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THE UTAUT CONCEPT IN PUBLIC ORGANIZATIONS – RESULTS OF AN EMPIRICAL STUDY

Changes in social, political, economic, and demographic fields are making public sector organizations look for new ways to deliver public services. Simultaneously, the cultural transformations that occurred during the final decade of the 20th century, resulting from the transition from an industrial civilization to a knowledge civilization and the dominance of information-communications technologies (ICTs), have profoundly impacted not only the extent and caliber of interactions among individuals but also the conditions under which organizations operate. Consequently, the public sector is forced to undergo extensive digital transformation. To achieve a successful transformation, however, the changes must be embraced by the end users, specifically those employed in the public sector. In this article, the results of a study on the acceptance of modern technology by public organizations in Poland are presented. The study uses the UTAUT model.

Keywords: public organization, local authority, digitalization, UTAUT model.

1. INTRODUCTION

The observed social, political, economic, and demographic shifts are compelling public sector organisations to explore novel approaches to efficiently and effectively provide public services (Kitsios et al., 2023; Adreoni, Mambretti, 2021). Simultaneously, the transition from an industrial to a knowledge-based society and the dominance of information-communications technologies (ICTs) have significantly impacted the operational conditions of organisations. The contemporary organizational context is characterized by extensive digitalization and the provision of technical capabilities for the continuous communication of individuals, individuals with devices, and devices with one another. Recent years have witnessed the emergence of disruptive innovations that have led to a significant increase in productivity and efficiency within the socio-economic system. Moreover, it has been observed that machines have progressively acquired the capability to operate autonomously by incorporating artificial intelligence (AI) into their control process (Frczkiewicz-Wronka, Ziemia, 2022). Recently, we have seen the dynamic development of digitisation, which has been further accelerated by the global COVID-19 pandemic.

The European Union is helping countries become more digital by giving them more money for ICT development and changing the goals in their EU plans. The most recent

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strategy, Digital Compass 2030. It focuses activities on creating conditions for achieving four main goals: (1) a digitally skilled society and highly skilled digital professionals; (2) a secure, efficient, and sustainable digital infrastructure; (3) digital transformation of businesses; and (4) digital transformation of public services. This article presents the results of research on digitisation in public organisation management and especially the results on the unified theory of technology acceptance and use developed by Venkatesh (2003, 2022).

2. DIGITALIZATION IN PUBLIC ORGANISATION

The imperative to enhance the quality of life and devise more efficient methods of providing services has resulted in a heightened utilization of the Industry 4.0 concept in other domains such as urban management, public and social services, and healthcare systems. In the public sector, utilizing contemporary technology can enhance the efficiency of operations. Individual organisations or whole parts of the public service can accomplish this. This is called Government 4.0. (Naqvi Al., Munoz, 2020). It is not a single and short-term implementation of a specific technology, rather it is a long-term evolutionary process of transforming the government/public sector to focus on citizen services (Walenciak, 2018). The evolution towards Government 4.0 following Janowski (2015) can be divided into four stages:

1. Digitalisation is the implementation of ICT to improve its internal processes and structures, for example, by launching websites.
2. Transformation means using ICT to change how the government works, without changing how people interact with it, like e-government.
3. Engagement is the use of ICT to support both internal processes and the communication and relations of the public administration with stakeholders, such as processes, public services, and governance.
4. Contextualisation: how ICT use affects the whole public sector and its stakeholders.

The utilization of contemporary technology within the public sector has the potential to enhance the provision of public services and enhance the optimal utilization of available resources. The benefits of using modern technology in the public sector (Väyrynen, Helander, Jalonen (ed.), 2023; Ziemba, Papaj, 2023; Naqvi Al, Munoz, 2020; Stern, Daub et al., 2018; Walencik, 2018) include: Identification of problems in real time and faster response to them; faster and more efficient decision-making and more accurate decisions; access to huge amounts of data, which allows improving the analysis carried out, provides new *evidence for the design and adaptation of public policies to the new reality (evidence-based public policies)*; reduction of time in dealing with official matters, bureaucracy, more personalised service for citizens and business; cost reductions; increased efficiency of the administration; improved innovation in public service delivery; ICT enables the introduction of reforms relating to the way in which public organisations operate; increased transparency of public sector activities; increased quality of services; new channels of communication and, as a result, improved information flow and support for active citizen participation.

To get the most out of using Industry 4.0 in the public sector, we need to overcome new challenges. Among them, we can point out (Kitsios et al., 2023; Kuhlmann, Heuberger, 2021; Naqvi Al, Munoz, 2020): (1) the often outdated information technology (IT) infrastructure in public organisations; (2) the lack of statistical awareness and the lack of tool experience of staff (especially relevant for Big Data analyses); (3) the problem of data access while protecting sensitive data; (4) the low quality of available data (e.g.

incompleteness); (5) problem of bureaucratic internal procedures in the organisation; (6) lack of financial resources; (7) lack of trust of users (citizens) in new technological solutions; (8) resistance of employees of public organisations; (9) lack of specialists; (10) outdated regulations and working procedures; (11) administrative law.

The incorporation of contemporary technology into the operations of the public sector represents a significant alteration in its fundamental principles and necessitates a proficient management of the transformation process. Müller and Abildgaard Skau (2015), based on a literature review, identified six areas that need to be analysed in the change process to increase the likelihood of success, viz:

- External environment (legislation, political and administrative reforms, socio-economic factors).
- Organisation (financial resources, organisational infrastructure, cooperation, stakeholders, organisational culture).
- Governance (commitment, strategy, project management).
- Employees (human resources, resistance to change, education and training).
- Citizens (digital exclusion, education and training, citizens' needs and trust).
- Technology (infrastructure, security, design, and access).

One of the areas identified is employees, human resources, for whom the natural reaction is resistance to change. At the same time, it is their acceptance of modern technologies that largely determines the success of innovative projects aiming to digitise the public sector. One of the concepts of acceptance of modern technologies used in the literature is that proposed by Venkatesh (2003, 2022), the so-called unified theory of acceptance and use of modern technologies – UTAUT.

3. UTAUT MODEL

The purpose of developing the UTAUT model was to better understand the intention to use a given technology and the behaviour resulting from user intentions. The model builds on previous models, e.g. TAM and TAM2, but according to the authors of the UTAUT model, these models only have a direct bearing on the perceived usability of a system and the elements they indicate do not affect perceived ease of use (Gromadka, 2020; Venkatesh, Davis, 2000). The unified theory of acceptance and use of technology (UTAUT) used in this research assumes that there are four determinants influencing the intention to use a technology. These are: expected performance, expected effort, social influence and favourable circumstances (Soltysik-Piorunkiewicz, Zdonek, 2015). An expected performance is the belief that the use of a given technology will help achieve benefits or higher performance in accomplishing important tasks. The degree of difficulty in using a given technology is measured by the effort expectancy. Social influence is the degree to which a person believes that people who are influential to them would also use the technology. A favourable circumstance is when a person is convinced that the appropriate technical and organizational framework exists to offer assistance when the technology's usage proves challenging. These determinants influence users' intentions to use modern technology. Moderating constructs in the UTAUT model are gender, age, user experience and voluntariness of use.

4. RESEARCH METHODOLOGY

The research team conducted an analysis of the literature on the subject to prepare a questionnaire survey addressed to the managers of local government units at the commune level, i.e. to mayors and presidents. Furthermore, it was allowed for the mayor to delegate the completion of the questionnaire to an appropriate office employee who is competent to answer the questions contained in the survey questionnaire.

357 units were surveyed. The territorial distribution of the respondent group is shown in Table 2.

Table 1. Sample structure by province (percentage (%) and number (n))

Province	%	n
Lower Silesia	9.52%	34
kujawsko-pomorskie	5.60%	20
Lublin	7.28%	26
Lubuskie	3.08%	11
Łódź	7.84%	28
Małopolskie	7.28%	26
Mazowieckie	12.32%	44
Opolskie	3.64%	13
Podkarpackie	5.32%	19
Podlaskie	3.92%	14
Pomeranian	4.76%	17
Silesia	6.44%	23
Świętokrzyskie	4.76%	17
Warmińsko-mazurskie	4.48%	16
Wielkopolskie	8.12%	29
Zachodniopomorskie	5.60%	20
Total	100.00%	357

Source: Own study.

The largest percentage of municipalities were in the Mazowieckie voivodship, followed by Dolnośląskie and Wielkopolskie. In terms of the type of municipality represented by the respondent, 21% (76 municipalities) were urban municipalities, 50% (177 municipalities) were rural municipalities and 29% (104) were rural-urban municipalities. By job position, among the 357 respondents - 79 (22%) held the position of mayor, 93 (26%) the position of mayor and 185 (52%) others. There were no city mayors among the respondents. The vast majority of respondents (68%) were over the age of 46. The gender structure of respondents was as follows – 53% of respondents were female, 47% male. The predominant education among respondents was tertiary education (99.4%). Respondents were asked to rate how much they agreed with the statements in the questionnaire. Ratings were made on a 5-point Likert scale: 5 – agree; 4 – rather agree, 3 – neither agree nor disagree, 2 – rather disagree, 1 – disagree. Respondents were asked 18 questions.

The aim of the research conducted was to assess the variables influencing intentions to use modern technology among managers of public organisations. For this purpose, the unified theory of acceptance and use of technology (UTAUT) concept proposed by Venkatesh et al. (2003, 2022).

5. RESULTS OF EMPIRICAL STUDIES

The survey results obtained, presented in Table 2, indicate that respondents are relatively positive about the determinants indicated in the UTAUT model. The majority of ratings for expected performance are 'rather agree' and 'agree'. Additionally, respondents believe that digitalisation tools have a positive impact on the outcomes of their work. The survey reveals that more than 80% of the respondents in the public sector possess a seniority of over 10 years, thereby enabling them to make a comprehensive assessment of their expected performance over a long period of time. The majority of respondents stated that they support the introduction of digitalisation tools in their office. There is a high value placed on digital competence by respondents, and the implementation of a digitalization tool within the organisation is not perceived as a burden by them. The majority of respondents confirmed a favourable environment for the implementation and use of digitalization tools.

Table 2. Determinants of the use of modern technology in a public organisation (percentage, %)

Deter- minant	Statement / Question	Answer				
		1	2	3	4	5
Expected performance	The use of digitalisation tools at work has increased your productivity, i.e. the goods/services produced have more value than the inputs used to produce them.	0,6%	4,5%	6,2%	53,2%	35,6%
	By using digitalisation tools at work, you perform your tasks faster.	0,3%	1,7%	3,1%	45,1%	49,9%
	You believe that the use of digitalisation tools is essential for the effective resolution of residents' issues.	0,3%	4,2%	5,3%	55,5%	34,7%
	The use of digitalisation tools increases residents' satisfaction with your work.	0,8%	5,6%	5,6%	53,5%	34,5%
Social impact	Influencers at work think you should intensify your use of digitalisation tools in your work.	0,3%	9,8%	5,3%	56,6%	28,0%
	As a supervisor, you support the introduction of digitalisation tools in the office.	0,0%	1,1%	4,5%	58,8%	35,6%
	In your office, a large proportion of employees use digitalisation tools in their daily work.	0,0%	1,1%	2,2%	53,2%	43,4%

Table 2 (cont.). Determinants of the use of modern technology in a public organisation (percentage, %)

Deter- minant	Statement / Question	Answer				
		1	2	3	4	5
Expected effort	The digitalisation tools being introduced in the office are clear and understandable to you.	0,3%	0,8%	3,9%	54,1%	40,9%
	You assimilate new developments in the use of digitalisation tools at work with ease and without difficulty.	0,0%	2,2%	3,1%	57,7%	37,0%
	You find it easy and effortless to use digitalisation tools at work.	0,0%	2,0%	3,1%	50,1%	44,8%
	You are quick to learn and become proficient in the use of digitalisation tools.	0,0%	1,4%	3,4%	56,3%	38,9%
Favourable conditions	You have been given the opportunity to gain knowledge and skills in using digitalisation tools in your office.	0,0%	0,3%	2,0%	61,9%	35,9%
	You have been provided with the resources necessary to use digitalisation tools (software and hardware).	0,3%	1,1%	4,8%	50,4%	43,4%
	There is an organisational unit/person in your office to whom you can turn if you have problems using digitalisation tools.	0,3%	0,6%	3,9%	53,2%	42,0%
	Your office supports (e.g. through training) the use of digitalisation tools by staff in their dealings with residents.	0,3%	0,6%	4,2%	61,1%	33,9%
Intentions to use modern technology	Given your current level of access to digitisation tools, you anticipate using them at your current level.	0,3%	1,7%	4,5%	61,6%	31,9%
	Assuming your current level of access to digitalisation tools, you intend to expand your competence in using such solutions.	0,3%	0,6%	2,8%	59,1%	37,3%
	In your work, it is important to expand your competence to use digitalisation tools.	0,3%	0,3%	1,4%	54,1%	44,0%

Source: Own study.

Research results indicate that the process of digitisation in public organisations is relatively well perceived by managers. The report also points out that some digital tools are being incorporated into the public sector in a mandatory, which requires further development of managerial skills and the creation of conditions favourable to the users of new solutions.

6. CONCLUSION

The pursuit of digital transformation in the public sector is not solely the responsibility of managers. It is imperative to provide better opportunities to consider the needs of residents and establish closer relationships with them, as it facilitates a shift from viewing the resident as a customer to building partnerships and active participation in the provision of public services (Kitsios et al., 2023; Bason, 2018). The incorporation of residents in the provision or, more broadly, in the co-creation of public services through the utilization of digital tools appears to be an intriguing avenue for future research.

Public organisations must fulfil three basic roles in a digital transformation environment – facilitator, user, and regulator (Naqvi Al, Munoz, 2019). The facilitator should ensure the advancement and adaptation of contemporary technologies, among other things, through financial assistance and the establishment of fresh entities. Moreover, it is imperative for public entities to actively engage with contemporary technologies, such as artificial intelligence and Big Data, in their daily operations, to formulate novel public policies that are more agreeing with the evolving realities. As a regulator, public organisations or the public sector more broadly are responsible for the legislative process focusing on the ethical issues of using modern technologies and data security

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