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# NEW TECHNOLOGIES IN PUBLIC SERVICES – THREATS OR ADVANTAGES?

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## ABSTRACT

*Using new technologies (automation, digital platforms, and advanced data analytics) has changed the way public institutions deliver their public services to citizens. There is no doubt that digitization offers various benefits in essential dimensions such as efficiency, cost savings, and service quality. However, at the same time, serious concerns regarding job security and employees' retraining have been raised. In this sense, we aimed to analyze the implications of the transition to digitalization in terms of the public service workforce, especially in terms of job losses due to this phenomenon. In other words, the transition to digitalization implies the abandonment of several employees whose skills are no longer needed. Thus, the entire personnel architecture undergoes changes, but there is also the possibility of the emergence of the phenomenon of resistance to change. From the perspective of employees and, implicitly, of the provision of public services, this transition to digitalization can also generate a high level of stress, along with a reduction in the*

*degree of job satisfaction as a result of the level of digital literacy of civil servants. Therefore, the transition to the digitalization of public services must be accompanied by a series of specific government policies. Through these, both the professionalization of civil servants (such as: continuous training, permanent qualification) is ensured, as well as an increase in the degree of institutional resilience. In conclusion, the transition to the digitalization of public services is a complex process in which the benefits of digitalization and the resilience of the workforce must be viewed in a relationship of interdependence, so that the public services provided to citizens are at the level of expectation.*

**Keywords:** digitalization, new technologies, public services, employment

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## 1. Introduction

Romania has accelerated the digitalization of its public administration in with European strategic agendas. External imperatives (application of the EU directives) converge with internal pressures for modernization and administrative efficiency, amplifying the digital transformation roadmap. The dynamics of technological implementation bring challenges not only at the procedural level, but also at the employee level. These challenges include job displacement due to task automation, redundancy of old fashion skills, and the emergence of new competency demands.

Recent evolutions (e-Government platforms, digital identity systems, electronic healthcare services, and financial administration) have significantly impacted the way that public services are delivered and also the professional landscape for civil servants. The Romanian initiatives regarding the transition to digitization (Romania's National Strategy on the Digital Agenda for 2020, the European Commission's Digital Agenda) aims not only at technological progress but also at institutional modernization. It aims not only at technological progress but also at institutional modernization. Thus, the emphasis is on interoperability processes, cybersecurity and the cultivation of digital skills among civil servants.

Despite the evident benefits of these reforms, concerns regarding socio-professional implications of public servants are raised. The automation of administrative functions,

particularly in document handling and data management, could generate marginalizing roles traditionally occupied by lower-tier civil servants (Burlacu et al., 2022). Also, the need for a high degree of digital literacy generates major challenges in the workforce, especially for older employees or those who do not have equitable access to retraining resources (Dumitrescu, 2022). Therefore, these challenges imply increased attention to the effects of the transition to digitalization, but also to the public policy mechanisms necessary to protect the adaptability and resilience of the workforce in the face of technological disruptions.

### **1.1 EU policies and their influence on Romanian public services**

The European Union has assumed a strategic leadership role in steering the digital modernization of public administrations across its member states (European Commission, 2016). Through a cohesive policy architecture (Digital Single Market Strategy, the eGovernment Action Plan 2016–2020, and the European Digital Strategy) the EU provides both normative guidance and financial support to facilitate digital reform. These frameworks prioritize key principles including interoperability of systems, robust data governance, and digital inclusion, with the overarching objective of ensuring that technological progress enhances public value while mitigating socio-digital divides (European Commission, 2016).

The transition to digitalization of public administration in Romania has been significantly impacted by the application and implementation of these European policies. Structural funds and EU investments have led to the expansion of Romania's digital infrastructure, the creation of comprehensive e-government portals and the strengthening of cybersecurity protocols. (European Commission, 2015). Additionally, facilitating the development of digital skills has had a measurable influence on administrative strategy, leading to the initiation of professional development programs aimed at improving digital literacy among civil servants (European Commission, 2015).

However, as previously mentioned, at least in the Romanian public sector, the workforce has faced various challenges. Streamlining procedures related to the tax area has led to the automation of a significant number of administrative functions, thus replacing officials with routine roles and increasing the responsibilities of the remaining staff (Tofan, 2020). At the same time, the increased emphasis on digital competence risks generating new inequalities at the institutional level. Employees with limited technological skills or restricted access to retraining opportunities may find themselves increasingly marginalized in an institutional context characterized by dynamic evolution (Rollnik-Sadowska, Bartkute-Norkuniene and Grabinska, 2024).

## 1.2 The threat to public sector employees

Digitization is capable of replicating human judgment in rule-based tasks, replacing activities that once required clerical oversight. As a result, some functions (document processing, data entry, and low-complexity decision-making) are now being operated by digital systems. This trend not only reduces the need for human capital but also intensifies fears of redundancy and precarious employment in the public sector. Furthermore, this transition has increased the demand for digital skills that many civil servants may not possess, thus deepening the skills gap. One of the most pressing challenges associated with this digital transformation is the unequal access to skill development. While digital reskilling is essential to adapt to rapidly evolving technologies, not all public servants have equal opportunity to engage in upskilling programs. In this case is about older workers or those stationed in less-resourced regions. As Popescu and Pătrașcu-Suditu (2024) stated this disparity fosters professional stagnation for some employees while reinforcing digital elitism for others. Consequently, job insecurity grows among those unable to fulfill the new technological standards, reinforcing structural inequality within public administration.

Faced with these challenges, public authorities in Romania must be able to generate an adequate response that, on the one hand, ensures the continuity of public services at a satisfactory level and that is accessible to all citizens, and on the other hand, manages the influences on the public sector workforce. Therefore, we consider investments in continuous professional development, wide access to digital literacy training and the institutionalization of lifelong learning pathways (European Commission, 2015). Also, specific protection measures for dismissed civil servants must be considered (Burlacu et al., 2022).

## 2. Literature review

Digitalization is seen as a cornerstone of modern public administration. Through digitization the way that state interact with citizens had been changed. These changes are also reflected in the way that public services are delivered, and the way that internal bureaucratic processes are managed. This transformation is regarding not only technology, but impacts also at the institutional level, remodulating governance structures and changing the public service delivery. Governments increasingly rely on digital platforms to streamline processes, reduce transaction costs, and meet evolving societal expectations for transparency and responsiveness.

Public services include a wide range of areas (healthcare, education, transportation, and social assistance), playing a key role in how the State interacts with citizens. Unlike private sector services, public services are characterized by being accessible to all citizens, regardless of their level of education, and must be provided non-stop. Therefore, marketing strategies and their delivery require unique approaches that take into account public trust, equitable access, and social impact. Thus, Haykal et al. (2020) draw attention to the need for personalized communication and specific design to ensure public involvement and legitimacy.

Two theoretical frameworks have proven particularly influential in shaping contemporary understanding of public service delivery. The first, Social Marketing Theory, emphasizes the role of using strategic communication and behavioral perspective to promote social good. In this sense, Clemes et al. (2000) highlight that public sector organizations need to adopt citizen-centered approaches to influence behavior and achieve public interest objectives. The second approach, Service Dominant Logic (S-D Logic), considers the provision of public services in the key to a co-creation process. In other words, beneficiaries of public services are not seen as passive consumers, but active participants. Thus, Phillips (2009) argues that value in public services is co-produced through active citizen participation, feedback and collaboration.

These frameworks are critical in the digital age. With growing reliance on digital tools, citizens not only consume public services online but also shape their evolution. The move toward participatory digital governance necessitates a rethinking of how services are marketed, designed, and evaluated.

Digital competence has emerged as a central pillar of lifelong learning and public workforce development. As outlined by the European Commission (2011, 2019), digital competence encompasses not only technical proficiency but also the capacity for critical thinking, ethical engagement, and meaningful participation in digital society. Scholars such as Muizu and Budiarti (2017), Al Laheebi and Shaalan (2020), and Ślusarczyk et al. (2021) reinforce that digital competence is a multifaceted construct—encompassing knowledge, attitudes, and behaviors that enable individuals to navigate an increasingly digitized world.

In the context of the transition to digitalization, the level of digital skills is no longer seen as an additional skill, but is becoming a *sine qua non* for participation in the public service. And, this is of particular relevance in the context of the integration of automation processes in various areas of governance. Ginevičius (2023) argues that digitalization increases operational efficiency, accelerates data analysis and increases citizen satisfaction by facilitating faster and more personalized service delivery. Similarly, Kronemann et al. (2019) emphasize the

usefulness of digitalization in improving decision-making, reducing administrative costs and modernizing bureaucratic systems.

However, these benefits do not come without costs. The ability to perform routine tasks poses a direct threat to jobs that rely on standardized workflows. As digitalized systems become adapted to process applications, simulate results and interpret natural language, roles traditionally occupied by administrative staff become increasingly vulnerable. Muizu and Budiarti (2017) and Jarad and Shaalan (2020) warn that the development of the level of digitalization could result in an increase in unemployment levels, but also the disappearance of basic functions of the public sector workforce.

Therefore, from the perspective of the civil service, the Romanian labor market needs to prepare for these changes. As Ginevičius (2023) argues, a balanced model of digitalization adoption and implementation is needed: one that capitalizes on the potential without sacrificing human dignity, economic security, or institutional cohesion. This involves large-scale investments in human capital, retraining initiatives, and labor redistribution strategies that align with the new technological paradigm.

As digitalization reshapes service delivery models and processes, public policies need to counterbalance the costs to public sector employees, especially those in vulnerable roles.

Digital transformation should be accompanied by robust mechanisms for skills development and job protection through professional retraining.

Last but not least, the success of the digitalization transition depends on its ability to embrace innovation without undoing the social contract between the state and its employees.

### 3. Methodology

Starting from the theoretical considerations presented, and from the risks associated with digitization, we conducted an investigation in order to explore the way digitalization is perceived by both consumers of public services and public sector employees in Romania. Our focus was to examine attitudes toward technological integration in public administration, particularly the perceived benefits for service users and the potential risks for employees. The study was applied on seven Territorial Administrative Units (TAUs) in Romania (Călărași, Teleorman, Ialomița, Argeș, Giurgiu, Dâmbovița, and Prahova). These regions were selected because they have a significant specificity in terms of Romania's socio-economic diversity, regional differences along the digital infrastructure vector and, implicitly, different degrees of

the administrative modernization process. The regional distribution of survey participants is summarized in Table no. 1.

**Table 1. Distribution of consumers of public services**

		Frequency	Percent
Valid	Argeş	96	21,9
	Călăraşi	27	6,2
	Dâmboviţa	143	32,6
	Giurgiu	26	5,9
	Ialomiţa	55	12,6
	Prahova	48	11,0
	Teleorman	43	9,8
	Total	438	100,0

Source: Authors' data research

The research adopted a mixed-methods approach, combining a structured quantitative survey administered to public service consumers with in-depth qualitative interviews conducted among employees in public administration. This dual approach was designed to offer a multidimensional understanding of digital transformation in the public sector—from both the recipient and provider perspectives.

A total of 438 respondents participated in the survey, which explored two principal dimensions:

1. Perceived threat of job dislocation caused by digitalization: Participants were asked to express their views on the perception of the threat to jobs as a result of the transition to digitalization.
2. Perceived benefits of digital public services: Respondents were also asked to evaluate digital public services from the perspective of efficiency, accessibility and overall consumer satisfaction.

The qualitative component of the study consisted of 14 semi-structured interviews with public administration employees within the seven TAUs (Table no.2). The interviews investigated employee attitudes towards digital reform, particularly resistance to change. Interviewees were selected based on job title, managerial responsibilities, and participation in



digital training programs. All interviewees held a digital certification, suggesting a basic familiarity with digital governance tools.

**Table 2. Sample of interviews**

Nr. crt.	Gender	Age	University degree	Period of time working in public administration	Period of time working in management of public administration	Digitization certificate
1	Female	50	University	20	10	Yes
2	Male	62	Master	15	3	Yes
3	Female	55	Master	23	14	Yes
4	Male	61	University	15	15	Yes
5	Male	54	Master	15	2	Yes
6	Male	42	Master	9	3	Yes
7	Male	60	PhD.	30	11	Yes
8	Female	55	Master	24	1	Yes
9	Male	55	Master	25	10	Yes
10	Male	35	Master	9	4	Yes
11	Male	52	Master	17	10	Yes
12	Male	47	Master	12	5	Yes
13	Male	48	Master	18	9	Yes
14	Male	56	Master	22	17	Yes

Source: Authors' data research.

As regards gender distribution, the demographic structure of the survey sample is balanced (50.7% female, 49.3% male), with an age range of 18 to 65. Educational attainment is notably high: 42% of respondents hold a master's degree and 39.3% a university-level qualification. This high level of education represents a strong potential for digital engagement, as digital competence is often positively correlated with higher education.

The geographic distribution also reflects contrasting levels of digital infrastructure. Approximately 65.5% of respondents resided in TAUs classified as having advanced levels of digitalization, while 34.5% came from areas with lower digital development. This variance

allows for comparative analysis of how local digital maturity affects perceptions and engagement.

Despite residing in highly digitized environments, a substantial portion of respondents lack the essential tools needed to engage fully with digital services:

- 54.3% of respondents declared that they do not possess a digital signature certificate, a basic requirement for many digital interactions with public institutions.
- 51.6% lack an account on the national tax administration platform, effectively limiting their access to e-tax services, financial declarations, and other administrative tools.

The findings highlight a very important aspect: digital services may be technically available, but barriers to access—such as user registration hurdles, lack of digital literacy, or low perceived value—remain significant. Interestingly, even in digitally advanced TAUs, 56.4% of respondents reported not using the tax platform, and 60.3% did not have a digital signature, suggesting that regional infrastructure alone is insufficient to drive digital adoption.

In contrast, 56.6% of respondents indicated possession of a digital skills certificate, suggesting a degree of initiative toward personal digital development. However, the utility of such certifications appears limited if parallel systemic and infrastructural conditions (e.g., platform accessibility, procedural clarity) are not equally addressed.

#### 4. Findings

The integration of digital technologies into public service operations has provoked considerable debate regarding its potential impact on employment structures. Table 3 below presents the responses of public service users to the statement: *"The transition to digitalization involves reducing the number of employees."*

**Table no. 3 The transition to digitalization involves reducing the number of employees**

		Frequency	Percent
Valid	Totally disagree	23	5,3
	Disagree	59	13,5
	Agree	209	47,7

	Totally agree	147	33,6
	Total	438	100,0

Source: Authors' data research

We noted a pronounced tendency among respondents to associate digitalization with staff reduction. 81.3% (combining "Agree" and "Totally agree") expressed their belief that technological transformation is equal with a decline in the number of employees, while only 18.8% expressed an opposite point of view.

A small minority (5.3%) categorically rejected the notion that digitalization inherently reduces workforce numbers. This group may subscribe to the theory that technological innovation is not inherently labor-displacing but labor-redefining, potentially opening avenues for new forms of employment. Their position suggests confidence in the adaptive potential of institutions and optimism regarding the co-evolution of labor and technology.

Another 13.5% expressed disagreement—albeit not complete rejection—indicating a more nuanced or moderate perspective. These respondents might acknowledge some degree of displacement but believe that job losses could be mitigated or offset by enhanced productivity, role diversification, or the emergence of digitally-enabled professions within the public sector.

47.7% agreed that digitalization leads to job reduction, likely recognizing that the automation of repetitive tasks threatens lower-skilled, administrative roles—particularly in documentation, data processing, and clerical operations. The 33.6% who *strongly* agreed further reinforce this concern, suggesting a deep-seated anxiety that digital transformation in sectors like tax administration, registry services, and local governance will result in structural downsizing.

## 5. Digitalization and Staff Reduction in Tax Administration

To further substantiate the relationship between digitalization and employment trends, a Pearson correlation analysis was conducted. The results reveal a strong and statistically significant positive correlation between perceptions of digitalization and reductions in staff within the tax administration ( $r = 0.749^*$ ,  $p < 0.01^*$ ). Therefore, as the public perceives a more pronounced transition to digital tools and platforms in tax-related services, there is a corresponding belief that fewer Furthermore, while digitalization can enhance efficiency and

transparency, it may also challenge existing employment models in public institutions, leading to workforce contraction and, potentially, institutional resistance.

### **5.1 Institutional Perceptions and Adaptive Capacity**

The interview responses provide a complementary and more textured understanding of how public sector employees perceive the implications of digitalization for workforce stability and organizational change.

Some respondents to interview pointed out that certain roles (particularly clerical and administrative) are likely to be phased out due to automation. Respondents No. 11 and 13, for example, specifically pointed to the mechanization of routine tasks in regional tax offices, such as processing and issuing documents, as key areas of vulnerability. However, these participants also emphasized the potential of professional retraining and internal mobility as pathways to absorb displaced employees into new or modified roles.

Respondents No. 10, 12, and 14 adopted a more optimistic outlook, contending that job descriptions can and should be adapted in response to technological change. From this perspective, digitalization is seen less as a threat than as a catalyst for role evolution, requiring a reconfiguration rather than elimination of responsibilities. Such views align with emerging public management theories that advocate for task reengineering and agile workforce models, where human roles are recalibrated to complement automated systems.

An especially compelling viewpoint was expressed by Respondent No. 6, who emphasized that “digitalization does not happen by itself; the human factor is needed to use it.” This highlights a critical insight: while technology may automate tasks, its implementation, oversight, and optimization are inherently human functions. Digital transformation, therefore, should not be interpreted solely as a labor-substitution process but as one that necessitates strategic human involvement in governance, systems management, and decision-making.

In other words, from the perspective of the respondents, the risks associated with the transition to digitalization, namely the reduction of employed personnel, do not represent a vulnerability, as there is the possibility of professional reconversion.

In this context, we note that, in a situation where the transition to digitalization leads to staff reductions, the service provider is faced with a challenge in the sense that, at the staff level, the phenomenon of resistance to change may appear and, implicitly, the decrease in the quality of services with a direct impact on consumers.

## 6. Conclusion

This study reveals a very interesting public perception of digitalization as a transformative—yet disruptive—force within Romania's public administration, particularly in the domain of tax services. The majority of respondents (81.3%) admitted that the transition to digital tools and platforms is likely to result in a reduction in the number of public sector employees. This perception is highlighted by the statistically significant positive correlation between perceived digitalization and anticipated staff reduction within tax administration ( $r = 0.749$ ,  $p < 0.01$ ). Therefore, there is an emerging tension in digital public reform: while digitalization enhances institutional efficiency and responsiveness, it simultaneously challenges traditional employment structures. This tension is particularly acute in administrative fields where standardization and repetitive workflows are most susceptible to automation.

A minority of respondents expressed an optimistic interpretation, emphasizing adaptability, role redefinition, and the human complementarity required for the effective deployment of technology. This perspective—highlighted in several interview responses—point out that while digitalization may reconfigure tasks, it need not inevitably result in workforce contraction. Instead, it opens space for task enrichment, reskilling, and the strategic redeployment of human resources into more complex, supervisory, or user-facing roles.

Risk perceptions vary significantly depending on one's role and engagement with digital tools. While some employees express apprehension about the future of administrative roles, others propose adaptive pathways, including the reformulation of job descriptions and the expansion of internal retraining programs. Notably, the notion that "digitalization does not happen by itself" captures a key theme running throughout the interviews: that public servants, expertise, and oversight remain indispensable in the implementation and governance of digital systems.

However, the transition is not without institutional friction. The study identifies resistance to change as a latent but critical risk factor—especially in scenarios where employees perceive digitalization not as evolution but as existential threat. If unaddressed, such resistance may impede reform and degrade the quality of public services, ultimately undermining public trust and system legitimacy.

In sum, the research underscores that the digitization of public services is not merely a technical reform but a profound organizational shift—with direct implications for labor, institutional identity, and the social contract between the state and its employees. To navigate

this shift successfully, public institutions must adopt a dual strategy: one that embraces innovation while proactively managing disruption. This includes:

- Developing inclusive digital transformation frameworks that integrate workforce planning from the outset;
- Institutionalizing reskilling pathways and job reconfiguration mechanisms to preserve employment continuity;
- Encouraging collaborative change cultures that reduce fear and foster co-ownership of reforms.

Ultimately, digital transformation will be judged not only by the systems it automates but by the extent to which it preserves human value, ensures institutional resilience, and enhances democratic governance. In this regard, the Romanian experience offers both a warning and a blueprint: that digital progress must be accompanied by thoughtful, equitable, and participatory strategies to ensure a just transition for all.

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