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IMPLEMENTATION OF E-GOVERNMENT SYSTEMS IN POLAND: EVOLUTION AND BARRIERS

The theses presents the evolution of e-government systems in Poland and identifies the main obstacles to their implementation. The study examines the development of information technologies in public administration, from the first computer solutions to modern digital systems supporting the provision of public services. It presents both the historical determinants of the computerization of e-government, and the organizational, technological and social factors that influence the pace and effectiveness of these changes.

Keywords: public administration, digitalization, e-government.

This theses provides a historical analysis of the development of information systems in the public sector. It discusses key stages of technological evolution, from manual management systems, through the first computer databases, to contemporary integrated digital systems. The aim of the study is not only to present the history and development of information technology in government but also to demonstrate how these changes have influenced core administrative functions and operations, adapting them to the requirements and expectations of contemporary society.

The first applications of information technology in public administration occurred outside Poland in the 1960s, when large, central computers were primarily used to process financial and statistical data. While these early systems were expensive to maintain and operate, they laid the foundation for further development.

One of the first examples of implementing information technology in government was the Leviathan system, used by the United States government in the early 1960s to manage treasury information. This system relied on a large, central computer that processed financial and treasury data on a large scale. Its primary function was to streamline tax data collection and public debt management.

The beginnings of computerization in public administration in Poland can be traced back to the 1970s and 1980s. During this period, as computer technology developed worldwide, Polish state institutions gradually began implementing the first IT systems. These primarily included financial and accounting systems, in which computers were used to manage accounting and public finances, with the goal of streamlining the process of collecting financial data and preparing reports and analyses [4]. At the same time, population registration was also developed, involving the use of IT systems for address registration and issuing identity documents.

Early IT systems in Polish public administration were characterized by simplicity and limited functional scope, and their implementation occurred in conditions of scarcity of resources and a lack of appropriate IT expertise. These were primarily systems operating locally within individual institutions, without the possibility of extensive integration or data exchange between them [2]. Despite these limitations, the gradual implementation of IT systems represented a significant step towards the modernization of administration, and the experiences from this period influenced the further development and improvement of IT systems in Poland.

A significant manifestation of progress in information technology in Poland was the computing service network of the Electronic Calculation Technology Plant (ZETO). The main purpose of ZETO was to provide computing and IT services for various industrial sectors and the state administration. The ZETO network, distributed throughout the country, was intended to ensure uniform access to computer resources. The scope of activities of individual plants encompassed not only data processing but also software development, personnel training, and technical support for users. Initially, these plants primarily used imported technologies, primarily Soviet ones, but over the years, the share of domestic hardware and software increased significantly. The Odra series computers, manufactured by Wrocław Electronic Works MERA-ELWRO, formed the technological core of many ZETO systems. They were among the first and most important computers constructed in Poland. The first model, the Odra 1001, was launched in 1964. The Odra series distinguished itself with its broad functionality and was adapted to the needs of both industry and the scientific sector. Models such as Odra 1204 and Odra 1305 were used to support complex IT systems and to perform tasks such as scientific calculations, engineering design and simulations, database

management, and applications in banking systems.

At the turn of the 1970s and 1980s, Polish public administration began initial implementations of computer networks, which were significantly more limited than the solutions used in Western countries. The introduction of the first LANs enabled the integration of computer systems within individual institutions, significantly improving data management and the flow of information between offices and state-owned enterprises. This development contributed to the first attempts at data centralization, exemplified by the Social Insurance Institution (ZUS) IT system, which managed information on social insurance and contributions. Although these systems fell short of modern standards, they provided an important foundation for the future development of integrated IT systems.

The 1990s and early 21st century constitute a key period in the history of global computerization, when the internet began to play a central role in the functioning of public administration. The widespread availability of internet access was supported by government programs and EU initiatives aimed at increasing the digitalization of the country. The internet revolutionized communication, enabling the immediate exchange of information and significantly accelerating administrative processes.

The digitalization of public services in Europe gained momentum alongside the European Commission's efforts to transform traditional methods of administrative management. A key moment that defined the direction of this process was the publication of the European Commission's report known as «Europa» in 1994. This document became the basis for adopting broad-based digital strategies in the public administrations of the Member States. It contained recommendations for the implementation of information and communication technologies to improve the efficiency, accessibility, and transparency of public services [1]. Its goal was to create a coherent and functional digital infrastructure that would support the development of the internal market while also facilitating the daily functioning of citizens and businesses in Europe.

The «Europe 1994» report coincided with a period of intensive reforms in Poland, which was preparing for accession to the European Union. Implementing its recommendations contributed to accelerating work on creating a national digital infrastructure, essential to supporting a modern public administration. Poland, leveraging financial support and expertise from the European Union, began developing systems enabling electronic data exchange between various segments of government.

Following the recommendations of the «Europe 1994» report, several key e-government projects were initiated in Poland. These included the Citizen Information System, which aimed to centralize personal data and facilitate its management, and the Electronic Platform for Public Administration Services. This platform, launched in 2008, implemented the idea of a single access point to online public services, consistent with the report's recommendations for facilitating citizen access to services.

Despite many successes, the process of computerization of public administration in Poland has also encountered numerous challenges [3]. Among the main issues were personal data security, the digital exclusion of a segment of society, and the need for ongoing staff training. Faced with these challenges, organizations must take appropriate actions to effectively transform their IT systems. This includes, among other things, applying data privacy protection measures, implementing comprehensive security strategies, and effectively managing organizational change to reduce resistance and increase employee engagement in the transformation process.

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**ІМПЛЕМЕНТАЦІЯ СИСТЕМ ЕЛЕКТРОННОГО УРЯДУВАННЯ В РЕСПУБЛІЦІ ПОЛЬЩА:
ЕВОЛЮЦІЯ ТА ПЕРЕШКОДИ**

Тези є представленням еволюції систем електронного урядування в Польщі та визначення основних перешкод для їх впровадження. У дослідженні розглядається розвиток інформаційних технологій у публічному управлінні, від перших комп'ютерних рішень до сучасних цифрових систем, що підтримують надання державних послуг. Представлено як історичні детермінанти комп'ютеризації електронного урядування, так і організаційні, технологічні та соціальні фактори, що впливають на темпи та ефективність цих змін.

Ключові слова: публічне управління, цифровізація, електронне урядування.

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