ALGORITHMIC POLAND: TRANSFORMING PUBLIC ADMINISTRATION

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Abstract

The article aims to demonstrate how the contemporary algorithmic turn affects the legal framework and the daily operation of the administrative state in Poland. It begins by tracing the evolution of the legal framework supporting the deployment of modern technologies in government operations from the late 1990s to the present, outlining the sectors and services most impacted by digitalisation, and the corresponding scholarly debate. The discussion then provides a comprehensive overview of how automated systems, including AI-based applications, are currently employed across various sectors and programmes within Polish public administration. The article also examines practical examples of these technologies in action, showcasing notable innovations and the challenges in their implementation. Ultimately, the article offers a realistic appraisal of the prospects for the continued algorithmisation of Poland's public administration, assessing the potential for future developments.

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1. Setting the Scene: The Origins of the E-Government in Poland

The development of the Polish framework on emerging technologies in government operations began in the late 1990s and early 2000s, being motivated by the perspective of accession to the European Union. The preparations commenced shortly after the publication of the European Commission's 1994 report "Europe and the Global Information Society. Recommendations from the European Council"[1]. Having recognised the importance of modernisation and technological advancements in the public sector that would level the playing field between Poland and other member states, the first framework was established in the action programme "Goals and Directions for the Development of the Information Society in Poland" (*Cele i kierunki rozwoju społeczeństwa informacyjnego w Polsce*)[2] in 2000. One pivotal reform was the provisions that allowed remote communication with the administrative body[3] and laws on access to public information[4] and electronic signature[5]. In 2003, Polish Ministry of Science and Informatisation introduced the "Informatisation Strategy of the Republic of Poland – ePoland" (*Strategia informatyzacji Rzeczypospolitej Polskiej – ePolska*)[6] for the years 2004–2006. In 2005, the law on informatisation of the activities of entities performing public tasks[7] came into force, defining the principles of electronic

[1] R. Jedlińska & B. Rogowska, *Rozwój e-administracji w Polsce*, 123 Ekonomiczne Problemy Usług 139 (2016).

[2] Resolution of the Sejm of the Republic of Poland of 14 July 2000 on building the foundations of the information society in Poland (uchwała w sprawie budowania podstaw społeczeństwa informacyjnego w Polsce) Official Journal – Polish Monitor item 22/448.

[3] A. Zalesińska, *Wpływ informatyzacji na założenia konstrukcyjne procesu cywilnego* (2016) 3.

[4] Law of 6 September 2001 on access to public information [ustawa o dostępie do informacji publicznej], Official Journal of 2022 item 902.

[5] Law of 18 September 2001 on electronic signature [ustawa o podpisie elektronicznym], Official Journal of 2022 item 1893.

[6] Ministry of Science and Informatisation, *Strategia informatyzacji Rzeczypospolitej Polskiej – ePolska na lata 2004-2006* (December 2003), at https://www.wrotapodlasia.pl/si/dokumenty_strategiczne/polska/, accessed 30 September 2024.

[7] Law of 17 February 2005 on informatisation of the activities of entities performing public tasks [ustawa o informatyzacji działalności podmiotów realizujących zadania publiczne], Official Journal of 2022 item 307.

administration[8]. Poland has been taking successive steps to introduce technological advancements while remaining outside the list of European digitalisation leaders. In April 2006, a study commissioned by the European Commission found that most of Poland's basic public services had reached at least the level of online information[9].

The steps undertaken in the early 2010s laid out the principles for further development of policies introduced in the 2008 document "Information Development Strategy in Poland until 2013" (*Strategia rozwoju informacyjnego w Polsce do roku 2013*)[10]. The strategy was sectoral and considered the priorities of European information society policy, resulting from the Lisbon Strategy and, among other things, the "eEurope - Information Society for All" initiative[11]. During this period of Polish E-Government policy, related to the development of the infrastructure for the electronic platform for public administration services (ePUAP) emerged, enabling the implementation of standard processes for all services provided electronically[12].

The efforts to provide a robust E-Government structure for Polish citizens resulted in the promulgation of the "Integrated State Informatisation Programme for 2014–2022"[13], amended in 2016[14]

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[8] B. Kozłowska & S. Osowski, *Miejsce dla obywateli: e-administracja* (2010), at http://programrozwojubibliotek.org/wp-content/uploads/2015/07/Miejsce_dla_obywateli_e_administracja.pdf, accessed 30 September 2024, 11.

[9] D. Grodzka, *E-administracja w Polsce*, 3:19 Studia BAS 59 (2009).

[10] Ministry of Internal Affairs and Administration, *Strategia rozwoju społeczęństwa informacyjnego w Polsce do roku 201*3 (December 2008), at https://umwd.dolnyslask.pl/fileadmin/user_upload/spoleczenstwo_informacyjne/dokumenty/Zalacznik_nr_1.pdf, accessed 30 September 2024.

[11] Ministry of Internal Affairs and Administration, *Odpowiedź podsekretarza stanu w Ministerstwie Spraw Wewnętrznych i Administracji - z upoważnienia ministra – na interpelację nr 6066 w sprawie strategii budowy społeczeństwa informacyjnego* (December 2008), at https://orka2.sejm.gov.pl/IZ6.nsf/main/5FE9CBC7, accessed 30 September 2024.

[12] W. Michalski, *Rozwój usług eGovernment w świetle inicjatyw programu eEuropa i ePolska*, 3(4) Telekomunikacja i Techniki Informacyjne 49 (2007).

[13] Ministry of Digital Affairs, *Program Zintegrowanej Informatyzacji Państwa* (October 2016), at https://mc.bip.gov.pl/programy-realizowane-w-mc/program-zintegrowanej-informatyzacji-panstwa-wrzesien-2016-r.html, accessed 30 September 2024.

[14] Resolution No. 117/2016 of the Council of Ministers of September 27, 2016, amending the resolution on the adoption of the development program "Programme of Integrated State Informatisation" [uchwała zmieniająca uchwałę

and 2019[15]. The 2019 revision, published a year later, announced the preparation of a strategy for artificial intelligence (AI) development in Poland. 2023, the Polish government extended the Integrated State Informatisation Programme until 31 December 2024. In addition to projects developed by the Polish government, programmes concerning algorithmic public administration were implemented in cooperation with the European Union, such as the "European Funds for Digital Development 2021-2027" (*Fundusze Europejskie na Rozwój Cyfrowy 2021-2027*)[16].

1.1. Policy Developments Towards Using AI

With technology development, Poland saw the need to develop a strategy for using AI systems, also in public administration. The 2020 "Policy for the Development of Artificial Intelligence in Poland"[17] emphasises the importance of AI in improving government operations' efficiency. AI is viewed as a tool to support decision-making processes. However, decisions must remain under human oversight, and citizens must be informed whether a human or an algorithm made a decision.

The policy also highlights the broader societal implications of AI, particularly its ability to automate and optimise processes on an unprecedented scale[18].

w sprawie przyjęcia programu rozwoju 'Program Zintegrowanej Informatyzacji Państwa'], item RM-111-120-16.

[15] Resolution No. 109/2019 of the Council of Ministers of September 24, 2019, amending the resolution on the adoption of the development program "Programme of Integrated State Informatisation" [uchwała zmieniająca uchwałę w sprawie przyjęcia programu rozwoju 'Program Zintegrowanej Informatyzacji Państwa'], item RM-111-120-16.

[16] Fundusze Europejskie na Rozwój cyfrowy, at https://www.rozwojcyfrowy.gov.pl/, accessed 30 September 2024.

[17] Rada Ministrów, *Polityka dla rozwoju sztucznej inteligencji w Polsce od roku 2020* [Policy for the development of artificial intelligence in Poland from 2020], Załącznik do uchwały nr 196, 28 grudnia 2020 r. (poz. 23) (2020), at https://www.gov.pl/web/ai/polityka-dla-rozwoju-sztucznej-inteligencji-w-polsce-od-roku-2020, accessed 30 September 2024.

[18] Council of Ministers, *Polityka dla rozwoju sztucznej inteligencji w Polsce od roku 2020 – Załącznik do uchwały nr 196, 28 grudnia 2020 r. (poz. 23)* (December 2020), 22–23, at https://www.gov.pl/web/ai/polityka-dla-rozwoju-sztucznej-inteligencji-w-polsce-od-roku-2020, accessed 30 September 2024.

The policy sets out several key goals[19] for the development of AI in Poland, aiming to balance technological advancement with social responsibility:

1. Poland recognises AI's risks to the labour market, including potential job losses and increased inequality. The policy calls for proactive measures, such as retraining programmes and supporting workers in vulnerable industries, to help society adapt to these changes.
2. A focus on preparing workers for the future economy is central. The government aims to provide opportunities for upskilling in AI-related fields, including through the Integrated Skills Strategy 2030[20], which aligns education with emerging market trends.
3. The policy stresses the need for flexible legislation that fosters AI research, development, and innovation, which includes removing legal barriers and promoting Poland as an attractive destination for highly skilled AI professionals from domestic and international markets.
4. Poland's policy stresses the importance of trustworthy, transparent, and accountable AI and seeks to ensure that AI development is consistent with ethical standards, particularly those related to human rights.
5. The policy encourages Poland's active involvement in shaping global AI governance, mainly through collaboration with organisations like the EU, UN, and OECD, to contribute to developing ethical frameworks for the global use of AI technologies.
6. To build trust in AI technologies, the policy promotes campaigns that educate the public about the opportunities and risks of AI, helping citizens and businesses make informed decisions about their engagement with AI systems.
7. The policy outlines the importance of continuous research in AI, including promoting transparency in AI decision-making processes and supporting innovation through grants, independent audits, and assessments of AI systems' social impacts.

[19] Council of Ministers, cit. at 18, 69–73.

[20] Ministerstwo Edukacji Narodowej, *Zintegrowana strategia umiejętności 2030 (część ogólna)* (2019), at https://www.ibe.edu.pl/images/download/Zintegrowana_Strategia_Umiejętności_2030_(część_ogólna).pdf, accessed 12 September 2024.

The policy outlines steps to promote AI in public administration. It encourages the development of trustworthy AI solutions, supporting initiatives that allow the testing and implementing AI systems in various sectors such as public services and healthcare[21].

Numerous policies and programmes adopted by the Polish government contribute to Poland's position in the Digital Economy and Society Index[22], with its performance improving yearly. Poland ranks among the countries catching up most rapidly with digital transformation leaders despite ranking 24th overall among EU countries[23]. Additionally, Poland is gradually enhancing its AI potential, as indicated by the latest Global AI Index 2024[24]. In this ranking, which considers AI implementation, innovation, and investment, Poland is 36th out of 83 countries. While Poland is not yet at the forefront of AI adoption, it is trying to keep pace with other countries.

1.2. Sectors and Services Most Impacted by the Digital Turn

The integration of AI technologies is transforming multiple sectors in Poland, optimising processes, predicting outcomes, and automating tasks traditionally done by humans. The sectors most affected by the algorithmisation in Poland include public administration, healthcare, transport and logistics, agriculture, energy, education, cybersecurity, justice and law enforcement, and environmental monitoring.

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[21] F. Chiusi et alii (eds), *Automating Society Report 2020* (2020); Council of Ministers, cit. at 18, 6, 28, 70, 83.

[22] According to Article 2(1) of the Decision of 14 December 2022 establishing the Digital Decade Policy Programme 2030 'Digital Economy and Society Index' or 'DESI' means an annual set of analyses and measurement indicators on the basis of which the Commission monitors the Union's and the Member States' overall digital performance across several policy dimensions, including their progress towards the digital targets.

[23] European Commission, *European Commission Digital Decade Country Report 2023 Poland* (2023), at https://piit.org.pl/wp-content/uploads/2023/09/DDR2023_Poland_country_report.pdf, accessed September 30 2024.

[24] Tortoise Media, *The Global AI Index 2024* (2024), at https://www.tortoisemedia.com/intelligence/global-ai/#rankings, accessed September 30 2024.

In public administration, AI-driven automation improves decision-making and service delivery[25], enhancing efficiency for citizens and businesses. The most used solutions in the field of new digital technologies within central administration entities are electronic services (e-services). The key areas where e-services are applied include communication with citizens and businesses, administrative matters, and financial management[26].

Healthcare benefits from AI's use in diagnostics, telemedicine, predictive tools for epidemiological situations, optimising treatment outcomes[27], and elderly care. For example, Łódź has introduced an AI-supported telecare programme for elderly residents, monitoring vital signs and alerting caregivers in emergencies[28].

In transport, self-driving cars and AI-enabled transport systems help reduce accidents and optimise logistics[29]. AI-driven solutions, like smart traffic systems and intelligent parking management, are reducing congestion and improving public transport in cities like Warsaw, Kraków, and Łódź[30].

Agriculture also benefits from precision farming technologies that boost productivity[31], while energy management is becoming more efficient through smart grids that optimise energy use and integrate renewable energy sources[32].

AI plays a growing role in educational processes by enhancing personalised learning and skill development[33]. The reliance on algorithms to predict and mitigate risks in cybersecurity

[25] A. Kargul et alii, *W drodze ku doskonałości cyfrowej: Raport końcowy z badania rynku na temat gotowości wdrożenia, poziomu wiedzy i wykorzystania nowych technologii cyfrowych w jednostkach samorządu terytorialnego* (2020) 66–67.
[26] Ministry of Digital Affairs, *W drodze ku doskonałości cyfrowej Raport końcowy z badania rynku na temat gotowości wdrożenia, poziomu wiedzy i wykorzystania nowych technologii cyfrowych w jednostkach samorządu terytorialnego* (October 2023), 7, at https://cwd.info.pl/wp-content/uploads/2024/01/Raport_koncowy_z_badania_samorzadow_terytorialnych_Ministerstwo-Cyfryzacji.pdf, accessed 12 September 2024.
[27] Ministry of Digital Affairs, cit. at 26, 32, 69.
[28] Ministry of Digital Affairs, cit. at 26, 44–46.
[29] Ministry of Digital Affairs, cit. at 26, 32.
[30] Ministry of Digital Affairs, cit. at 26, 40–42.
[31] Ministry of Digital Affairs, cit. at 26, 32, 33.
[32] Ministry of Digital Affairs, cit. at 26, 8, 10.
[33] Ministry of Digital Affairs, cit. at 26, 74–76.

is increasing[34]. AI is used in predictive policing and managing security risks[35].

Many local governments use AI for air quality monitoring and waste management. These systems provide real-time data and help municipalities take quick action to improve environmental health[36].

1.3. Scholarly Debate on the E-Government

The Polish academic debate addresses legal, economic, and technological aspects related to E-Government. From the first steps taken by the Polish legislator in E-Government solutions, academics have identified weaknesses in the country's digital development and access to online services[37]. Scholars have observed the progress of E-Government in Poland, emphasising the need to standardise services provided by the online administration[38] and noting disparities in technological development across different administrative sectors[39]. E-Government in the context of citizens, EU values[40], challenges for digital services[41], and the potential of their use in public administration[42] have been the focus of monographs published over recent years.

The Polish scholarly community explores topics such as electronic document management[43], digitisation of postal

[34] Ministry of Digital Affairs, cit. at 26, 69.
[35] Ministry of Digital Affairs, cit. at 26, 67, 73.
[36] Ministry of Digital Affairs, cit. at 26, 42–44.
[37] D. Grodzka, cit. at 9; M. Borawski and Kesra Nermend, "Zastosowanie sztucznych sieci neuronowych do wspomagania decyzji w planowaniu wieloletnim w samorządach terytorialnych" (2005) *Prace Naukowe / Akademia Ekonomiczna w Katowicach. Systemy wspomagania organizacji SWO'2005*.
[38] R. Jedlińska & B. Rogowska, cit. at 1.
[39] D. Miłek & P. Nowak, *Rozwój usług elektronicznej administracji publicznej w Polsce na tle Unii Europejskiej*, 65 Nierówności społeczne a wzrost gospodarczy 47–73 (2021).
[40] S. Dudzik et alii (eds.), *Obywatel w centrum działań e-administracji w Unii Europejskiej* (2023).
[41] S. Dudzik et alii (eds.), *E-administracja. Wyzwania dla cyfrowych usług publicznych w Unii Europejskiej* (2024).
[42] S. Dudzik et alii (eds.) *E-administracja: skuteczna, odpowiedzialna i otwarta administracja publiczna w Unii Europejskiej* (2022).
[43] R. Raczko, *Elektroniczne zarządzanie dokumentacją w e-administracji*, 44 Roczniki Kolegium Analiz Ekonomicznych 35–43 (2017).

services[44], and the competencies of officials using technological solutions[45]. Some texts highlight the challenges of using AI in E-Government tools[46], particularly concerning the automation of decision-making processes[47].

Since 2007, the journal "IT in Administration" has been published in Poland[48]. This monthly journal is dedicated to information technologies used in the public sector, E-Administration issues, public institutions' digitalisation, and IT legal matters. The magazine targets IT specialists, network administrators in government offices and public sector entities, and officials overseeing the digitalisation of public institutions. For instance, the September 2024 issue focuses on cybersecurity, including new strategies and tools for protecting government offices.

The adoption of the Artificial Intelligence Act (AIA) generated broad interest, and its enactment is expected to spur further academic debates.

2. The EU Legal Framework for the Use of Algorithmic Automation and AI Systems by the Public Administration

In Poland, an EU Member State, the basic legal framework for developing and applying algorithmic automation and AI-based applications, including public administration, is laid down in two major European Union law acts: the General Data Protection

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[44] A. Romejko-Borkowska, *E-administracja, czyli cyfryzacja usług publicznych w Europie i w Polsce – nowa rola operatorów pocztowych?*, 1(7) internetowy Kwartalnik Antymonopolowy i Regulacyjny 89–99 (2017).

[45] P. Świtał, "Informatyzacja administracji publicznej w Polsce – wyzwania i problemy", in B. Kotowicz et alii (eds.), *Prawo publiczne i prywatne w dobie informatyzacji – ocena dotychczasowych rozwiązań i perspektywy na przyszłość* (2023) 111–130.

[46] D. Chaba, *Wykorzystywanie sztucznej inteligencji w administracji publicznej. Wybrane aspekty*, 1(24) Roczniki Administracji i Prawa (2024).

[47] J. Greser & M. Dymitruk, *Unijny projekt regulacji sztucznej inteligencji a przeciwdziałanie próbom autorytarnego jej wykorzystywania przez władze publiczne*, 20 Rocznik Problemy Współczesnego Prawa Międzynarodowego, Europejskiego i Porównawczego 235–244 (2022); M. Kamiński, *Akt administracyjny zautomatyzowany. Zasadnicze problemy konstrukcyjne zastosowania systemów sztucznej inteligencji w procesach decyzyjnych postępowania administracyjnego na tle prawnoporównawczym*, 4(47) Prawo i Więź 281–304 (2023).

[48] Miesięcznik informatyków i menedżerów IT sektora publicznego IT w Administracji, at https://itwadministracji.pl, accessed 12 October 2024.

Regulation (referred to as GDPR)[49] and the Artificial Intelligence Act (referred to as AIA)[50].

2.1. The General Data Protection Regulation

The GDPR establishes a framework for protecting personal data. It does not explicitly prohibit the use of AI in public administration but imposes rigorous requirements to ensure transparency, accountability, and the protection of individual rights.

One of the central provisions relevant to AI use is Article 22 GDPR, which grants individuals the right not to be subject to decisions based solely on automated processing, including profiling when such decisions produce legal effects or significantly affect them. This indicates that public administration cannot entirely rely on AI or automated systems to make decisions regarding citizens without human involvement unless specific conditions are met. Such exceptions include instances where the decision is indispensable for the fulfilment of a contract, is authorised by law, or is based on the individual's explicit consent. Nevertheless, safeguards, such as the right to human intervention and the right to challenge decisions, are imperative even in such instances.

The GDPR also reiterates the fundamental tenets of data processing outlined in its Article 5. It is incumbent upon public administrations to employ AI to guarantee that personal data processing is conducted according to lawfulness, fairness, and transparency. These principles mandate that citizens be informed when automated systems utilise their data and that such data processing be consistent with legal requirements. Moreover, the principle of data minimisation requires that only the data necessary for processing be collected and that the accuracy of the data be maintained to prevent errors or biases in decision-making processes.

Another noteworthy provision is Article 35 GDPR, which mandates that public administrations undertake Data Protection Impact Assessments (DPIA) when the deployment of AI is likely to result in substantial risks to individuals' rights and freedoms. To

[49] Regulation (EU) 2016/679 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data.
[50] Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence.

illustrate, if a municipality introduces an AI-driven welfare distribution system, an assessment of the potential risks of discrimination or bias must be conducted prior to the deployment of the system. Similarly, Article 6 GDPR stipulates that the processing of personal data must be based on a legitimate legal basis, such as compliance with a legal obligation or the fulfilment of a task in the public interest. Transparency is also reinforced by Article 13 GDPR, which obligates public bodies to provide clear information regarding the use of AI in automated decision-making processes. Citizens must be informed about the rationale of decisions and their potential consequences. This guarantees that AI systems employed in public administration are utilised transparently and comprehensively, thereby facilitating citizens' ability to understand and, if necessary, contest the decisions made by such systems. Furthermore, Article 24 GDPR stipulates that public administrations must guarantee compliance with the GDPR by implementing suitable technical and organisational measures, including regular audits, encryption, and anonymisation.

2.2. The Artificial Intelligence Act

The AI Act (AIA) supplements the GDPR by introducing a series of regulations tailored to AI, particularly in areas deemed to present a heightened level of risk. The AIA aims to establish a comprehensive regulatory framework for AI systems, in particular those relevant to public administrations across EU Member States.

The AIA classifies AI systems according to their potential impact on fundamental rights. Specific applications, such as real-time biometric identification in public spaces, are explicitly prohibited unless subject to rigorous oversight. Public administration bodies that deploy AI systems in areas such as public benefits administration, law enforcement, or critical infrastructure must comply with strict obligations. These measures include performing risk assessments, implementing human oversight, and registering high-risk AI systems in a public database managed by the European Commission.

Public authorities must inform individuals when high-risk AI systems influence decisions and justify how these systems contributed to the decision-making process. The AIA delineates a series of governance and compliance mechanisms, including establishing national supervisory authorities to oversee the use of AI. It introduces provisions for public administrations to conduct

experiments with AI in controlled environments designated as "regulatory sandboxes", permitting the secure testing of AI systems under qualified personnel's supervision and guaranteeing that ethical and legal standards are met before the technology's broader deployment.

Public administrations in Poland and throughout the EU must conduct *ex-ante* risk assessments to evaluate the potential impact of AI systems, particularly in domains such as healthcare, education, and social services.

3. The Polish Legal Framework for the Use of Algorithmic Automation and AI Systems by the Public Administration

Poland does not yet have a specific legal framework directly permitting or prohibiting the use of AI systems and algorithmic automation by public administration. The legal requirements combine preexisting norms with new, technologically oriented rules. Additionally, Article 7 of the Polish Constitution[51] stipulates that public authorities must act based on and within the limits of the law[52].

3.1. The 1960 Code of Administrative Procedure

The amendment of Article 14 of the Code of Administrative Procedure[53], which allows for the electronic submission of applications and service via electronic means under the Law on informatisation of the activities of entities performing public tasks, is considered a pivotal step in developing E-Government tools[54]. The question of developing legal instruments in public administration has been the subject of several amendments in the

[51] Constitution of the Republic of Poland [Konstytucja Rzeczypospolitej Polskiej], Official Journal of 1997 item 78.483.

[52] M. Florczak-Wątor, *Artykuł 7*, in P. Tuleja (ed.), *Konstytucja Rzeczypospolitej Polskiej. Komentarz* (2023); M. Zubik & W. Sokolewicz, *Article 7*, in L. Garlicki (ed.), *Konstytucja Rzeczypospolitej Polskiej. Komentarz* (2016).

[53] Law of 14 June 1960 code of administrative procedure [kodeks postępowania administracyjnego], Official Journal of 2024 item 572.

[54] M. Kotulska, *Wykorzystanie środków komunikacji elektronicznej w postępowaniu administracyjnym*, 9 Przegląd Prawa Publicznego 23 (2012).

last two decades[55], particularly the Law on Electronic Delivery[56]. The amended provision abolished the dualism of written and electronic document forms by assuming that matters shall be heard and disposed of in writing and recorded in paper or electronic form, making them alternative choices[57]. The new regulations allow matters to be handled using official documents generated automatically and bearing the qualified electronic seal of the public administration authority, as well as online services made available by public administration bodies after a party or other participant in the proceedings has authenticated them. The provision demonstrates the Polish legislator's willingness to open the procedure to the automation of the administrative process, provided that the substantive law introduces a basis for this[58].

3.2. Specific Regulations on Digital Tools Used by Public Administration

The tools based on digital solutions used by Polish public administration are governed either by separate laws or are integrated into the regulations about specific public institutions. Examples of the Polish framework for emerging technologies in government operations include the mCitizen app (*mObywatel*), the Electronic Platform for Public Administration Services (*Elektroniczna Platforma Usług Administracji Publicznej – ePUAP*), the Public Information Bulletin (*Biuletyn Informacji Publicznej*), the E-Tax Office (*e-Urząd Skarbowy*), and the Central Business Activity Register and Information (*Centralna Ewidencja Działalności Gospodarczej*).

One of the most noteworthy E-Government tools is the mCitizen (mObywatel) app. The mCitizen app was launched in

[55] A. Wróbel, *Artykuł 14*, in M. Jaśkowska et alii (eds.), *Kodeks postępowania administracyjnego. Komentarz aktualizowany* (2024).
[56] Law of 18 November 2020 on electronic delivery [ustawa o doręczeniach elektronicznych], Official Journal of 2023 item 285.
[57] A. Wróbel, cit. at 55.
[58] G. Sibiga, *Zasada wykorzystania pism generowanych automatycznie do załatwienia indywidualnej sprawy administracyjnej (art. 14 § 1b KPA). Podstawa prawna czy zasada kierunkowa dla automatycznego podejmowania decyzji?*, 6 Informatyzacja ogólnego postępowania administracyjnego 2023, Dodatek Specjalny do Monitora Prawniczego 2023 10–11 (2023).

October 2017[59] and operated as one of the public mobile applications based on the Law on the digitalisation of entities performing public tasks and the Law on access to public information[60]. In 2023, alongside the new legislation[61], mCitizen 2.0 was launched, integrating more digital administration solutions. This Act established the legal framework for the app's operation, including its new identity verification and authentication tools. The new Law comprehensively regulates the functioning of the mCitizen app and the conditions for providing and delivering its services[62].

Other tools include the ePUAP, the Public Information Bulletin, the E-Tax Office and the Central Business Activity Register and Information.

The ePUAP is an IT system where public institutions provide services through a single access point on the Internet. The platform is regulated by the Law on computerisation of activities of entities performing public tasks. The legal framework for the platform is rudimentary: it only briefly specifies that information about electronic inbox addresses provided by public entities is available on the platform, the terms of use are outlined in secondary legislation, and the methods for identification and authentication are only partially regulated[63]. The platform's operation oversees the minister responsible for digitalisation, who is also responsible for defining the scope and terms of use through regulations.

The Public Information Bulletin (*Biuletyn Informacji Publicznej*) is an ICT-based publication platform operating as a unified system of websites[64]. Public authorities and other entities must create their own Public Information Bulletin website. The

[59] Ministry of Digital Affairs, *Wystartowała aplikacja mObywatel* (October 2017), at https://www.gov.pl/web/cyfryzacja/oficjalna-premiera-aplikacji-mobywatel-transmisja-online, accessed 12 October 2024.

[60] A.A. Kania et alii, *Zasady wydawania dokumentów i udostępniania danych w ramach rejestrów publicznych* (2024) 201; A. Gryszczyńska et alii (eds.), *Internet Hacking* (2023).

[61] Law of 26 May 2023 on mCitizen app [ustawa o aplikacji mObywatel], Official Journal of 2024 item 307.

[62] A.A. Kania et alii, cit. at 60.

[63] G. Szpor & K. Wojsyk, *Artykuł 19(a)*, in C. Martysz et alii (eds.), *Ustawa o informatyzacji działalności podmiotów realizujących zadania publiczne. Komentarz* (2015).

[64] A. Mika, *Znaczenie Biuletynu Informacji Publicznej w zapewnieniu jawności działań administracji publicznej na przykładzie zamówień publicznych*, 323 Wydawnictwo Uniwersytetu Wrocławskiego 278 (2017).

Bulletin was introduced by a 2001 Law on access to public information, reflecting forward-thinking and innovative insight. At that time, Internet access in Poland was limited, and most public offices still needed websites[65]. The legislator has introduced a minimum content standard, and maintaining a website has become a legal obligation[66].

The Law on the National Tax Administration regulates the E-Tax Office (*e-Urząd Skarbowy*)[67]. Provisions for the e-Office were introduced in 2022 by the Law on Amending Certain Laws to Automate the Handling of Certain Matters by the National Tax Administration[68]. Detailed rules for the operation of the e-Office were included in nine implementing acts to the Law promulgated since 2021.

The Central Business Activity Register and Information (*Centralna Ewidencja Działalności Gospodarczej*) has been operating in the Polish legal system under the amendments introduced to the Law on Freedom of Economic Activity[69] in 2011[70]. The creation of the Central Register and Information on Economic Activity was inspired by the Central Information of the National Court Register[71].

The specifics of these systems will be analysed below.

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[65] K. Izdebski, *Artykuł 8*, in A. Piskorz-Ryń et alii (eds.) *Ustawa o dostępie do informacji publicznej. Komentarz* (2023).

[66] I. Kamińska & M. Rozbicka-Ostrowska, *Artykuł 8*, in I. Kamińska & M. Rozbicka-Ostrowska (eds.), *Ustawa o dostępie do informacji publicznej. Komentarz* (2015).

[67] Law of 16 November 2016 on the National Tax Administration [ustawa o Krajowej Administracji Skarbowej], Official Journal of 2023 item 615.

[68] Law of 8 June 2022 on amending certain laws to automate the handling of certain matters by the National Tax Administration [ustawa o zmianie niektórych ustaw w celu automatyzacji załatwiania niektórych spraw przez Krajową Administrację Skarbową], Official Journal of 2022 item 1301.

[69] Law of 2 July 2004 on freedom of economic activity [ustawa o swobodzie działalności gospodarczej], Official Journal of 2017 item 2168.

[70] Law of 13 May 2011 on law amending the law on freedom of economic activity and certain other acts [ustawa o zmianie ustawy o swobodzie działalności gospodarczej oraz niektórych innych ustaw], Official Journal of 2011 item 131.764.

[71] A. Żywicka, *Artykuł 1*, in M. Wierzbowski (ed.), *Konstytucja biznesu. Komentarz* (2015).

3.3. Cybersecurity

Under the current Law on National Cybersecurity System[72], adopted in 2018 to implement the NIS Directive[73], public administration is not explicitly covered by the cybersecurity obligations that apply to operators of essential services (e.g., energy, transport, healthcare) and digital service providers. This regulatory gap leaves public administration entities, which handle vast amounts of sensitive data through AI systems, without mandatory cybersecurity standards. However, the upcoming amendments to the National Cybersecurity System Law[74], which will transpose the NIS2 Directive[75] into Polish law, will fill this gap. The draft amendment to the Law on the National Cybersecurity System (UKSC) of October 2024 introduces significant changes for public administration bodies, placing them under stringent cybersecurity obligations[76].

One of the most distinctive features of the draft amendment is the procedure for designating high-risk suppliers (*Dostawca Wysokiego Ryzyka*, DWR), which is particularly relevant for suppliers of AI systems and ICT infrastructure. Under Article 71(2) UKSC, the Minister for Cybersecurity, in collaboration with the pertinent CSIRT teams, is empowered to categorise a supplier as high-risk if their systems, services, or software present a substantial risk to the security of the public or critical infrastructure. It implies that if an AI system provider is classified as a high-risk supplier,

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[72] Law of 5 July 2018 on National Cybersecurity System [ustawa o krajowym systemie cyberbezpieczeństwa], Official Journal of 2018 item 1560.

[73] Directive (EU) 2016/1148 of the European Parliament and of the Council of 6 July 2016 concerning measures for a high common level of security of network and information systems across the Union.

[74] Ministerstwo Cyfryzacji, *Projekt ustawy z dnia 23 kwietnia 2024 r. o zmianie ustawy o krajowym systemie cyberbezpieczeństwa oraz niektórych innych ustaw* (2024), at https://mc.bip.gov.pl/projekty-aktow-prawnych-mc/902927_projekt-ustawy-o-zmianie-ustawy-o-krajowym-systemie-cyberbezpieczenstwa-oraz-niektorych-innych-ustaw.html, accessed 12 September 2024.

[75] Directive (EU) 2022/2555 of the European Parliament and of the Council of 14 December 2022 on measures for a high common level of cybersecurity across the Union, amending Regulation (EU) No 910/2014 and Directive (EU) 2018/1972, and repealing Directive (EU) 2016/1148 (NIS 2 Directive).

[76] Ministry of Digital Affairs, *Projekt ustawy o zmianie ustawy o Krajowym Systemie Cyberbezpieczeństwa oraz niektórych innych ustaw* (October 2024), at https://mc.bip.gov.pl/projekty-aktow-prawnych-mc/902927_projekt-ustawy-o-zmianie-ustawy-o-krajowym-systemie-cyberbezpieczenstwa-oraz-niektorych-innych-ustaw.html, accessed 12 September 2024.

public administration bodies may be obligated to terminate their use of that supplier's products or services, irrespective of any existing contractual obligations. This introduces an additional layer of scrutiny, particularly for AI systems that process sensitive personal data or are integrated into critical government operations and indicates Poland's focus on securing the supply chain, with an emphasis on limiting exposure to foreign or untrusted suppliers, which aligns with broader European concerns about national security risks posed by non-EU providers.

Article 22(1) UKSC draft amendment establishes a maximum fine of PLN 100 million (approximately EUR 22 million) for public bodies that fail to comply with cybersecurity obligations. The maximum fine is notably more stringent than the general penalties in the NIS2 Directive, reflecting Poland's rigorous approach to enforcing cybersecurity standards, particularly in the public sector, where AI systems are becoming increasingly prevalent in sensitive decision-making processes.

Integrating AI systems into public administration increases the necessity for robust cybersecurity. The NIS2 Directive, as implemented through the UKSC amendment, provides a crucial legal framework for managing these risks. AI systems are particularly susceptible to specific forms of cyberattacks, including adversarial attacks. In such attacks, minor alterations to the input data can result in significant and often detrimental modifications to the system's output.

By extending the obligations outlined in the NIS2 Directive to public administrations and focusing specifically on the security of AI systems, the Polish government aims to ensure that these technologies can be safely deployed to improve governance without compromising security or public trust.

4. Algorithms in the Daily Operations of Public Administration

Poland's public administration steadily incorporates AI systems and algorithmic automation. Some digital services have introduced AI-driven tools to streamline central administration services, enhance transparency, and improve citizen engagement. These applications enable efficient access to public information, facilitate digital communication between citizens and government entities, and offer innovative solutions to deliver services more

effectively in urban and rural areas. At the same time, local government administration in larger urban areas tends to be at the forefront of AI integration, while smaller municipalities face more significant challenges in adopting these technologies.

4.1. Algorithmic Automation and AI-based Applications in Central Administration

Most central administrative bodies (82 per cent) utilise digital technology solutions, such as those based on AI, the Internet of Things (IoT), cloud computing, and electronically delivered services (e-services). Notably, 90 per cent of these bodies specifically report using e-services. Those administrative units not employing digital technology solutions cited the lack of identified need in this area as the primary reason for non-adoption[77].

(a) Algorithmisation of Polish Ministries

The issues covered in this section were the subject of our survey. On 1 October 2024, a co-author of this article, Prof. Monika Namysłowska, submitted public information requests to all 19 ministries and 3 offices: the Personal Data Protection Office, the Office of Competition and Consumer Protection, and the Electronic Communications Office. Within the statutory 14-day period from submitting the request, 2 ministries did not respond[78], and 7 other ministries[79] requested an extension of the deadline by 2 to 6 weeks to gather and analyse the relevant information. Only the Personal Data Protection Office stated that all the information covered by the request does not constitute public information.

In most responses within the statutory deadline, the ministries claimed not to use algorithmic automation or AI-based systems in their daily operations. The Electronic Communications Office responded that it does not use these solutions. Still, it does use iris scanners and fingerprint readers as part of a control system to restrict access to protected areas for unauthorised persons on the Office's premises. The responses also seem to omit other systems, such as those described in Section IV or, for example, EZD RP

[77] Ministry of Digital Affairs, cit. at 26, 8–9.
[78] Ministry of Industry, Ministry of Justice.
[79] Ministry of the Interior and Administration, Ministry of National Defense, Ministry of Finance, Ministry of Higher Education and Science, Ministry of Climate and Environment, Ministry of Foreign Affairs, Ministry of Sport and Tourism.

(Electronic Document Management System). This system streamlines document management and enables the comprehensive handling and resolution of cases in electronic form while supporting paper-based case handling. The EZD RP system includes a data anonymisation module based on AI solutions[80].

During the examined period specified by the statutory deadline (1–15 October 2024), one ministry, the Ministry of Development and Technology, provided a comprehensive response. It indicated that its IT Office uses AI mechanisms in the Ministry's cybersecurity systems, including processes for detecting anomalies within the IT ecosystem and advanced protection of its computing resources. The Department of Digital Economy (DGC) also uses an external security system—Web Application Firewall-class Internet Threat Protection. These protections employ machine learning algorithms to detect and block suspicious traffic and identify system anomalies. Moreover, DGC utilises external solutions based on advanced algorithms such as chatbots and voicebots. These solutions use advanced NLP (Natural Language Processing) models, enabling citizen service in a 24/7 mode. According to the Ministry, NLP algorithms allow for the automation of citizen interactions intuitively and naturally, providing real-time responses. These systems are applied in customer support, handling inquiries, and providing information and are used within the FENG and CPP projects.

The Office of Competition and Consumer Protection (UOKiK) also responded comprehensively. In addition to information on the ARBUZ system (see Section 5 below), it indicated that the President of UOKiK uses software that employs algorithmic automation or AI, specifically the EU program "eSurveillance – Product Safety". This application was developed by the European Commission and is accessible through a secured website. The application uses AI algorithms to search websites for offers of products deemed dangerous and previously reported in the EU system "Safety Gate – RAPEX". Additionally, the President of UOKiK has access to programs that utilise artificial intelligence, such as ChatGPT, HappyScribe, Canva, Photoshop, FreePik, DeepL, and Google Translate. In monitoring the press, the President employs ready-made AI-based solutions that enable the analysis of materials related to UOKiK and the Trade Inspection.

[80] See https://www.gov.pl/web/ezd-rp, accessed 2 October 2024.

(b) Access to Public Information

Maintaining the Public Information Bulletin, the official system of unified public records online, is the duty of entities to provide public information. It is also a crucial component of access to public information[81]. The data is available continuously and free of charge through the main website, http://www.bip.gov.pl, as well as through individual pages managed by public administration bodies, local government units, and other entities obligated to provide public information[82]. The entities such as municipal offices, courts, or utility companies publish information required by Polish law, including their legal status, scope of activity and competencies, governing bodies and officials, assets, procedures, methods for handling cases, and details about registers, records, and archives, along with rules for accessing the data contained in them[83].

The concept behind creating the main page was to establish a unified system of websites, all accessible through a central address book[84]. A vital advantage of the Public Information Bulletin system is its user-friendly interface and easy access from any internet-connected device[85]. The Public Information Bulletin ensures the origin of the information as it must be published on the entity's website by authorised individuals, with the content secured against third-party interference[86].

(c) E-Government Infrastructure

The largest e-service portal in Poland is the Electronic Platform for Public Administration Services (ePUAP). This platform integrates various administrative services, enabling them to be conducted electronically, thereby reducing the need for physical interactions with public offices. The primary goal of ePUAP was to streamline the functioning of public administration at different levels and adapt it to the growing expectations of

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[81] B. Wilk, *Prawne i praktyczne aspekty udostępniania informacji w Biuletynie Informacji Publicznej* (2020).
[82] A. Mika, cit. at 64, 278.
[83] Public Information Bulletin, *Czym jest BIP*, at https://www.gov.pl/web/bip/czym-jest-bip, accessed 10 October 2024.
[84] K. Izdebski, *Artykuł 9*, in A. Piskorz-Ryń *et alii* (eds.), cit. at 65.
[85] A. Mika, cit. at 64, 278.
[86] K. Izdebski, cit. at 84.

citizens and businesses regarding speed and service accessibility[87]. It also serves as a communication channel among various public administration entities. The service providers include public administration bodies and other entities tasked with carrying out public duties delegated or entrusted to them[88].

The ePUAP was launched in 2008. Since 2009, an updated system ePUAP2, has been implemented. It significantly expanded the platform's functionality, notably by introducing the "trusted profile"—a free alternative to a qualified electronic signature. The trusted profile allows for the electronic authorisation of documents, eliminating the need for in-person office visits and contributing to the increased efficiency of administrative processes[89]. In addition to simplifying communication with the administration, the platform supports data exchange between public institutions through the *Central Document Template Repository* (CRD). This repository ensures uniformity of documents, accelerating the introduction of new services and reducing operational costs[90]. By April 2015, public entities had uploaded 2.146 document templates to the Central Repository of Document Templates[91], allowing users to send documents to any office. The platform also provides integrated access to various electronic public services, centralises standard electronic document templates used in administrative procedures, and enhances interoperability among the state's automatic and AI-based systems[92].

Both the Electronic Services Platform of the Social Insurance Institution (*Platforma Usług Elektronicznych Zakładu Ubezpieczeń Społecznych – PUE ZUS*) and the Internet Patient Account (*Internetowe Konto Pacjenta – IKP*) offer access to essential public services in a similar way that electronic Platform for Public Administration Services does. PUE ZUS allows users to interact with the Social Insurance Institution by viewing collected data, submitting insurance documents, filing applications, receiving

[87] G. Michalczuk & A. Zalewska-Bochenko, *Platforma e-PUAP jako przykład elektronizacji usług administracji publicznej dla ludności*, 450 Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu 391 (2016).
[88] Electronic Platform for Public Administration Services, *Co to jest ePUAP*, at https://epuap.gov.pl/wps/wcm/connect/epuap2/PL/Strefa+Klienta_Pomoc/Co+to+jest+ePUAP/, accessed 10 October 2024.
[89] G. Michalczuk & A. Zalewska-Bochenko, cit. at 87, 394.
[90] G. Michalczuk & A. Zalewska-Bochenko, cit. at 87, 393–395.
[91] G. Szpor & K. Wojsyk, cit. at 63.
[92] Electronic Platform for Public Administration Services, cit. at 88.

responses, asking questions, and scheduling appointments at the offices[93]. Similarly, the Internet Patient Account streamlines healthcare management by organising medical information in one place, enabling patients to easily access digital health services and keep track of their health records[94].

Another tool used in Poland is the Central Business Activity Register – an electronic register of entrepreneurs operating in Poland. It allows users to establish a company, change data in the entry, and suspend, resume, or close a business[95]. The Central Business Activity Register and Information replaced previous business activity registers kept by local authorities[96]. The portal contains one simple, integrated form for the Central Business Activity Register entry application. The portal allows users to access a search engine for companies and individuals who run businesses in Poland, information on concessions, licenses, permits and entries in the register of regulated activities, as well as step-by-step instructional videos showing how to complete the registration application[97]. Polish entrepreneurs frequently use the portal. In September 2024 alone, 24,635 applications for business establishment were received, of which 1.517 were submitted online via the Central Business Activity Register[98].

The E-Tax Office is a system of the Ministry of Finance that provides citizens and businesses with effective online tools for the comprehensive handling of matters, mainly in VAT, PIT and CIT. It facilitates the fulfilment of tax obligations, including tax payment,

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[93] Tax Office in Przasnysz, *Platforma Usług Elektronicznych ZUS (PUE ZUS)* (July 2023), at https://www.mazowieckie.kas.gov.pl/urzad-skarbowy-w-przasnyszu/wiadomosci/komunikaty/-/asset_publisher/ic7Q/content/id/12628638/, accessed 10 October 2024.

[94] e-Health Centre, *Internetowe Konto Pacjenta* (September 2019), at https://pacjent.gov.pl/internetowe-konto-pacjenta, accessed 10 October 2024.

[95] Ministry of Development and Technology, *Centralna Ewidencja i Informacja o Działalności Gospodarczej – portal informacyjny* (September 2022), at https://www.gov.pl/web/gov/centralna-ewidencja-dzialalnosci-gospodarczej---portal-informacyjny, accessed 11 October 2024.

[96] A. Żywicka, cit. at 71.

[97] Ministry of Development and Technology, cit. at 95.

[98] Open Data, *Liczba wniosków o założenie działalności gospodarczej online 2024.09* (October 2024), at https://dane.gov.pl/pl/dataset/745,informacja-o-liczbie-wnioskow-zozonych-w-ceidg/resource/61311/table, accessed 7 October 2024; Open Data, *Liczba wniosków złożonych we wrześniu 2024 r.* (October 2024), at https://dane.gov.pl/pl/dataset/745,informacja-o-liczbie-wnioskow-zozonych-w-ceidg/resource/61310/table, accessed 7 October 2024.

through an online payment service[99]. The system also automatically handles certain types of cases, such as issuing certificates of non-default in taxes[100]. What is more, the National Tax Administration authorities use two other digital systems: the Central Tax Data Register (*Centralny Rejestr Danych Podatkowych*) and the Fiscal and Customs Electronic Services Platform (*Platforma Usług Elektronicznych Skarbowo-Celnych*).

(d) M-Government

In striving towards digitalising the public sector, Poland's approach to mobile government (mGovernment), defined as government tools widespread use of mobile devices and applications to enable rapid communication and response between citizens and public sector authorities[101], has been substantial. The prime example of this endeavour is the mCitizen app, created by the Research and Academic Computer Network (*Naukowa i Akademicka Sieć Komputerowa – Państwowy Instytut Badawczy – NASK*)[102] and being developed at the Central IT Center under the commission of the Ministry of Digital Affairs.

The mCitizen app allows users to create "wallets" of personal documents, simplifying interactions with Polish public administration[103]. One of the app's key features is the mID (mDowód), an electronic identity document as valid as a physical ID card. It has a separate series, number, and expiration date[104]. All public and financial institutions must accept the mID presented in the mCitizen app. The only exceptions where the mID is not equivalent to a traditional ID are crossing borders and applying for a new ID card[105].

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[99] E-Urząd Skarbowy, at https://www.gov.pl/web/finanse/e-urzad-skarbowy, accessed 7 October 2024.

[100] K. Teszner, *Artykuł 35*, in A. Melezini (ed.), *Ustawa o Krajowej Administracji Skarbowej. Komentarz* (2024).

[101] K. Erturk et alii, *Trends in E-Governments: From E-govt to M-govt*, 28 World Applied Sci. J. 66 (2013).

[102] mCitizen, *Pytania i odpowiedzi*" (2024), at https://info.mobywatel.gov.pl/pytania-odpowiedzi, accessed 7 October 2024.

[103] M. Grabowska, *Koncepcja jednolitego portalu e-Government dla obywatela w Polsce*, in S. Dudzik et alii (eds.), cit. at 40, 112.

[104] mCitizen, *Dokumenty mDowód* (2024), at https://info.mobywatel.gov.pl/dokumenty/mdowod, accessed 7 October 2024.

[105] Ministry of Digital Affairs, *Nowa jakość cyfrowych usług publicznych – startuje mObywatel 2.0* (July 2023), at https://www.gov.pl/web/cyfryzacja/nowa-

The mCitizen app provides services that enable users to access and manage their personal data from public and private registers, such as legal information or identification of associated items, as well as data related to minors under their guardianship. Users can store, present, or share this information and digital documents for verification, use the mCitizen profile and documents, authenticate with a trusted profile, and make electronic payments for services[106]. This app gives Polish citizens access to driver's licenses, data on vehicles registered in Poland, drug prescriptions, and school and professional ID cards. Ukrainian citizens who crossed the Polish-Ukrainian border after 24 February 2022 have access to an electronic document[107]. The mCitizen also logs in to other e-Government services and governmental online forms[108].

Since the introduction of the digital ID, nearly 5.1 million Poles have downloaded the mID, including over 600.000 people who had not previously used the mCitizen app[109].

(e) Automation of Administrative Processes

The ARBUZ system, used by the Office of Competition and Consumer Protection (UOKiK), is an AI-based tool designed to help detect unfair clauses in consumer contracts. The project was carried out between 2020 and 2022. The contractor for the ARBUZ system was the Information Processing Center – National Research Institute, which currently maintains it[110].

ARBUZ exemplifies the modern use of AI technology in consumer protection[111]. Its core functionality is the semantic analysis of contract terms to detect potentially unfair clauses that

jakosc-cyfrowych-uslug-publicznych--startuje-mobywatel-20, accessed 12 October 2024.

106 A.A. Kania et alii, cit. at 60.

107 mCitizen, *Dokumenty DIIA* (2024), at https://info.mobywatel.gov.pl/dokumenty/diia, accessed 12 October 2024.

108 Ministry of Digital Affairs, *mObywatel w przeglądarce* (2024), at https://www.gov.pl/web/eplatnosci/lista-urzedow-w-programie, accessed 13 October 2024.

109 Ministry of Digital Affairs, *Ponad 5 mln Polaków korzysta z mDowodu* (November 2023), at https://www.gov.pl/web/cyfryzacja/ponad-5-mln-polakow-korzysta-z-mdowodu, accessed 13 October 2024.

110 The response provided by UOKiK on 14 October 2024 to the request for public information.

111 P. Adamczewski et alii, *Advancing Consumer Law Enforcement with Artificial Intelligence: The ARBUZ System* (2024).

infringe on consumers' rights and are contrary to good practices[112]. A key advantage of ARBUZ is its ability to automatically process large amounts of data, accelerating the analysis and identification of irregularities[113]. The system detects abusive clauses using modern deep learning solutions (transformer-type neural networks)[114].

The system, powered by a database of examples of prohibited contract clauses and court decisions, evaluates the probability that a contract clause is prohibited by law and provides a rationale based on similar cases from its database. If the indication is around 80 per cent, it is a strong signal for UOKIK employees to scrutinise the result. The UOKIK employee then analyses the system's suggestions and assesses whether a clause at issue could be regarded as unfair. Based on this final evaluation, which provides new training data for ARBUZ, it is possible to initiate proceedings in which a particular contract term can be recognised as unfair or take other actions, such as issuing a "soft warning" to the business deploying such contract terms for further clarification. One highly useful feature of the system is its ability to generate soft warning documents.

Recent examples of actions using this AI-based system include the preliminary analysis of terms and conditions used by businesses in the senior care, real estate development, and energy sectors. ARBUZ also features a module that scans websites and analyses available contract terms, identifying potentially unfair clauses[115].

(f) Other Systems

Based on the 2023 report, 21 per cent of central public administration bodies in Poland utilise IoT-based solutions. They are employed to enhance environmental monitoring, aiding in managing adverse weather conditions. A prime example is the "Air Quality Monitoring System" developed by the Environmental Protection Agency, which collects air quality data from sensors

[112] Substantive criteria for the assessment of contract terms are derived from the Polish Civil Code of 1964, Official Journal No. 16, Pos. 93 with subsequent amendments.
[113] P. Adamczewski et alii, cit. at 111, 7–8.
[114] The response provided by UOKiK on 14 October 2024 to the request for public information.
[115] P. Adamczewski et alii, cit. at 111, 8–9.

placed at critical locations in each voivodeship (highest-level administrative division of Poland), allowing for real-time data analysis. IoT also monitors water pollution, soil quality, urban noise, and waste management. Monitoring road conditions and traffic flow, including public transport, as well as the status of parking facilities, are also key areas where IoT-based technologies are applied. In the healthcare sector, these technologies facilitate public health monitoring, for instance, by collecting data on infectious diseases and identifying areas with the highest infection rates.

The least frequently utilised technologies in central administration are virtual and augmented reality (7 per cent), blockchain (5 per cent), and the metaverse (2 per cent)[116].

4.2. Algorithmic Automation and AI-based Applications in Local Government Administration

According to a report on local government units in Poland, around 47 per cent of local governments use at least one form of digital technology, including AI, IoT, or e-services. In 2022, 49.3 per cent of public administration units declared the purchase of cloud computing services. The results show that government units used cloud services more often than local governments (76.4 per cent and 48.2 per cent, respectively)[117]. However, AI is mainly utilised in limited experimental capacities rather than fully integrated into day-to-day operations. AI systems are primarily employed to improve administrative processes, enhance decision-making, and support smart city infrastructure. Municipalities are increasingly adopting AI, which is far more prevalent in large cities with better infrastructure and greater resource access[118].

Several cities have incorporated AI into smart city frameworks. Gdynia has employed AI during the COVID-19 pandemic for public safety monitoring. The system uses AI to analyse surveillance camera footage to detect gatherings violating

[116] Ministry of Digital Affairs, cit. at 26, 13.
[117] Główny Urząd Statystyczny, *Społeczeństwo informacyjne w Polsce w 2023 r.* (October 2023), 64, at https://stat.gov.pl/obszary-tematyczne/nauka-i-technika-spoleczenstwo-informacyjne/spoleczenstwo-informacyjne/spoleczenstwo-informacyjne-w-polsce-w-2023-roku,2,13.html, accessed 30 September 2024).
[118] A. Kargul et alii, cit. at 25, 7–10.

health regulations[119]. Similarly, Wrocław has implemented an AI-driven system for monitoring illegal waste disposal. The system relies on drones to capture aerial footage, which is then analysed by AI algorithms to identify unauthorised dumping sites, such as abandoned tyres or hazardous materials. The system has allowed the city to improve waste management and environmental protection[120].

AI-driven technologies have been employed to manage traffic congestion and improve urban mobility in cities like Łódź and Poznań. These cities utilise Intelligent Transport Systems, which use AI to analyse real-time traffic data and adjust traffic signals dynamically, reducing congestion and optimising road use[121]. Furthermore, intelligent street lighting systems are in place in some cities to adjust lighting based on pedestrian and vehicle traffic, which improves energy efficiency and road safety[122].

AI is also transforming how public administration interacts with citizens. For instance, Kraków has implemented a Virtual Clerk (Wirtualny Urzędnik). This AI-powered chatbot assists residents in accessing city services, answering queries, and providing information about local events and administrative processes. This AI-driven tool enhances customer service and reduces the administrative burden on human clerks[123].

Another example is Gdynia's automation of various municipal services, where residents can access over 170 services online with AI support. The system assists with everything from filling out forms to navigating service portals[124].

Some municipalities, such as the city of Łódź, are planning further integration of AI systems within their daily operations. In the last trimester of 2024 and the first trimester of 2025, the city is bound to implement two new digital projects. The first is an interactive knowledge hub for employees – an AI-powered assistant that would guide the officers through the administrative procedures, providing in-depth training. The city of Łódź is also developing an AI system that would assist in drafting

[119] A. Kargul et alii, cit. at 25, 13-15.
[120] A. Kargul et alii, cit. at 25, 13–15.
[121] A. Kargul et alii, cit. at 25, 13–15.
[122] A. Kargul et alii, cit. at 25, 15–16.
[123] A. Kargul et alii, cit. at 25, 17–19.
[124] A. Kargul et alii, cit. at 25, 19–21.

environmental decisions by facilitating the data flow regarding parcels of land between different units of the city administration[125].

Despite these advances, the extent of AI integration in daily operations differs across the country. Larger urban areas like Warsaw, Łódź, and Kraków are at the forefront of AI adoption, while many smaller and rural municipalities lag behind. According to the 2023 report, advanced technologies such as AI and IoT are less common in smaller towns and villages. For instance, small local governments (with fewer than 49 employees) often lack the financial resources or technical expertise to deploy AI solutions. Only 19 per cent of small municipalities reported any plans to implement AI technologies in the near future, compared to 58 per cent of large municipalities[126]. No inter-municipal initiatives would aim to develop and implement AI systems amongst similarly sized cities[127].

5. Solutions Supporting the Algorithmisation of Public Administration

5.1. Technological Solutions

In Poland, the algorithmisation of public administration and other sectors involves deploying several key named systems, each leveraging specific technologies to enhance efficiency, service delivery, and data management. These systems reflect a growing reliance on AI, machine learning, cloud computing, and IoT technologies, all operating within the regulatory framework of data protection and transparency.

According to the 2023 report, 87 per cent of entities implementing new digital technologies reported collaborating with other organisations during the implementation process. These efforts' most frequently mentioned partners include other central administrative bodies, private sector entities, and research institutions. The development of E-Government systems and the implementation of AI in public administration is driven by various

[125] Information obtained during an interview with the Chief Information Officer of the City of Łódź conducted by Aleksandra Olbryk on 2 October 2024.
[126] A. Kargul et alii, cit. at 25, 22–24.
[127] Information obtained during an interview with the Chief Information Officer of the City of Łódź conducted by Aleksandra Olbryk on 2 October 2024.

technological providers, ranging from large-scale IT companies to innovative startups.

One of the leading players in this transformation is Asseco Poland, the largest IT company in Central and Eastern Europe, renowned for its comprehensive systems that support public administration[128]. Asseco has played a pivotal role in developing systems for the Social Insurance Institution (ZUS). AI helps streamline the processing of social benefits, predicting trends in welfare needs through advanced data analytics[129].

Another leading player is Comarch, a multinational company based in Krakow that provides a broad range of IT solutions, specialising in various sectors, including telecommunications, finance, retail, healthcare, and smart city management[130]. The Comarch Smart City platform leverages advanced technologies such as AI and the Internet of Things to enhance urban management by integrating multiple systems that impact daily life. It supports social engagement by allowing citizens to report infrastructure issues, submit ideas for municipal budgets, and participate in public consultations. It includes solutions for smart parking, enabling quicker identification of parking spaces, reducing traffic, and limiting emissions. Furthermore, the platform facilitates sustainable waste management and energy monitoring, contributing to more efficient urban resource use. In addition, the Comarch Smart City platform integrates various digital services, such as online public administration tasks, smart lighting systems, and remote meter readings, which allow for early detection of anomalies and improve resource management. These technologies contribute to making urban life more efficient, environmentally sustainable, and responsive to the needs of residents.

In the realm of smart city infrastructure and IoT, Digica, based in Łódź, develops custom AI solutions tailored to the needs of local governments[131]. Their expertise in combining AI with IoT technologies allows municipalities to monitor real-time data, such as environmental conditions and energy usage, enabling better urban services management. For instance, Digica's AI-powered

[128] Asseco Poland, at https://pl.asseco.com/, accessed 10 October 2024.
[129] Asseco Poland, *Kompleksowy System Informatyczny ZUS*, at https://pl.asseco.com/case-study/kompleksowy-system-informatyczny-zus-96/, accessed 10 October 2024.
[130] Comarch, at https://www.comarch.pl/, accessed 10 October 2024.
[131] Digica, at https://digica.com/, accessed 10 October 2024.

systems analyse surveillance footage to enhance public safety by detecting suspicious activities and alerting authorities in real time.

Another innovative provider, DAC.digital, based in Gdańsk, leverages blockchain and AI to improve transparency and security in public administration[132]. Their blockchain solutions ensure the integrity of public records, making sensitive data tamper-proof, which is critical for sectors like public finance. DAC.digital's AI-driven predictive models help local governments anticipate urban planning needs, improving long-term decision-making.

An important public-private initiative that fosters the use of AI in public administration is GovTech Polska, a government programme designed to stimulate technological innovation through collaboration with startups and technology companies[133]. GovTech Polska organises hackathons and competitions to encourage the development of AI solutions tailored to public sector challenges. One notable area of AI experimentation under this initiative includes the automation of welfare distribution, where algorithms assist in determining citizens' eligibility for social benefits by analysing various socio-economic datasets. Another critical application is predictive policing, where AI systems are tested to forecast potential crime hotspots, allowing law enforcement to deploy resources more effectively. Also, the ARBUZ system mentioned above, used by UOKiK, was designed in cooperation with GovTech Poland, which organised a competition to find the best machine-learning solutions. Using Scrum methodology in the development process allowed for flexible project management, enabling real-time adjustments to meet UOKiK's needs[134].

5.2. Organisational Solutions

Over one-third of central administrative units surveyed in 2023 reported that they regularly send all their employees to external training and provide opportunities to attend conferences and seminars on new digital technologies, typically doing so 1-2 times per year. However, 55 per cent of units do not conduct such

[132] DAC Digital, at https://dac.digital/, accessed 10 October 2024.
[133] GovTech Polska, at https://www.gov.pl/web/govtech, accessed 10 October 2024.
[134] P. Adamczewski et alii, cit. at 111, 8.

training, citing a lack of funding and an absence of an identified need for organising these programmes as the main reasons[135].

In our survey, some Polish ministries indicated sending their employees to external training programs despite not using algorithmic automation and AI-based applications. These include training on applications such as DALL-E 2, ChatGPT, Grammarly, and DeepL[136], using AI in the healthcare sector, and basic AI training[137]. The ministries reported that in October 2024, the Ministry of Digitalization will organise a training session for public administration employees titled "Effective Use of AI in Public Administration".

Employee training is supported by internal or general recommendations.

UOKiK prepared internal Guidelines for the Application of the ARBUZ System. The Guidelines specify, among other things, the rules for accessing the system, the responsibilities of users and system administrators, recommendations for using the system in matters related to the analysis of contractual patterns, the conflict resolution procedure, and the obligation for employees to update the data entered into the system. The Guidelines have been in effect since 1 January 2023.

In late September 2024, the Ministry of Digital Affairs published general recommendations titled "Generative Artificial Intelligence in the Service of Public Administration Employees – First Steps"[138]. Their purpose is to guide the safe use of GenAI in public administration. The Ministry recognised that GenAI tools can help carry out official tasks but also present significant risks. Public administration employees were given basic examples of AI applications in their daily work, such as using AI for inspiration, summarising information, conducting preliminary research, and a brief guide on inputting prompts.

However, the recommendations primarily focus on minimising the risks of using GenAI. For instance, due to data

[135] Ministry of Digital Affairs, cit. at 26, 46.

[136] Ministry of Agriculture and Rural Development, Ministry of National Education.

[137] Ministry of National Education.

[138] Ministry of Digital Affairs, "Generatywna sztuczna inteligencja w służbie pracowników administracji publicznej - pierwsze kroki" (September 2024), at https://www.gov.pl/web/ai/generatywna-sztuczna-inteligencja-w-sluzbie-pracownikow-administracji-publicznej---pierwsze-kroki, accessed 9 October 2024.

protection concerns, employees are instructed not to input any sensitive data, confidential and internal governmental information still in the preparatory phase and not intended for public release or personal data that could violate data protection regulations. Given GenAI's tendency to generate inaccurate details, also known as 'hallucinations', employees are advised to always verify the information produced by GenAI, including checking sources and consulting with experts in the relevant field. Assessing the impartiality of the materials obtained from GenAI is also recommended. When using AI-generated results in further work, public administration employees are required to disclose that the content was created or processed using GenAI tools, for example, by labelling it as "Content generated by GenAI (tool name and date of content generation)".

6. Litigation Concerning the Use of Algorithmic Automation or AI by the Public Administration

Despite the overall positive integration of new technologies into the administrative landscape, several legal actions have been brought concerning the functioning of automated algorithms in the Polish system.

One case concerns using an automated decision-making system that profiles the unemployed in labour offices. The system, called SyriuszStd, was integrated into the IT systems of 343 offices across Poland[139]. According to the now-repealed regulations introduced in the 2014 amendment[140] to the Law on employment promotion and labour market institutions[141], district labour offices were required to assign one of three assistance profiles to unemployed individuals using an IT system. Each profile determined the appropriate scope of assistance based on the needs of the unemployed person, as outlined in the Law[142]. This resulted

[139] Signity, *System wspomagający realizację zadań powiatowych urzędów pracy*, at https://www.sygnity.pl/administracja-publiczna/syriusz/, accessed 13 October 2024.

[140] Regulation of the Minister of Labour of 14 May 2014 on profiling of aid for the unemployed [rozporządzenie w sprawie profilowania pomocy dla bezrobotnego] Official Journal of 2014 item 631.

[141] Law of 20 April 2004 on employment promotion and labour market institutions [o promocji zatrudnienia i instytucjach rynku pracy], Official Journal of 2023 item 735.

[142] G. Sibiga, cit. at 58.

in categorising unemployed individuals into three groups according to their socioeconomic situation.

However, experts raised concerns about the scope of data used to make these decisions and the methodology behind the profiling algorithm[143]. As many as 18 categories of data were subject to the employee's evaluation, including information on education, age, gender, skills, entitlements, degree of disability, duration of unemployment and place of residence, among others. The information was to be processed using ICT systems provided by the Minister of Labour – the SyriuszStd algorithm. The decisions were based on answers to questions biased towards certain responses, the construction of questions was considered unfair, and the algorithmic profiling itself was overly simplistic[144]. Moreover, the criteria used to assign an assistance profile to unemployed individuals based on their responses were unclear to both labour office staff and the unemployed themselves[145].

As a result, following a complaint by the Polish Human Rights Ombudsman, the Constitutional Tribunal ruled in case K 53/16[146] in 2018 that the provisions concerning assistance profiling for the unemployed were unconstitutional. The Tribunal pointed out that the right to a fair trial was violated due to the lack of an option to appeal algorithmic decisions and that citizens' rights and freedoms were regulated through a sub-statutory act[147].

Another example is a tax fraud detection system used by the Head of the National Tax Administration – the Clearing House Information and Communication System (*System Teleinformatyczny Izby Rozliczeniowej – STIR*). The system's operation is based on the provisions introduced in the newly added chapter of the tax ordinance law[148], as amended by the 2017 Law[149]. The information

[143] J. Greser & M. Dymitruk, cit. at 47, 135.
[144] Panoptykon, *Co zawiera algorytm służący do profilowania w urzędach pracy?* (September 2016), at https://panoptykon.org/wiadomosc/co-zawiera-algorytm-sluzacy-do-profilowania-w-urzedach-pracy, accessed 13 October 2024.
[145] Panoptykon, cit. at 144.
[146] Judgment of the Constitutional Court of June 6, 2018, file number K 53/16, Jurisprudence of the Constitutional Court Official Collection 2018, item 38.
[147] J. Greser & M. Dymitruk, cit. at 47, 135.
[148] Law of 29 August 1997 tax ordinance law [ordynacja podatkowa], Official Journal of 2023 item 2383.
[149] Law of 24 November 2011on amending certain laws to prevent the use of the financial sector for fiscal fraud [ustawa o zmianie niektórych ustaw w celu

on an open account includes the account number, opening date, and the entity's identification data. Once the account is open, the bank will send records of all transactions to the clearing house, which will forward these details to the Head of the National Tax Administration at least once daily. Besides collecting and sharing transaction data, the clearing house will also determine a risk indicator, which secret algorithms will automatically generate within the STIR system. This indicator may suggest that an entity's activities are connected to illegal acts. Such findings could lead to actions by state authorities, including account freezes, refusal of VAT registration, or initiation of criminal proceedings[150].

The system has been controversial since its introduction. It remains so, primarily because of the secrecy surrounding the algorithms used to detect suspicious financial transactions and the significant legal repercussions that follow when a bank account is blocked after attracting the attention of tax authorities[151]. Criticism in legal doctrine has repeatedly targeted the regulations for their relatively vague guidance on the design of such algorithms and the criteria used to flag entities with certain indicators[152], which may lead to procedural and substantive issues. It was also noted that no legal provisions were introduced to allow for obtaining new information through monitoring taxpayers using IT tools beyond what could already be obtained through audits or inspections[153].

The functioning of this system was the subject of proceedings before the Provincial Administrative Court in Warsaw, which concluded with the judgment III SA/WA 2057/18 on September 20, 2018[154]. However, the administrative court did not address the issues related to the transparency of the algorithm and

przeciwdziałania wykorzystywaniu sektora finansowego do wyłudzeń skarbowych], Official Journal of 2017 item 2491.

150 P. Mikuła, *System Teleinformatyczny Izby Rozliczeniowej - najważniejsze aspekty nowej regulacji*, 2 Przegląd podatkowy 30 (2018).

151 P. Majka, *Procesowe problemy stosowania regulacji Systemu Teleinformatycznego Izby Rozliczeniowej – glosa do wyroku WSA w Warszawie z dnia 20 września 2018 r. (III SA /Wa 2057/18)*, 1 Studia Prawnicze KUL 367 (2020).

152 P. Mikuła, cit. at 150.

153 P. Szymanek, *Nowe narzędzia informatyczne służące monitorowaniu podatników: problematyka prawna, Stan prawny na 13 lutego 2023 r* (2023) 150.

154 Judgment of the Provincial Administrative Court in Warsaw of 20.09.2018, file number III SA/Wa 2057/18, LEX number 2571218.

failed to consider the concerns raised by legal scholars. As a result, the decision is regarded in the literature as unsatisfactory[155].

7. Future Development Directions of Algorithmic Public Administration

7.1. Starting Point

In 2023, three-quarters of all surveyed central administrative units undertook efforts to implement new digital technologies in activities related to the exercise of their statutory tasks. Of these, 35 per cent indicated that these efforts were based on an internal digital strategy. The primary source of ideas for implementing new technologies came from employee-submitted proposals for process improvements (85 per cent). Meanwhile, 16 per cent of the units surveyed did not engage in such implementation efforts[156].

7.2. Incentives and Challenges to a Broader Algorithmisation

As in other EU Member States, an important reason for modernising public administration is the need to align with EU guidelines and programmes. Under the "Europe's Digital Decade: Digital Targets for 2030" initiative, the digitalisation of public services is a major objective. This includes ensuring that all critical public services are available online, all citizens have access to their medical records online, and all citizens can access a digital ID[157].

When making decisions about digital development, it is crucial to consider that digital transformation enhances process efficiency and leads to cost optimisation. The use of such technologies can streamline the work of public officials and improve the overall effectiveness of actions taken by public institutions. In Poland, a significant catalyst for accelerating these changes was the COVID-19 pandemic, which forced public administration to elevate the quality of its services[158].

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[155] P. Majka, cit. at 151, 382.
[156] Ministry of Digital Affairs, cit. at 26, 7, 23.
[157] European Commission, *Europe's Digital Decade: digital targets for 2030*, at https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age/europes-digital-decade-digital-targets-2030_en, accessed 8 October 2024.
[158] Ministry of Digital Affairs, cit. at 26, 7, 11.

The public administration's use of new digital technologies benefits the state's overall development. Citizens also increasingly expect new solutions that enable faster and remote interaction with government authorities. For example, e-services reduce wait times for decisions in government offices, streamline document processing, and automate the decision-making processes within public administration[159].

In 2023, public administration bodies acknowledged that the primary sources of innovation were employee-submitted process improvement ideas (85 per cent), experiences from other entities such as companies or NGOs (76 per cent), and participation in industry conferences and webinars (76 per cent). Additionally, collaboration with other central administrative bodies, reports, articles, and studies on digital technologies, as well as cooperation with research institutions such as universities and local government units, were also significant factors[160].

78 per cent of public administration bodies indicated that they plan to implement new digital solutions in the near future[161].

In contrast, the most frequently cited barrier to implementing new digital technology solutions was insufficient funding, with 65 per cent identifying this as the primary obstacle[162]. The public administration units must bear the costs when purchasing new equipment to build the necessary infrastructure. Additionally, ongoing expenses are related to the regular updates of the systems and software[163]. The majority of local governments (85 per cent) cite a lack of financial resources as the primary barrier to adopting new technologies like AI[164]. While larger municipalities can allocate funds for AI development, smaller ones struggle to meet the high upfront costs associated with AI infrastructure, data processing, and maintenance. Moreover, only 28 per cent of local governments have dedicated staff overseeing digital transformation[165]. Limited budgets hinder their ability to invest in necessary infrastructure, training, and maintenance[166].

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159 Ministry of Digital Affairs, cit. at 26, 17.
160 Ministry of Digital Affairs, cit. at 26, 24.
161 Ministry of Digital Affairs, cit. at 26, 29.
162 Ministry of Digital Affairs cit. at 26, 7.
163 Ministry of Digital Affairs, cit. at 26, 18.
164 A. Kargul et alii, cit. at 25, 25–27.
165 A. Kargul et alii, cit. at 25, 27-30.
166 A. Kargul et alii, cit. at 25, 37–40.

Polish public administration must also deal with the shortage of staff digital literacy to deploy and manage AI solutions effectively. While IT departments lead 83 per cent of digital transformation initiatives, 48 per cent of local governments do not have designated personnel to handle digital issues[167]. Additionally, intense international competition and the rise of remote work opportunities have led to a noticeable recruitment challenge in recent years. Retaining top employees within the organisation has also become a significant issue[168].

At the same time, the level of digital literacy among citizens appears rather low[169]. Still, public trust in AI technologies remains a fundamental issue. Many citizens are hesitant to interact with fully automated systems. A 2022 survey indicated that 55 per cent of Polish citizens had interacted with digital public services, though many still expressed concerns about privacy and data security[170].

A crucial element is also citizens' access to the Internet. Although Internet accessibility in Poland in 2024 is higher than in previous years, there are still regions where access to digital services remains limited, particularly in eastern Poland. Therefore, ensuring equal access to e-administration services for all citizens remains challenging[171].

A significant challenge that public administration bodies may face during the digitalisation process is the absence of a developed strategic plan, as well as a lack of expertise and understanding of the specific needs of individual bodies[172]. Due to the lack of a coordinated funding scheme for local governments from the central bodies of either the Ministry of Internal Affairs and Administration or the Ministry of Digital Affairs, the development of AI systems in individual cities will depend on their internal financial policies[173].

Due to the complex public procurement procedures and the limited number of suppliers of AI systems for government bodies, developing an AI system for a local administration is a prolonged

[167] A. Kargul et alii, cit. at 25, 32–34.
[168] Ministry of Digital Affairs, cit. at 26, 18.
[169] Ministry of Digital Affairs, cit. at 26, 18–19.
[170] A. Kargul et alii, cit. at 25, 35–37.
[171] A. Kargul et alii, cit. at 25, 396–398.
[172] Ministry of Digital Affairs, cit. at 26, 19.
[173] Information obtained during an interview with the Chief Information Officer of the City of Łódź conducted by Aleksandra Olbryk on 2 October 2024.

process, requiring significant resources and know-how from local government units[174].

It is also necessary to consider the technological barriers to an institution's infrastructure, such as the lack of adequate equipment for implementing new digital technologies. Unfortunately, management and staff often resist change, mainly due to a lack of awareness about the potential return on investment and the benefits of new technologies[175].

7.3. Pilot Projects and Future Potential

One of the upcoming plans for new functionalities of public administration is the introduction of e-Delivery system. Starting January 1, 2025, this service will be incorporated as the electronic equivalent of a registered letter with the acknowledgement of receipt. Through e-Delivery, public institutions, citizens, and businesses will benefit from convenient and secure electronic communication, which will have the same legal standing as traditional registered mail with confirmation of receipt[176].

The mCitizen app offers services like ePayments (*ePłatności*), allowing users to pay administrative fees via phone[177]. This feature is being piloted in 58 cities[178]. Moreover, as part of the mCitizen app, a "Virtual Assistant" module will be introduced based on GPT technology, utilising AI. This bot will shorten users' time in obtaining the information they need[179].

The GovTech Polska initiative fosters innovation by helping public administration collaborate with private and academic entities to address technological challenges. It plays a significant role in promoting the use of AI through pilot projects and public-private partnerships. These projects enable local governments to test new AI solutions in real-world environments without the risks associated with full-scale implementation. GovTech aims to bridge

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174 Information obtained during an interview with the Chief Information Officer of the City of Łódź conducted by Aleksandra Olbryk on 2 October 2024.

175 Ministry of Digital Affairs, cit. at 26, 30.

176 *e-Doręczenia* (2024), at https://www.gov.pl/web/e-doreczenia, accessed 14 October 2024.

177 mCitizen, *Usługi epłatności* (2024), at https://info.mobywatel.gov.pl/uslugi/eplatnosci, accessed 13 October 2024.

178 *Lista urzędów w pilotażu* (2024), at https://www.gov.pl/web/eplatnosci/lista-urzedow-w-programie, accessed 13 October 2024.

179 See https://www.gov.pl/web/cyfryzacja-badania-i-projektowanie-mobywatel20/wirtualny-asystent, accessed 16 October 2024.

the gap between the public sector and technology innovators, fostering collaboration on AI projects related to transport, health services, and public safety[180]. One of its pivotal projects, the Digital Sandbox, provides a controlled environment where AI solutions can be tested and evaluated before full implementation. The goal is to use the data collected in the sandbox to improve public services, ensuring that AI solutions are secure, effective, and compliant with regulations[181].

The Polish Digital Project Centre (CPPC) has signed contracts for funding under the FERC 02.01 action, allocating over 726 million PLN (EUR 169 million) to 9 institutions. This investment aims to develop e-public services that allow citizens and businesses to handle matters online, reducing the need for office visits, especially for the elderly and people with disabilities. Key projects include "Nowa Academica" for accessing digital versions of books and scientific articles, the eUFG platform for electronic insurance services, EPU 3.0 for online filing claims, and geodetic resources for ordering maps. Additionally, a new CRM system in the Ministry of Finance will enhance taxpayer service, while the SOLR 2.0 system will streamline drug reimbursement processes. The P1 project will introduce new e-services for patients, and the digitisation of employment contracts via Biznes.gov.pl will expedite HR processes[182].

To conclude, as public administration increasingly adopts tools based on emerging technologies, analysing new initiatives offers a framework for evaluating Poland's future potential to transform public administration further and improve citizen engagement in the digital age. While the digital transformation of public administration holds considerable promise, a range of

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[180] AI Research Group (SAI), *Współpraca człowieka z AI: Perspektywy dla polskiego sektora publicznego* [Human collaboration with AI: Perspectives for the Polish public sector] (2023), 18–20, at https://sodapl.com/wp-content/uploads/2023/10/Raport-SoDA-AI-Research-Group.pdf, accessed 12 September 2024.

[181] AI Poland, *Public Policy on AI in Poland* (2023), at https://aipoland.org/public-policy/, accessed 12 September 2024; European Commission, *Poland: Public Sector Dimension of AI Strategy* (2023), at https://ai-watch.ec.europa.eu/topics/public-sector/public-sector-dimension-ai-national-strategies/poland-public-sector-dimension-ai-strategy_en, accessed 12 September 2024.

[182] Centre of Projects Digital Poland, *Rozwój e-usług ze wsparciem ponad 726 mln PLN* (October 2024), at hhttps://www.gov.pl/web/cppc/rozwoj-e-uslug-ze-wsparciem-ponad-726-mln-pln, accessed 13 October 2024.

challenges must be addressed. Critical issues such as the lack of funding, cybersecurity, and the digital divide pose significant threats to the transparent and efficient deployment of emerging technologies.