowanie/137#kluczowe\\_zapisy](https://konkursy.govtech.gov.pl/start/postepowanie/137#kluczowe_zapisy) (accessed: 20/10/2021).

<sup>19</sup> <https://news.microsoft.com/pl-pl/features/w-lesie-ze-sztuczna-inteligencja-i-to-wbrew-pozorom-jest-dobra-wiadomosc-tuesdai/> (accessed: 20/10/2021).

<sup>20</sup> <https://csm.org.pl/wp-content/uploads/2020/12/REPORT-Artificial-Intelligence-in-Czech-Republic-and-Poland.pdf> (accessed: 20/10/2021).



## V. The benefits of using AI by the public sector

---

1. AI-based solutions used by public procurers can have a significant impact on improving public services in many respects. The potential of artificial intelligence can be used to develop better policies and make better decisions, improve communication with citizens or improve the speed and quality of the public services provided. Artificial intelligence can, among other things, identify patterns or anomalies in data to improve the accuracy of decision-making, better allocate and anticipate unused resources, detect fraud and security threats. Properly designed and implemented solutions utilising artificial intelligence can increase the quality and efficiency of operations, from program setting and policy formulation to the execution and evaluation of specific tasks.
2. The use of AI-based solutions can bring benefits on many levels, such as organizational, financial and social. Artificial intelligence can provide better forecasting, optimization of operations and resource allocation, as well as personalization of the provided services, thanks to which they contribute to improvements in terms of efficiency as well as social and environmental issues. All these tools can be used successfully in such areas as public administration, health care, justice, state security and the power industry.
3. As can be seen in the above examples of the use of AI in the public sector around the world, artificial intelligence is a tool that can improve the work of public administration. AI mechanisms can be used to analyse social phenomena and identify problems, optimize processes (e.g. payment or levy collection), detect fraud, etc. The analysis of the presented cases and the available materials on artificial intelligence in business and the public sector shows that this type of tool can be particularly useful in cases where it is necessary to analyse a large amount of data and the links between them.
4. For example, solutions based on artificial intelligence bring many benefits to health care. Firstly, in the organizational area, both at the national level and in individual medical institutions, such as by influencing improvements to the effectiveness of resource management or treatment costs. Secondly, artificial intelligence can help doctors in treating chronically ill patients, ranging from diagnostics to selecting the most effective treatment methods. Numerous examples of the practical application of AI in health care and medicine have been indicated and discussed in a report prepared by the AI Law Tech Foundation: "Artificial Intelligence Quotient, Vol. 4. The Potential of Artificial Intelligence in the Healthcare Sector".<sup>21</sup> This report may serve as a lodestar

---

<sup>21</sup>[https://news.microsoft.com/wp-content/uploads/prod/sites/58/2021/09/RAPORT\\_Sztuczna-Inteligencja-W-Sektorze-Ochrony-Zdrowia-09.2021.pdf](https://news.microsoft.com/wp-content/uploads/prod/sites/58/2021/09/RAPORT_Sztuczna-Inteligencja-W-Sektorze-Ochrony-Zdrowia-09.2021.pdf) (accessed: 20/10/2021).

for healthcare entities when choosing directions for further development - whether on the organizational or medical levels.

5. Artificial intelligence can also bring many benefits to the institutions in the justice system, for example by improving the detection of fraud related to VAT carousels. The mechanisms of artificial intelligence can also form a useful tool in increasing the security of citizens in the context of detecting crime or preventing acts of terrorism, such as by identifying online terrorist propaganda, detecting suspicious transactions related to selling dangerous products, identifying dangerous hidden objects or illegal substances and products, or offering assistance to citizens in emergency situations and supporting the emergency services.
6. Regardless of the sector in which artificial intelligence is used, there are some universal benefits associated with its use. The most common benefits are: reduction or elimination of poor decisions, process automation, solving complex problems (requiring the processing and analysis of large amounts of data), better forecasting (which is particularly important in the context of making strategic business decisions), increasing the efficiency and productivity of executed actions (e.g. processing repetitive work, which "relieves" employees and reassigns them to other activities) and savings (the use of AI, thanks to the repeatability of the tasks performed, enables the scale effect).

## **VI. Guidelines for purchase of AI solutions by public entities**

---

1. The implementation of solutions based on artificial intelligence is a considerable challenge for entities operating in the private and public markets. For public entities, apart from the "typical" risks faced by private entities (such as ethics, access to data, transparency), there are also public law restrictions, resulting from public procurement law, competition law, administrative law, public finances, etc., which may concern the selection of the appropriate purchasing procedure, avoidance of *Black-Box* and *Vendor Lock-In* and appropriate definition of the subject matter of the contract.
2. In order to reduce these risks, public institutions implementing solutions based on artificial intelligence should each time use appropriate tools to optimize the purchasing process and the execution of the contract with the contractor.

## Solution suitability assessment

3. AI-based solutions are not always the best solution, and in many cases may not be appropriate, proportionate or cost effective. As a result, the procurers should evaluate a number of factors at the needs analysis stage to determine whether the use of cognitive technologies is the most appropriate solution for a specific task.
4. For many digital challenges in the public sector, the most appropriate solutions are often the simplest and rely on the efficient use of existing technologies and improvements to the interoperability of the existing infrastructure. For example, a British healthcare software company, *Accurx*, originally intended to use machine learning to improve the effectiveness of antibiotic prescribing (e.g. to help prevent antibiotic resistance) but found that a far more effective business model involved using text messaging to increase the number of medical appointments.<sup>22</sup> Such conclusions are difficult to draw without understanding and knowing the actual possibilities offered by AI technology, as well as without a thorough understanding of the mechanisms and needs that artificial intelligence can be utilised for, including the needs of the recipients (users) themselves.
5. Bearing in mind the awareness of the users' needs, the next stage of an effective AI suitability assessment is the diagnosis and definition of the problem to be solved. The process usually starts by breaking down the relevant activities or services into their components and determining whether AI can deliver them more effectively. A well-designed AI solution is likely to make predictions better than humans in cases where there is a large amount of stable, representative data (allowing interactions to be a good predictor of future events) and where the predictions are typically routine.
6. Therefore, artificial intelligence may not be the optimal solution to many of, or even most challenges faced by public entities. A thorough analysis of the capabilities of individual AI tools is necessary to determine whether they should be part or the whole of the solution. It is important to use AI only when it is likely to provide an optimal solution and add value. The British government prepared guidelines that indicate a method of assessing whether artificial intelligence would be a suitable solution. According to the guidelines,<sup>23</sup> it is recommended to consider if:
  - the available data contains the required information
  - data use is ethical and safe, and in line with the Government's Data Ethics Framework

---

<sup>22</sup> Berryhill, J., et al. (2019), "Hello, World: Artificial intelligence and its use in the public sector", OECD Working Papers on Public Governance, No. 36, OECD Publishing, Paris.

<sup>23</sup> <https://www.gov.uk/guidance/assessing-if-artificial-intelligence-is-the-right-solution> (accessed: 20/10/2021).

- there is enough data from which the AI tool can learn
  - the task for a human being is too large and repetitive to be easily accomplished
  - artificial intelligence would provide information that the team can use to achieve results in the real world.
7. In the next step, the guidelines recommend assessing the current level of skills and the existing data resources, choosing the most appropriate AI tool to solve a given problem, and then making a decision whether to buy a ready-made solution or to create one from scratch.
  8. In order to increase the suitability of planned public projects built on the basis of artificial intelligence mechanisms, it is important to consistently increase the awareness of public entities in terms of the actual benefits and possibilities of their implementation.
  9. For this purpose, on 28/12/2020, the Council of Ministers resolved the *"Policies for the development of artificial intelligence in Poland starting from 2020"*, defining the directions of the state's development and activities in the field of AI. The document describes the actions and activities that Poland should implement and the goals that it should achieve in the short-term (by 2023), medium-term (by 2027) and long-term (after 2027), aimed at the development of Polish society, economy and science in the field of AI, including in the public sector. One of the short-term goals of the state is to increase the number of orders for AI placed by the public sector, including government and local administration, as well as by state-owned companies and municipal companies of local government units, thanks to the tools developed by the GovTech Polska Program.

## **Dialogue with the market**

10. Initial market consultations form a practical tool that public procurers can use at the stage of planning a procurement for artificial intelligence services. Their use results from both EU directives and national regulations.
11. Market consultations give the contracting authority the opportunity to acquire knowledge that allows them to prepare the procedure to guarantee that potential contractors submit offers, then select the most advantageous offer, including the effective implementation and effective execution of the contract. Moreover, their primary goal may be to obtain information on the newest, most advantageous and cheapest technical and technological solutions by the contracting authorities. The information constitutes an instrument of support for innovative and modern solutions, which should lead to advice on the best, the latest and the most advantageous solutions in terms of technology, organisation and cost that may meet the needs and be selected by the



contracting authority. Therefore, conducting market consultations may be of decisive importance in the tender procedure for AI services.

12. In conducting market consultations, the contracting authority may, in particular, use the advice of experts, public authorities or contractors. This advice may be used in planning, preparing or conducting a procurement procedure, provided that it does not distort the competition or infringe the principles of equal treatment of the contractors, or the procedures of transparency. It should be emphasized that the participation of contractors in preliminary market consultations (and thus participation in the preparation of the procedure) may give them an advantage over other contractors (e.g. thanks to the scope or time of the obtained information). Pursuant to Polish and EU regulations, contracting authorities are required to take measures to prevent such unjustified diversification of the situation of the contractors, and the lack of an appropriate counteraction may even lead to the exclusion of contractors who obtained a privileged position as a result of participating in market consultations from the procurement procedure. In order to avoid such a situation, the contracting authority is obliged to provide measures to prevent distortion of competition and to indicate the measures in the procedure execution report. Of course, the method of counteracting the distortion of competition will differ depending on the individual cases, and, following the legislator, it can be stated that the main methods of preventing distortions of competition are to ensure transparency of communication during the initial market consultations and to set the deadlines for submitting applications or offers in the proceedings in such a way as to eliminate the advantage of the contractors who obtained useful information earlier than others.
13. In the case of public procurement, the subject matter of which are innovative solutions based on artificial intelligence, market consultations allow the avoidance of a situation in which, being able to obtain a more advantageous solution, due to the lack of recognition of the relevant market, the contracting authority would define its requirements in a manner that is inadequate to the actual potential and possibilities of contractors and in a manner which introduces unjustified competition restriction.
14. For procurement contracts for innovative services based on artificial intelligence, it is also worth mentioning the possibility of using, under certain conditions, a negotiation-based mode of awarding contracts. The provisions on public procurement provide for several negotiation-based modes, including competitive dialogue and negotiations with renouncement. The modes are highly competitive ones (initiated by a public announcement) and contain an element of direct communication with contractors in the course of the public procurement procedure.

15. The above negotiation-based modes for awarding contracts are acceptable for public contracting authorities only if certain conditions are met. In the context of innovative and unique contracts for artificial intelligence, the premise for the use of the negotiation-based mode with announcements and competitive dialogue may be the inability to define the subject matter of the contract in a sufficiently precise manner by reference to a specific standard, European technical assessment, common technical specification or any other technical reference.
16. It should also be mentioned that if some AI solutions are tools produced solely for research, experimental, scientific or development purposes, which are not to be used by the contracting authority to conduct mass production aimed at achieving market profitability or covering research or development costs, it is possible to apply the mode of very low competitiveness, i.e. negotiation without announcement and single-source procurement (the single-source procurement mode may be used when tools of a given type are produced by one contractor only). When this mode is initiated, an open announcement is not necessary, and the contracting authority sends an invitation to negotiation to selected contractors (or one selected, in the case of a single-source procurement). However, it should be remembered that both of the above-mentioned modes are exceptions to the general principles of competition and can be used in exceptional situations only, when the conditions interpreted in a strict and restrictive manner are met.

### **The use of procurement tools that favour innovation**

17. In proposing the most effective public procurement mode, the subject matter of which is a solution based on artificial intelligence, is another challenge faced by public sector entities interested in implementing AI. Procurement proceedings of solutions based basically on the creativity of contractors often require the use of modes not commonly used in public procurements for IT services, which include the competition, innovative partnership or traditional competitive procedure preceded by preliminary market consultations.
18. The competitive process in public procurements is a public promise, one in which the contracting authority promises a prize for the performance and transfer of the right to a competition work selected by the jury through a public announcement. The procedure is admissible for strictly defined cases; hence it constitutes only 0.07% of the total number of public contracts awarded in Poland.<sup>24</sup> Its use is allowed only for the selection of a creative competition work concerning, in particular, spatial planning, urban design, architectural design, architectural and construction design, data processing, and **design in the field of computer science and contemplated projects**

---

<sup>24</sup> [https://www.uzp.gov.pl/\\_data/assets/pdf\\_file/0019/45406/TED2020.12..pdf](https://www.uzp.gov.pl/_data/assets/pdf_file/0019/45406/TED2020.12..pdf) (accessed: 20/10/2021).

(to emphasize the authors). Particularly encouraging for potential contractors may be, apart from cash or material prizes, an invitation to negotiate on a single-source procurement basis or negotiation without the public announcement in order to provide a service on the basis of a selected competition project.

19. The GovTech portal, in a document prepared in cooperation with the PPO: *"Good practices in the field of acquiring innovative technological solutions in the competition procedure"*, presented the possibilities offered by the competition procedure in the procurement of IT tools, and recommended this procedure of awarding contracts. Unlike conventional IT service contracts, innovative solutions such as AI are most often created from scratch and it is not possible to buy them "out of the box". The contracting authority is able to determine the needs and functionality that a given tool must have, but in most cases there is insufficient knowledge and tools to clearly define the subject matter of the contract in accordance with the requirements of open competitive procedures. The solution recommended by GovTech is therefore a two-stage competition, in which the first stage consists of studies, and in the second stage competition entries are prepared that meet the needs of the contracting authority. The competition procedure allows the awarding of contractors and the reimbursement of the costs of preparing the competition entries. The most important, however, is the possibility of awarding a prize in the form of an invitation to negotiation and execution of the contract after conducting the procurement procedure under the single-source procurement mode.
20. Another possible procedure for AI public procurement is the Innovation Partnership. This is a public procurement procedure that may be used in the event of a demand for an innovative product, service or construction works when they are not available on the market.
21. The Innovation Partnership is a multi-stage and negotiation-based procedure. In response to the announcement, contractors submit requests to participate in the procedure, then the contracting authority invites contractors admitted to participate to submit preliminary offers, conducts negotiations with them in order to improve the initial offers and, as a result, invite them to submit tenders for research work and then purchases supplies, services or construction works resulting from research and development, provided that they correspond to the levels of performance and maximum costs agreed between the contracting authority and the contractor or contractors.
22. An important convenience for contracting authorities purchasing solutions based on artificial intelligence using the Innovation Partnership mode is the lack of the need to publish a description of the subject matter of the contract along with the full specification of the contract - it is permissible to provide a description of the needs and requirements only. As in the case of competition procedures, it gives the contracting authority the opportunity to select the



solutions offered by the market in response to a specific demand. Moreover, the Innovation Partnership mode allows the parallel implementation of the project with several contractors and the observation of the results achieved by the contractors (e.g. as part of the verification of the pilot solutions being constructed and the achievement of intermediate goals). This is obviously an expensive solution, as it requires several contractors to be paid for the same scope of work, but it can still be justified in complex and important projects, where the price is not as important as the success of the entire project and the achievement of optimal results.

23. It cannot be ruled out that, with the development of the market and products based on AI in the form of ready-made box solutions, the number of public contracts awarded in conventional competitive modes, such as open or restricted tender, will increase. Currently, however, due to the highly innovative nature of AI solutions, which prevents the formulation of the content of the tender specification meeting the requirements for competitive procedures, the Innovation Partnership mode seems to be an effective mode for giving the public sector a chance to achieve the intended goal.

## **Product life cycle analysis**

24. The life cycle of an AI-based system includes three main phases:
  - development - including research, design, data provision and limited trials,
  - commissioning - including implementation,
  - utilisation.
25. The circumstances to be anticipated by the contracting authorities related to the management of the AI system life cycle are similar to other procurement of IT products and services. In the case of AI systems, however, it should be emphasized that in order to maintain the accuracy and effectiveness of the analyses performed by the system, it is often necessary to make changes to the algorithms as part of periodic updates. Therefore, contracting authorities should, in particular, additionally define their needs in the field of post-implementation technical support.
26. In the procurement planning phase, it is essential to consider the overall and long-term costs of the system, which includes maintenance costs such as cloud storage, computing needs, inspections, training models and audits. It is also worth considering the real cost of applying mechanisms that will be adopted in order to avoid dependence on a single supplier as part of the product life cycle analysis. At the post-implementation stage, it may be



necessary or profitable to transfer services such as data management or hosting to another provider.

27. An important aspect in terms of the product life cycle that should be taken into account by the contracting authorities at the stage of developing the tender specifications and model contracts, is also the question of copyright to works created by artificial intelligence. One of the renowned and most vivid examples confirming that current AI solutions can create a work of art is the portrait of a man created as part of "*The Next Rembrandt*" project. An in-depth analysis of the work of the Dutch painter Rembrandt van Rijn by the AI system allowed the creation of a portrait that perfectly reflected the Rembrandt's style.
28. One should remember that, in accordance with the currently applicable copyright law at the EU level and the established jurisprudence of the Court of Justice of the EU, the qualification of works created by AI as protected is not possible due to the lack of a human factor related to their creation. The national law is quite similar in this respect. Although the Polish Act on Copyright and Related Rights does not explicitly indicate that the work must be the result of human work (like in German law), the jurisprudence also quite clearly confirms it.
29. Hence, until the introduction of official regulations determining the status of artificial intelligence under copyright or industrial property law, in particular those that would dispel doubts about its possible ability to be an entity holding the rights to a work or invention, the contracting authority should, depending on the subject matter of a given contract, take into account and introduce into the contract specifications provisions ensuring (depending on the actual needs) the transfer of copyrights or granting a license to a work that will be created during the operation of a given AI solution.

### **Avoiding *Black-Box* and *Vendor Lock-In***

30. A significant problem currently related to the production of solutions based on artificial intelligence is their lack of transparency, i.e. the black box effect (*black box*) - in particular in the case of AI based on deep learning (*deep learning*). The essence of the problem is the inability to verify and understand the operations taking place after the assumptions are made and the input data is entered, and before the final result or decision is presented. This can result in the inability to introduce corrections or verify a given analysis process, which may adversely affect the use of this type of solution by public procurers, in particular in areas where particularly sensitive data are processed, such as medical or judiciary related.

31. The lack of transparency of algorithm-based systems can be solved by introducing appropriate transparency requirements into the terms and conditions of the contract. A solution worth mentioning in this context is the so-called "Explainable artificial intelligence" (*explainable AI*, *XAI*) that allows one to understand how AI works. The explanation of machine learning systems gives a sense of control and security and allows the user to determine whether a given model is behaving correctly. The use of this type of solution, and not only by public entities, is currently necessary due to, for example, Art. 22 GDPR, on the basis of which data subjects are entitled to explain the grounds and criteria for issuing a decision. In the light of this provision, the criteria for decisions made by AI should be known to the entities affected by the given decision, constituting the justification for taking the decision.
32. It should be emphasized that black boxes are not only models based on deep neural networks, they are also tools protected by business secrets - it is common for IT companies to protect their *know-how* by not sharing software codes. Therefore, the question arises that is significant from the point of view of the realities and needs of the public procurement market in Poland - should the solutions based on deep learning be used in the public sector? Firstly, due to the lack of transparency of the data analysis process and the possibility of its verification, and secondly, due to the access restrictions resulting from the confidentiality of the company.
33. Additionally, taking into account the conditions resulting from the procurement procedures under the public procurement law regime, such as the principles of equal treatment of possible contractors, fair competition or open proceedings, it can be assumed that for the public sector the most optimal solutions in the field of AI are those that guarantee the greatest transparency, i.e. solutions based on interpretable AI models (*XAI*).
34. Public procurers should therefore avoid "black box" algorithms, opting for *XAI* solutions, also due to the fact that "explainable" output data from a given AI system make it possible to interpret them by other suppliers, which, if the AI system is continued or developed, will reduce the risk of dependence on one supplier (*vendor lock-in*).
35. *Vendor lock-in* is understood as dependence on the supplier, i.e. a situation in which the entity using a given product (goods or services) is dependent on the products of a given supplier to such an extent that it is not able to change this supplier without incurring additional significant costs. This term and the associated difficulties for the user is commonly used in the IT industry to refer to a situation where incompatibility between devices, operating systems or file formats may occur.
36. The necessity and methods of counteracting the *vendor lock-in* are widely described in the literature on public procurement law, in particular in

statements and recommendations regarding the application of these provisions. It is indicated in particular that public procurers should secure the scope of intellectual property rights necessary to be able to maintain, develop and replace IT solutions on their own (or through other contractors) and that it is necessary to provide for contractual mechanisms ensuring, as far as possible, an effective takeover from the existing contractor of the tools and knowledge necessary to maintain and develop the implemented IT systems, etc. Of course, all these recommendations also apply to AI solutions.

In particular, in order to ensure the interoperability of IT solutions based on artificial intelligence, and then to reduce the risk of high operating costs and system changes at the stage of its use, it is important to introduce appropriate provisions to the contract specifications to guarantee the compatibility of AI solutions when the supplier has to be changed.

### **Providing access to data and their protection**

37. In the vast majority of AI-based projects, data plays a key role, serving as a raw material for building and developing AI mechanisms. This is especially true of AI projects based on machine learning, where the system learns from data and improves with experience. However, not all data will be used in artificial intelligence systems, therefore it is important that contracting authorities take appropriate steps before starting work on a given procurement procedure to ensure that the data used in the future AI project is accurate, reliable and appropriate for a given task. Even if artificial intelligence can be used for many needs of the public sector, the lack of basic data management techniques may significantly limit its potential.
38. Work is currently under way to create a formal and binding framework for data policies, both at European and national level. In the document entitled *"Policy for the Development of Artificial Intelligence in Poland for 2019-2027"* prepared by the inter-ministerial analytical and editorial team, it is emphasized that without a clearly defined pattern of managing access to personal and non-personal data, public and private data from human activity, nature and machines, sustainable development of AI solutions will not be possible. Public contracting authorities may, however, already at this stage introduce data policy that are compliant with the above-mentioned consultations, leading to the opening of data resources, thus ensuring their appropriate structure and enabling their further processing.

As emphasized in the above-mentioned document, unprocessed data (by machine) is a common asset and should be excluded from the intellectual property protection regime, as in the case of mathematical equations, according to the idea of open data and licenses (*creative commons*). An undesirable practice is also the closing of built data ecosystems, as is often



the case with global digital corporations or other entities collecting huge data sets. In order to ensure a broadly understood form of AI development, public entities should ensure the interoperability of solutions through their greatest possible compliance with the standards used in ICT - at least at the EU level.

## **Ensuring the transparency and ethics of the applied solution**

39. Another highly stressed challenge in the discussion on the development of artificial intelligence in the public sector is ensuring the transparency and ethicality of AI-based solutions. Artificial intelligence, especially selected types of machine learning, raises ethical questions, mainly in terms of guaranteeing general fairness and the rightness of the choices made. These concerns may grow as machine learning becomes more ubiquitous as a result of ever-increasing amounts of data and computing power. Ethical challenges in designing AI-based solutions are of particular importance in the area of public tasks - the rightness of the choice of music by a streaming service will be assessed in a different way than the rightness of the treatment method recommendation for a seriously ill patient. One of the key challenges in the sustainability of AI in the public sector is ensuring that systems are trustworthy and human-focused.
40. In April 2019, the European Commission in the document *"Ethical Guidelines for Trustworthy Artificial Intelligence"* presented recommendations for the design and implementation of artificial intelligence systems in an ethical and trustworthy manner. The guidelines were developed by the 52-member High Level Expert Group on Artificial Intelligence of the European Commission. The main task of the Group was to propose guidelines for ethical artificial intelligence, i.e. one that takes into account such issues as honesty, security, transparency, the future of work, democracy, privacy and protection of personal data, dignity and non-discrimination. The document emphasizes that the benefits that AI systems can bring may involve risks and negative consequences, including those that are difficult to predict, identify or measure, such as the impact on democracy or the rule of law.
41. The guidelines indicate that a trustworthy AI should be characterized by three features, i.e.:
  - Legal compliance - Artificial Intelligence should comply with all applicable laws and regulations,
  - Ethics - Artificial Intelligence should follow ethical principles and values,
  - Reliability - artificial intelligence should be reliable from a technical and social point of view, because AI systems can cause unintended damage even when used in good faith.

42. Trustworthy AI has been indicated as not an outlaw and based on fundamental rights as set out in EU and international human rights law. These include, in particular, EU primary law - treaties and the Charter of Fundamental Rights of the European Union, EU secondary law - incl. GDPR, the anti-discrimination directives, the machinery directive, the product liability directive, the free flow of non-personal data regulation, consumer protection law and the occupational safety and health directives. UN human rights conventions and Council of Europe conventions such as the Convention for the Protection of Human Rights and Fundamental Freedoms are also applicable.
43. The four ethical principles that according to the guidelines should be considered when designing and implementing artificial intelligence solution are:
- respect for human autonomy,
  - damage prevention,
  - justice,
  - ability to explain.
44. In addition, the guidelines contain seven requirements that artificial intelligence systems should meet in order to be considered trustworthy: human leadership and oversight, technical reliability and security, privacy and data management, transparency, diversity, non-discrimination and fairness, social and environmental welfare and responsibility.
45. In connection with the above, despite the fairly general nature of the EC guidelines, contracting authorities, when shaping the requirements in the procedures for AI solutions, should also pay attention to the ethical aspects. The conclusions that follow from the guidelines should be taken into account both at the stage of the conceptual work and designing the assumptions of the planned AI system, and later by introducing into the specification relevant subject requirements or provisions in contract templates, obviously taking into account the conditions specific to individual cases.

## VII. Summary

---

1. When discussing the issues related to the purchase of AI solutions in the public sector, it must not be forgotten that these solutions are a subset of the set of information systems. Therefore, all the challenges related to the purchase of IT systems and services will appear in the course of work on the documentation of the procedure for the purchase of artificial intelligence. There is a necessity to maintain the precision of the description of the subject matter of the contract while being aware of any dynamic and unpredictable technological changes, the need to ensure the competitiveness of the description of the subject of the contract in a situation involving specific dependencies between products and sometimes actual monopolies of large producers, challenges related to various sales models and different shaping of the intellectual property rights trading model, securing before *vendor lock-in*, etc. The ordering party has to deal with all the above and many other conditions and circumstances during the IT solution purchasing process. The procurement of systems based on artificial intelligence each have their specificity, resulting mainly from the still innovative nature of such products and the specific factual and technological conditions, which translate into legal problems, such as the issue of access to data or ensuring a certain level of protection of ethical issues. Complete regulations in this area have not yet been created, since as we know the law never keeps up with the advancement of technology. However, contracting authorities can buy AI solutions using existing legal structures, depending on the needs and circumstances of a given case. It may be, for example, that the purchase of such a solution will require a procedure under the most popular open tender mode, after conducting preliminary market consultations, or even without this procedure, if the contracting authority has sufficient competences to create a good description of the subject matter of the contract and a draft contract. Otherwise, it may be necessary to use the Innovative Partnership mode with prototyping and verification of the achievement of intermediate goals by individual contractors in order to finally select the optimal solution.
2. When preparing the procurement process for AI solutions, public institutions should keep in mind that increasing the effectiveness of their activities should not be at the expense of transparency and accountability of the solutions used. At this stage, public institutions can predict the conditions that will increase the transparency of the ordered systems (e.g. by introducing the possibility of conducting an independent system audit). Such a condition may also be an indication in the purchase documentation that the algorithm describing the operation of the purchased system will be proactively made available to the public. This is particularly important in the context of the fact that the algorithm describing the operation of the system used by a public

institution to perform its tasks, under certain conditions, can be considered as public information.<sup>25</sup>

3. This present study certainly does not cover all the possible challenges that contractors purchasing AI solutions will have to face. Its purpose, however, is to draw attention to the main areas in which such a purchase should be particularly analysed and which legal solutions other than those used in conventional procurement procedures of IT systems may be necessary. Depending on the situation, the contract for the supply of an AI solution may not differ significantly from other contracts regarding the implementation of systems, or it may be a much more extensive and complex, including specific risks related to the functioning of artificial intelligence, issues of rights to artificial intelligence products, supervision over its operation, including the ethical layer of the effects of the AI solutions etc. Undoubtedly, buying artificial intelligence solutions and using them poses new challenges for contracting authorities and the need to answer questions that have not been asked so far. This does not mean, however, that such purchases cannot be made - as although the matter is new, the existing legal structures are still able to handle it.

## VIII.Sources

---

1. Ad Hoc Committee on Artificial Intelligence (CAHAI). Policy Development Group (CAHAI-PDG). Artificial Intelligence in the Public Sector. <https://rm.coe.int/cahai-pdg-2021-06-2779-3226-6755-v-1/1680a29927> (accessed: 20/10/2021).
2. Berryhill, J., et al. (2019), "Hello, World: Artificial intelligence and its use in the public sector", OECD Working Papers on Public Governance, No. 36, OECD Publishing, Paris.
3. White Paper on Artificial Intelligence A European Approach to Excellence and Trust, COM (2020) 65 final. [https://ec.europa.eu/info/sites/default/files/commission-white-paper-artificial-intelligence-feb2020\\_pl.pdf](https://ec.europa.eu/info/sites/default/files/commission-white-paper-artificial-intelligence-feb2020_pl.pdf) (access: 20/10/2021).
4. *Good practices in the field of acquiring innovative technological solutions in competition procedures.*
5. <https://csm.org.pl/wp-content/uploads/2020/12/REPORT-Artificial-Intelligence-in-Czech-Republic-and-Poland.pdf> (accessed: 20/10/2021).
6. <https://customers.microsoft.com/en-us/story/755575-afir-government-azure-dynamics365-powerbi-romania> (accessed: 20/10/2021).
7. [https://konkursy.govtech.gov.pl/start/postepowanie/137#kluczowe\\_zapisy](https://konkursy.govtech.gov.pl/start/postepowanie/137#kluczowe_zapisy) (accessed: 20/10/2021).

---

<sup>25</sup> <https://orzeczenia.nsa.gov.pl/doc/1F39F17D6C> (accessed: 30/11/2021).



8. <https://meldingen.amsterdam.nl/incident/beschrijf> (accessed: 20/10/2021).
9. <https://news.microsoft.com/pl-pl/features/w-lesie-ze-sztuczna-inteligencja-i-to-wbrew-pozorom-jest-dobra-wiadomosc-tuesdai/> (accessed: 20/10/2021).
10. <https://orzeczenia.nsa.gov.pl/doc/1F39F17D6C> (accessed: 30/11/2021).
11. <https://publicaties.rekenkamer.amsterdam.nl/afhandeling-meldingen-openbare-ruimte-amsterdambestuurlijk-rapport/> (accessed: 20/10/2021).
12. <https://publicaties.rekenkamer.amsterdam.nl/afhandeling-meldingen-openbare-ruimte-amsterdambestuurlijk-rapport/> (accessed: 20/10/2021).
13. <https://signalen.org/> (accessed: 20/10/2021).
14. [https://think-tank.pl/wp-content/uploads/2020/06/Raport\\_Iloraz-sztucznej-inteligencji\\_vol-III\\_THINKTANK.pdf](https://think-tank.pl/wp-content/uploads/2020/06/Raport_Iloraz-sztucznej-inteligencji_vol-III_THINKTANK.pdf) (accessed: 20/10/2021).
15. [https://think-tank.pl/wp-content/uploads/2020/06/Raport\\_Iloraz-sztucznej-inteligencji\\_vol-III\\_THINKTANK.pdf](https://think-tank.pl/wp-content/uploads/2020/06/Raport_Iloraz-sztucznej-inteligencji_vol-III_THINKTANK.pdf) (accessed: 20/10/2021).
16. <https://www.elements.nl/cases/gemeente-amsterdam-platform> (accessed: 20/10/2021).
17. <https://www.gov.pl/web/kas/strategia-kas> (accessed: 20/10/2021).
18. <https://www.gov.uk/government/case-studies/how-a-signalling-company-used-ai-to-help-trains-run-on-time> (accessed: 20/10/2021).
19. <https://www.gov.uk/government/case-studies/natural-language-processing-for-land-registry-documentation-in-sweden> (accessed: 20/10/2021).
20. <https://www.gov.uk/guidance/assessing-if-artificial-intelligence-is-the-right-solution> (accessed: 20/10/2021).
21. <https://www.gov.uk/guidance/assessing-if-artificial-intelligence-is-the-right-solution> (accessed: 20/10/2021).
22. [https://www.opolskie.kas.gov.pl/izba-administracji-skarbowej-w-opolu/ogloszenia/zamowienia-publiczne-powyzej-30-tys-eur/-/asset\\_publisher/v1Cq/content/konkurs-dwuetapowy-w-ramach-programu-govtech-polska-ktorego-przedmiotem-jest-inteligentny-robot-do-walki-z-cyberprzestepczoscia?redirect=http%3A%2F%2Fwww.opolskie.kas.gov.pl%2Fizba-administracji-skarbowej-w-opolu%2Fogloszenia%2Fzamowienia-publiczne%2Fzamowienia-publiczne-powyzej-30-tys-eur%3Fp\\_p\\_id%3D101\\_INSTANCE\\_v1Cq%26p\\_p\\_lifecycle%3D0%26p\\_p\\_state%3Dnormal%26p\\_p\\_mode%3Dview%26p\\_p\\_col\\_id%3Dcolumn-2%26p\\_p\\_col\\_count%3D1](https://www.opolskie.kas.gov.pl/izba-administracji-skarbowej-w-opolu/ogloszenia/zamowienia-publiczne-powyzej-30-tys-eur/-/asset_publisher/v1Cq/content/konkurs-dwuetapowy-w-ramach-programu-govtech-polska-ktorego-przedmiotem-jest-inteligentny-robot-do-walki-z-cyberprzestepczoscia?redirect=http%3A%2F%2Fwww.opolskie.kas.gov.pl%2Fizba-administracji-skarbowej-w-opolu%2Fogloszenia%2Fzamowienia-publiczne%2Fzamowienia-publiczne-powyzej-30-tys-eur%3Fp_p_id%3D101_INSTANCE_v1Cq%26p_p_lifecycle%3D0%26p_p_state%3Dnormal%26p_p_mode%3Dview%26p_p_col_id%3Dcolumn-2%26p_p_col_count%3D1) (accessed: 20/10/2021).
23. <https://www.sas.com/content/dam/SAS/documents/marketing-whitepapers-ebooks/sas-whitepapers/pl/how-ai-change-the-public-sector.pdf> (accessed: 20/10/2021).
24. <https://www.sas.com/content/dam/SAS/documents/marketing-whitepapers-ebooks/sas-whitepapers/pl/how-ai-change-the-public-sector.pdf> (accessed: 20/10/2021).
25. [https://www.uzp.gov.pl/\\_\\_data/assets/pdf\\_file/0015/38220/Dobre-praktyki-GovTech.pdf](https://www.uzp.gov.pl/__data/assets/pdf_file/0015/38220/Dobre-praktyki-GovTech.pdf) (accessed: 20/10/2021).
26. [https://www.uzp.gov.pl/\\_\\_data/assets/pdf\\_file/0019/45406/TED2020.12..pdf](https://www.uzp.gov.pl/__data/assets/pdf_file/0019/45406/TED2020.12..pdf) (accessed: 20/10/2021).
27. <https://www2.datainnovation.org/2019-china-eu-us-ai.pdf> (accessed 20/10/2021).



28. Announcement of the Commission to the European Parliament, the European Council, the European Economic and Social Committee and the Committee of the Regions - A Coordinated Artificial Intelligence Plan, COM/2018/795 final. <https://eur-lex.europa.eu/legal-content/PL/TXT/?uri=CELEX%3A52018DC0795> (accessed: 20/10/2021).
29. Announcement of the Commission to the European Parliament, the European Council, the European Economic and Social Committee and the Committee of the Regions - A Coordinated Artificial Intelligence Plan, COM/2018/237 final. <https://eur-lex.europa.eu/legal-content/PL/TXT/?uri=CELEX%3A52018DC0237> (accessed: 20/10/2020).
30. Misuraca, G., and van Noordt, C., *Overview of the use and impact of AI in public services in the EU*, EUR 30255 EN, Publications Office of the European Union, Luxembourg, 2020, ISBN 978-92-76-19540-5, doi:10.2760/039619, JRC120399.
31. *Policy for the Development of Artificial Intelligence in Poland for 2019-2027, trustworthy artificial intelligence, autonomy and competition +PL*. Project for public consultations Republic of Poland, Warsaw, August 2019.
32. Resolution No. 196 of the Council of Ministers of December 28, 2020 on establishing "*Policies for the development of artificial intelligence in Poland from 2020*".
33. van Ooijen, Ubaldi and Welby (2019), *A Data-Driven Public Sector: Enabling the Strategic Use of Data for Productive, Inclusive and Trustworthy Governance*, OECD Working Papers on Public Governance, No. 33, OECD Publishing, Paris.
34. Proposal - Regulation of the European Parliament and of the Council establishing harmonized rules on artificial intelligence (Artificial Intelligence Act) and amending certain Union legislative acts, COM/2021/206 final. <https://eur-lex.europa.eu/legal-content/PL/TXT/?uri=CELEX:52021PC0206> (accessed: 20/10/2021).
35. Proposal - Regulation of the European Parliament and of the Council on European Data Governance (Data Management Act) COM/2020/767 final. <https://eur-lex.europa.eu/legal-content/PL/ALL/?uri=CELEX:52020PC0767> (access: 20/10/2021).
36. *Ethics guidelines for Trustworthy AI*. Independent High Level Expert Group on Artificial Intelligence established by the European Commission in June 2018 <https://op.europa.eu/en/publication-detail/-/publication/d3988569-0434-11ea-8c1f-01aa75ed71a1> (access: 20/10/2021).



**Fundacja  
Moje Państwo**

