

DIGITAL TRANSFORMATION IN PARLIAMENT OF THE REPUBLIC OF NORTH MACEDONIA

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Abstract

This paper examines the impact of digital transformation on the parliamentary public administration sector in the Republic of North Macedonia. Drawing on an empirical survey conducted in January 2024 among 49 employees in the parliament (13 Albanian-language respondents and 36 Macedonian-language respondents), the study tests two hypotheses: that the widespread integration of digital technologies significantly affects work practices and service delivery, and that digital transformation correlates positively with efficiency gains, service quality improvements, and more responsive governance. Survey results confirm both hypotheses, revealing high levels of digital awareness, broad recognition of technology-driven improvements in public services, and moderate satisfaction with current digitalization levels. Data-privacy and cybersecurity concerns represent the most prominent challenge identified by respondents. The paper situates these findings within the broader Western Balkans context and the North Macedonia Reform Agenda 2024–2027, contributing empirical evidence to the growing literature on digital government in transitional and accession-candidate states.

Keywords: digital transformation, public administration, governance, North Macedonia.

Introduction

The rapid advancement of information and communication technologies has fundamentally reshaped the way governments interact with citizens, process information, and deliver public services. Digital transformation, defined as the systematic integration of digital technologies into all areas of organizational activity, has moved from a strategic option to an operational imperative for public administrations worldwide (Thomas, 2024). Governments are modernizing their administrative frameworks, enabling continuous cross-border mobility and improving digital interactions with citizens (United Nations, 2022).

In the Western Balkans, the trajectory of digital transformation is shaped by both internal reform agendas and external pressures from European Union accession processes. North Macedonia, in particular, has made measurable strides: the European Commission approved its Reform Agenda 2024–2027 in October 2024, unlocking €6 billion from the Reform and Growth Facility to support digitalization, good governance, and energy transition (Metamorphosis Foundation, 2025). The country has emerged at a 'systematic stage' in UNDP's Digital Development Compass, signaling strategic investment in digital public services and skills (UNDP, 2024).

Albeit, empirical evidence from within public institutions about employees' perceptions, experiences, and concerns remains scarce. This paper addresses that gap by reporting on a structured survey conducted in January 2024 among 49 employees of the parliamentary public administration, as a key institution in which digitalization intersects with transparency, accountability, and legislative governance.

The paper is organized as follows. The next section reviews the relevant literature. Section three presents the research problem, hypotheses and describes the methodology. Section four analyzes the survey data. The final section discusses findings and concludes with recommendations.

Literature Review

Digital transformation has become a central strategic priority for public administration, reshaping citizen–government relationships, service delivery, and internal governance (IJAMRS, 2025). The integration of digital technologies enables governments to streamline services and enhance the overall citizen experience, from online portals to mobile applications, while harnessing data for evidence-based decision-making (Thomas, 2024). Automation and digital tools significantly improve the efficiency of administrative processes, allowing institutions to identify trends, allocate resources efficiently, and respond promptly to emerging challenges (Kamoche & Wood, 2023).

A systematic literature review by Tangi et al. (2023), based on 164 studies using the PRISMA method, identified key drivers, implementation processes, and outcomes of digitally-induced change in the public sector. Their findings underscore that digital transformation is not merely technical but organizational, requiring cultural shifts, leadership commitment, and new competency frameworks. Similarly, a bibliometric analysis of Web of Science data found a steadily increasing research volume since 2020, closely linked to the acceleration of digital government adoption during the COVID-19 pandemic (Frontiers in Political Science, 2024). More recent conceptual contributions include automated administrative decision-making (Roehl & Hansen, 2024), digital public goods and services (Shulz, 2024), and digital resilience as a distinct governance objective (Mamediieva & Moynihan, 2023). These developments point to a maturing field that increasingly recognizes the risks and limits of digitalization alongside its benefits.

E-government which is broadly defined as the use of ICT to deliver government services to citizens, businesses, and other government entities, has evolved substantially over two decades (United Nations, 2022). The United Nations E-Government Survey tracks country progress globally; in 2022, Serbia ranked 40th on the E-Government Development Index, followed by Albania (63rd), Montenegro (71st), and North Macedonia (80th), illustrating the range of development within the Western Balkans (BIRN, 2024).

Citizen-centricity has become the prevailing design philosophy, emphasizing user needs, accessibility, and trust. However, expectations have outpaced delivery in many contexts: citizens increasingly demand always-on, mobile-accessible services (Moller, 2018), while surveys in the Western Balkans reveal that digital literacy and portal usage rates remain uneven. The European Commission's eGovernment Benchmark 2023 and SIGMA's 2024 assessments using the EU eGovernment Benchmark methodology highlight both progress and structural challenges in user-centric digital public services across the region (SIGMA, 2025; European Commission, 2023).

The Western Balkans region is advancing with the digital transformation of government processes and services, though at varying speeds and with different institutional capacities (SIGMA, 2025). OECD/SIGMA's 2024 assessments, which included mystery-shopper exercises for the whole region for the first time, found that North Macedonia and Albania have evolved into the group of well-advanced administrations in terms of Single Digital Gateway Regulation (SDGR) readiness, while Bosnia and Herzegovina, Kosovo, and Montenegro remain at earlier stages (OECD/SIGMA, 2024).

The World Bank (2025) notes that North Macedonia and Albania stand out for their progress, with Albania's 'E-Albania' portal offering over 95% of government services online. In North Macedonia, 170 public institutions out of approximately 1,300 provide e-services, offering 245 services through the national portal (BIRN, 2024). The Reform Agenda 2024–2027 identifies digitalization of public administration as a key instrument for greater efficiency, transparency, and anti-corruption (Metamorphosis Foundation, 2025).

Open data and cybersecurity remain significant challenges. Montenegro experienced a ransomware attack in August 2022, while Albania's systems were targeted in July and September of the same year, exposing vulnerabilities inherent in rapid digitalization without commensurate security investment (Balkan Insight, 2024). These incidents underscore that technical digitalization must be accompanied by robust cybersecurity infrastructure and digital literacy programs.

The COVID-19 pandemic served as an unprecedented accelerator of digital government adoption. Bibliometric evidence confirms a notable peak in research output on digital governance from 2020 to 2023, closely linked to the pandemic (Frontiers in Political Science, 2024). Governments were compelled to swiftly implement digital solutions to maintain service continuity and coordinate crisis response. This emergency-driven acceleration exposed both the potential and the fragility of existing digital infrastructure, and prompted renewed interest in digital resilience as a governance objective (Mamediiieva & Moynihan, 2023).

Research and Methodology

Despite the growing policy commitment to digital transformation in North Macedonia's public sector, empirical evidence about how front-line public administration employees perceive, experience, and engage with this transformation remains limited. Understanding insider perspectives is essential for designing effective implementation strategies, identifying training needs, and addressing barriers such as data-privacy concerns.

The parliamentary public administration represents a strategically important context: it is at the intersection of legislative governance, transparency obligations, and citizen interaction. It is also a multilingual and multicultural workplace, making it a revealing lens for examining whether digital transformation is experienced comparably across linguistic communities.

Two hypotheses guide this study:

H₁: The widespread integration of digital technologies in the public sector significantly affects work practices, the design of public services, and decision-making, fostering a transformative environment.

H₂: The application of digital transformation is positively associated with gains in efficiency, improvement in service quality, and a more responsive and transparent governance framework.

3.1 Research Design: This study adopts an empirical, mixed-methods design combining quantitative survey data with descriptive statistical analysis. A structured questionnaire was used as the primary data-collection instrument, supplemented by analysis of response patterns across linguistic groups to explore potential differential perceptions.

The questionnaire was developed using Google Forms and made available in two languages, Albanian and Macedonian, reflecting the linguistic diversity of the parliamentary public administration. It comprised 10 questions organized into four thematic sections: (1) general perceptions of digital transformation; (2) digital technologies in public service design and delivery; (3) data importance and data-privacy concerns; and (4) digital governance during the COVID-19 crisis.

The target population was the workforce of the parliamentary public administration. A random sampling approach was applied, targeting a 25% representation across departments and hierarchical levels, yielding a total of 49 valid responses: 13 in Albanian and 36 in Macedonian. The survey was distributed electronically via personalized Google Form links in January 2024. Participation was voluntary, informed consent was obtained, and all responses were anonymous.

3.2 Data Analysis: Data were processed using descriptive statistics, frequencies and percentages, to summarize and interpret responses. The Albanian-language group (n=13) was predominantly male (61.5%), while the Macedonian-language group (n=36) was predominantly female (71.4%). In terms of education, 53.8% of Albanian respondents held postgraduate qualifications, compared with 40.0% of Macedonian respondents; 45.7% of Macedonian respondents held undergraduate degrees and 8.6% had completed secondary education only.

Table 1 provides a consolidated overview of survey responses across both language groups for each thematic question.

Table 1. Summary of Survey Results by Language Group

Survey Question / Theme	Albanian (%)	Macedonian (%)
Gender: Male	61.5%	28.6%
Gender: Female	38.5%	71.4%
Postgraduate education	53.8%	40.0%
Knowledge of digital transformation: Somewhat familiar	69.2%	57.1%
Knowledge of digital transformation: Very familiar	23.1%	34.3%
Digital transformation impact on work practices: High	61.5%	71.4%
Digital technologies improved service quality: Agree/Strongly agree	84.7%	94.3%
Digital tech contributed to new value creation: High	46.2%	74.3%
Satisfaction with current digital service delivery: Moderate	53.8%	57.1%
Data as basis for public-sector decisions: Very important/Important	92.3%	94.3%
Privacy/security concerns: High/Extreme	46.2%	45.7%
Digital tech contribution during COVID-19: High	38.5%	57.1%
COVID-19 digitalization accelerated sustainable society: Agree/Strongly agree	76.9%	80.0%

A high proportion of respondents in both groups reported familiarity with digital transformation in the public sector. Among Albanian respondents, 69.2% described themselves as 'somewhat familiar' and 23.1% as 'very familiar', with only 7.7% neutral. Macedonian respondents showed a similar pattern: 57.1% somewhat familiar and 34.3% very familiar, with 8.6% neutral. These figures suggest a baseline of digital literacy sufficient to evaluate transformation experiences, though the relatively low shares of 'very familiar' respondents highlight the need for continued digital upskilling.

Respondents overwhelmingly acknowledged a significant impact of digital transformation on work practices. In the Albanian group, 61.5% rated the impact as 'high' and 15.4% as 'exceptional'; in the Macedonian group, 71.4% rated it as 'high' and 11.4% as 'exceptional'. These results provide strong support for Hypothesis 1, confirming that digitalization has fundamentally altered day-to-day professional activity in parliamentary public administration. A strong majority in both groups agreed that digital technologies have improved the quality of public services. Among Albanian respondents, 46.2% agreed and 38.5% strongly agreed

(combined 84.7%); among Macedonian respondents, 68.6% agreed and 25.7% strongly agreed (combined 94.3%). Only 7.7% and 5.7%, respectively, disagreed. This finding strongly supports Hypothesis 2, indicating a broad consensus that digitalization has produced tangible service-quality improvements.

When asked about the contribution of digital technologies to value creation in public services, 46.2% of Albanian respondents and 74.3% of Macedonian respondents rated the contribution as 'high'. However, satisfaction with current digital service design and delivery was more modest: a majority in both groups rated their satisfaction as 'moderate' (53.8% Albanian; 57.1% Macedonian), indicating an aspiration gap between what is possible and what has been delivered.

The critical role of data in public-sector decision-making was widely recognized: 92.3% of Albanian and 94.3% of Macedonian respondents rated data as 'very important' or 'important'. At the same time, data-privacy and cybersecurity concerns emerged as a significant challenge: 46.2% of Albanian respondents and 45.7% of Macedonian respondents reported 'high' or 'extreme' concern about personal data privacy when interacting with government digital services. These findings underscore that trust-building and data protection must be integral components of any digitalization strategy.

A majority in both groups recognized a significant contribution of digital technologies to governance processes during the COVID-19 crisis (38.5% 'high' and 15.4% 'exceptional' among Albanian respondents; 57.1% 'high' and 20.0% 'exceptional' among Macedonian respondents). Furthermore, 76.9% of Albanian and 80.0% of Macedonian respondents agreed or strongly agreed that COVID-19-era digital adoption accelerated progress toward a more sustainable and resilient society. These results confirm the pandemic as a pivotal inflection point in digital governance, consistent with the bibliometric evidence in the literature.

Discussion and Conclusions

The survey results collectively provide strong empirical support for both hypotheses. Hypothesis 1, that digital integration significantly affects work practices, service design, and decision-making, is confirmed by the near-universal recognition of transformation impacts across both language groups. Hypothesis 2, that digital transformation correlates with improved efficiency, service quality, and responsive governance, is supported by high agreement rates on service-quality improvements and data-driven decision-making.

The aspiration gap captured in satisfaction scores (majority 'moderate') is consistent with findings from the broader Western Balkans literature: while legal and strategic frameworks are in place and awareness is growing, actual user-side delivery often lags behind expectations (Balkan Insight, 2024; SIGMA, 2025). For North Macedonia specifically, the national e-services portal covers only 170 of approximately 1,300 public institutions, representing substantial room for expansion (BIRN, 2024).

The prominent data-privacy concerns (46% rating them as high or extreme in both groups) warrant particular attention. The 2022 ransomware attacks on Montenegro and Albania demonstrated that digitalization without commensurate cybersecurity investment creates systemic vulnerabilities (Balkan Insight, 2024). As North Macedonia accelerates its digitalization under the Reform Agenda 2024–2027, a parallel investment in cybersecurity infrastructure, institutional capacity, and public trust is essential.

The relatively modest divergences between Albanian and Macedonian respondents suggest that core perceptions of digital transformation transcend linguistic community, at least within the parliamentary public administration context. This is an encouraging finding for multilingual policy design.

This paper contributes empirical evidence on how digital transformation is experienced within parliamentary public administration in North Macedonia, a country at a pivotal juncture between EU accession reform requirements and internal modernization. Key conclusions are: First, digital transformation is recognized as a significant and positive force shaping work practices and service quality among parliamentary public administration employees. The high rates of agreement across both language groups confirm that digitalization is no longer peripheral but central to institutional functioning.

Second, the aspiration gap between current satisfaction and perceived potential is real and actionable. Moderate satisfaction scores signal that employee recognize the transformative potential of digital tools even as current delivery falls short of that potential.

Third, data-privacy and cybersecurity concerns represent the most prominent risk dimension. Closing the trust gap requires transparent data-governance policies, robust technical safeguards, and sustained citizen and employee education.

Based on these findings, the study provides the following recommendations: (i) invest in digital infrastructure expansion; (ii) prioritize digital skills development; (iii) embed cybersecurity by design; (iv) foster citizen engagement; and (v) monitor and evaluate systematically.

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