"Unveiling the drivers of digital governance adoption in public administration"

AUTHORS	Panagiota Xanthopoulou (iD) (R) Ioannis Antoniadis (iD) Giorgos Avlogiaris (iD)

NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
63	2	6

BUSINESS PERSPECTIVES

Panagiota Xanthopoulou, Ph.D., Lecturer, Department of Management Science and Technology, School of Economic Sciences, University of Western Macedonia, Greece. (Corresponding author)

Ioannis Antoniadis, Ph.D., Associate Professor, Department of Management Science and Technology, School of Economic Sciences, University of Western Macedonia, Greece.

Giorgos Avlogiaris, Ph.D., Assistant Professor, Department of Statistics and Insurance Science, School of Economic Sciences, University of Western Macedonia, Greece.

Panagiota Xanthopoulou (Greece), Ioannis Antoniadis (Greece), Giorgos Avlogiaris (Greece)

UNVEILING THE DRIVERS OF DIGITAL GOVERNANCE ADOPTION IN PUBLIC ADMINISTRATION

Abstract

The purpose of this paper is to investigate the factors, both internal and external, that impact the adoption of digital governance in public administration. The quantitative data were collected through online questionnaires from 556 public servants, all of whom were enrolled in a Master of Public Administration program, representing a variety of public organizations, in a non-random way. The study draws from a comprehensive literature review and leverages structural equation modeling (SEM) analysis to derive empirical insights. The empirical analysis revealed positive relationships between digital governance, service quality, safety, trust, and transparency within public services. Contrary to previous results, internal factors such as leadership, organizational culture, and skillsets do not exhibit significant impacts. Overall, the study supports the idea that improving the quality of digital services and embracing innovative technologies are key drivers of digital governance in public administration, leading to increased transparency and public trust. These findings can guide policymakers and administrators in implementing effective digital governance strategies tailored to the specific context of each public organization.

Keywords	digitalization, technology, digital governance, public administration, public sector, Greek public sector, quantitative analysis
JEL Classification	H83, D73, O33, Q55

INTRODUCTION

The Greek public sector, as well as public administration worldwide, is facing an increasingly urgent challenge to find ways and put measures to achieve long-term quality (Kuziemski & Misuraca, 2020). The recent economic, social, and technological changes have led to the emergence of new, innovative, and digitalized public services. These developments could benefit society and spur innovativeness in the public sector. New technologies, such as blockchain, are communication tools between organizations and citizens as well as a means of transparency and openness of governmental authorities' actions (Laukyte, 2023). They also provide the conduit for knowledge transfer, skill development, and knowledge management. The present study focuses on blockchain technologies among many other IT technologies because of their novelty, potential impact on digital governance, data integrity, security features, transparency and accountability benefits, global relevance, and the need to address challenges and limitations. Although the terms of digital governance and IT governance seem to be the same, they have some differences (Green & Daniels, 2019). The procedures that guarantee the effective and efficient use of IT within an organization are referred to as IT governance. Understanding digital governance in public services requires considering the entire organization (Bousdekis & Kardaras, 2020; Meijer & Bekkers, 2015).

This relates to the idea that rather than using IT to facilitate change, processes, policies, individuals, and leaders must be fundamentally altered to implement digital reforms in the public sector; as a result, IT governance can be considered part of digital governance.

Given the significance of public sector reforms in the provision of citizen-centered services, it becomes vital to investigate what impacts the effective adoption and integration of digital governance in the public sector as the most contemporary reform, which was mainly implemented in private organizations.

1. LITERATURE REVIEW AND HYPOTHESES

Government reform is described as something fluid, and yet one question in the literature remains unanswered: the relationship between public administration transformation, security, and citizens' trust in government (Bannister & Connolly, 2011). He and Ma (2021), Kuziemski and Misuraca (2020), and Xanthopoulou et al. (2022) share the common view that reform can strongly affect public administration's performance, which implies public trust. Digital governance is one of the significant reforms investigated in various studies (Khan et al., 2023). Online service quality is a crucial factor that affects digitalization initiatives. It is described as the degree to which a website makes shopping, buying, and delivery efficient and effective. In public administration, it refers to the effectiveness, efficiency, and user satisfaction of the digital services offered by government institutions through their online platforms. It encompasses a range of factors, including the ease of use, accessibility, responsiveness, reliability, security, and privacy of these services (Sabani et al., 2023).

Probably the most important factor that users take into account when evaluating digital services is service quality, which is typically expressed in factors like effectiveness, privacy, fulfillment, and system availability (Parasuraman et al., 1988; Nguyen et al., 2023; AlHussainan et al., 2022; Sabani et al., 2023). The adoption of digital governance and the quality of digital services are strongly related. Digital services are more likely to be adopted and used efficiently if they are user-friendly, effective, secure, and suit the demands of citizens and public personnel. Users with positive experiences with digital services are more likely to trust the government's digital initiatives. In the context of public sector governance, the quality of digital services has emerged as a critical factor influencing the

sense of safety and trust among users (Bodó & Janssen, 2022). High-quality digital services that are intuitive, user-friendly, and provide a seamless experience can instill confidence and trust in users. Similarly, the reliability and performance of these services, including aspects such as uptime, responsiveness, and data security, are crucial factors for establishing trust. When users are confident that the digital service will function as intended and protect their data, they are likelier to feel safe and trust the service provider (Robinson, 2020). There are many cases where the digital services of Greek public organizations do not function properly, or their information and announcements are not updated. As a result, users are very likely, after an unsuccessful attempt to log in or find an account, to not revisit it.

Governments have adopted these technologies to improve the efficiency of government processes and ensure better service delivery (Das et al., 2017). The emergence of new technologies, such as blockchain technologies, has significantly affected digital governance in the public sector. It is interesting to focus on blockchain technologies among many other IT technologies because of their novelty, potential impact on digital governance, data integrity, security features, transparency, and accountability benefits, and the need to address challenges and limitations. Escobar et al. (2023) suggest that blockchain technology has significant potential to transform the public sector, but its implementation and adoption require careful consideration of the challenges and opportunities involved. New technologies have revolutionized the way the public sector operates. For instance, the use of artificial intelligence and machine learning has enabled governments to improve their service delivery, streamline operations, and reduce costs (Wu et al., 2022; Xanthopoulou et al., 2022). Blockchain technologies (BTCs), in particular, have become increasingly popular due to their ability to provide secure and transparent

transactions (Panarello et al., 2018). They can increase efficiency and policy effectiveness and protect democratic values (Escobar et al., 2023; Ølnes et al., 2017). This makes it an ideal technology for voting, identity management, and financial transactions. For instance, by using BCTs for voting, governments significantly reduce the risk of fraud and ensure that the voting process is transparent (Escobar et al., 2023). Such different benefits have motivated many researchers to consider new technologies and blockchain as practical tools against corruption and as determinants of the successful adoption and implementation of digital governance in public administration (Ølnes & Jansen, 2021; Xanthopoulou et al., 2022) by enhancing the quality of digital governance (Basyal & Seo, 2017).

New technologies and factors related to data privacy and safety issues are significant contributors to the success of digital reforms. However, several other factors related to internal and external organizational aspects must also be reviewed. Scholars worldwide have tried to analyze them from various angles. Some emphasize the internal organizational environment, while others pay attention to outside stakeholders and those working on digitization projects. Others evaluate external variables (political, legal, and financial), while many adopt a hybrid approach. Substantial institutional impediments to digitalization include out-of-date regulations and an organizational culture that strongly emphasizes rules (Effah & Nuhu, 2017). Other obstacles include equipment issues, particularly for all participating organizations' inadequate and unreliable internet access. Additionally, Al-Tkhayneh et al. (2019) express broad concerns about the organization's absence of supportive leadership, strategy, skills, and management. Greek public administration, in particular, struggles with ongoing issues of inadequate effectiveness in public services due to low rule compliance, agency issues with false compliance, and the proliferation of essential and timeless pathogens and failures that obstruct the adoption of reforms. The adoption of digital technologies in the public sector could be faster (Bousdekis & Kardaras, 2020). The main factors that inhibit the success of digital governance in Greek public administration include the technological failure of organizations to meet citizens' needs, the digital technologies' obsolescence, the lack of strate-

gic digital culture, costly, time-consuming, and inhospitable services, complex procedures, and bureaucracy.

Also, socio-political conditions refer to the political, social, and economic environment within which digital governance is implemented (Martínez-Córdoba et al., 2021). These conditions include economic inequality, political instability, cultural diversity, and the availability of resources that can play a crucial role in shaping the needs and expectations of citizens to embrace new technologies. As such, they also impact how governments operate and deliver services. Similarly, social norms and cultural values affect citizens' trust in the government and its ability to effectively implement new technologies (Robinson, 2020). These factors are critical in determining the success or failure of digital governance initiatives in the public sector. For instance, in countries with a high level of corruption and weak institutional frameworks, digital governance may be hampered by bureaucratic hurdles and resistance from corrupt officials who might be concerned about losing their jobs as a result of the adoption of new technologies (Xanthopoulou et al., 2022).

Similarly, in countries with weak digital infrastructure and low levels of digital literacy, the adoption of digital governance and new technologies may be slow or ineffective (Dias, 2020). Political leadership is another critical external factor that impacts the adoption of digital governance in the public sector. Political leaders can either facilitate or hinder the implementation of digital governance initiatives (Tangi et al., 2021). In countries where political leaders support digital governance, there is usually a higher level of commitment, funding, and resources allocated to these initiatives. On the other hand, in countries where political leaders are skeptical or indifferent to digital governance, the adoption of digital governance may be slow or nonexistent (Turner et al., 2022). Other external factors, such as international agreements and regulations, may impact the adoption of new technologies and digital governance in public administration (Orji et al., 2020). Due to patronage from powerful status quo interest groups and the concern over the political cost of change, there was a general lack of political support for change in Greece as a whole (Mylona & Mihail, 2020).

Internal issues include difficulties with leadership, organizational culture, time management, resource management, and human factor issues. Digital innovation in the public sector can either be hampered or facilitated by organizational culture and structure (Lokuge et al., 2019; Xanthopoulou et al., 2022). For instance, control and inflexible corporate cultures hinder the perception of innovation stimuli and inhibit innovative thinking and creativity (Bilal et al., 2018). This is because when both information perception and interpretation processes have been skewed in a specific direction, strict adherence to the rules at play can allow disparate thoughts and ideas to appear remarkably similar. Strong cultures are a significant barrier to innovation in Greek public organizations (Sahinidis & Kanellopoulos, 2010; Xanthopoulou et al., 2022), and they also impede public employees from being productive and raising their overall performance. Leadership also impacts digital governance adoption in the public sector (Laforet, 2014). Thus, top management and leadership need to practice various management styles and acquire knowledge to better deal with unforeseen difficulties and disruptions in order for an organization to be more effective and to inspire employees (Edmonson & Weberg, 2019; Al-Tkhayneh et al., 2019; Hoai et al., 2022).

Skills are also an essential internal factor in the adoption of new technologies as well as in successfully implementing digital governance (Brunetti et al., 2020; Orji et al., 2020). Investing in employees' digital skills is crucial now, when innovations like digital governance highlight the need for a more inventive and adaptable organizational culture, given the need for improvements and reforms in public administration. Public employees need to have the necessary skills to use and maintain new technologies effectively. Lack of skills can result in lower adoption rates, inefficiencies, and increased costs (Onyango & Ondiek, 2021). Regarding Greece, there is a lack of digital skills among public employees (Xanthopoulou & Plimakis, 2021; Mylona & Mihail, 2020; Bousdekis & Kardaras, 2020) since there is a lack of training in the field. The everyday routines and habits of persons who live in a bureaucratic culture, according to Clavel (1999), lead to safety and compliance; therefore, changing these working habits would cause worry and discomfort.

Another determinant of digital reforms is their contribution to the sense of safety (Filgueiras et al., 2019; Demir, 2022). Literature finds that adopting digital governance plays a vital role in the safety of services (Chen & Aklikokou, 2020). It positively impacts the sense of safety and trust in public services. For instance, Li and Shang (2020) examined the relationship between service quality, perceived value, and citizens' intention to continuously use digital public services. They suggest that higher service quality positively affects citizens' perception and intention to use e-government services. Wang and Teo (2020) also proposed the importance of service quality and perceived value, which can contribute to users' sense of safety and trust in public services, including those provided through digital governance. Transparency is also a term strongly related to digital reforms and is frequently considered one of the basic elements of effective and open governance. Digitalization allows governments to modernize public administration and cooperation with individuals and enterprises, fostering democracy, openness, accountability, and freedom (Effah & Nuhu, 2017). It also supports them in addressing the problems of inefficiency and bureaucracy in traditional public sector processes (Gil-Garcia et al., 2018). Citizens and businesses can easily access government information, thus enhancing the credibility and transparency of the provided services (Ølnes & Jansen, 2021; Karpenko & Osmak, 2018). It is worth noting that Greece is still weak in matters related to transparency and accountability of the public sector compared to other members of the European Union (European Commision, 2018), and this is strongly related to the slow processes of digital reform in Greek public administration.

In light of the above discussion, it is crucial to find and analyze the factors that impact the successful adoption and implementation of digital reforms in public administration. Within this framework, this study investigates the determinants of digital governance adoption within the public sector. This problem arises from the need for public organizations to enhance the quality of public services, respond to societal, economic, and technological developments, and leverage new technologies like blockchain to improve transparency, knowledge transfer, and citizen engagement.

Table 1. Research hypotheses

Hypothesis	Description	Path
H1	Quality of digital services (QS) positively relates to the adoption of digital governance (DGA) in the public sector	QS→ DGA
H1a	Quality of digital services (QS) positively impacts the safety and trust of public services (ST)	QS→ ST
H2	New technologies and BCTs (NT/BCT) positively impact the adoption of digital governance (DGA) in the public sector	NT/BCT→ DGA
H3	There is a relationship between external factors (EF) and the adoption of digital governance (DGA) in the public sector	EF→ DGA
H4	There is a relationship between internal factors (IF) and the adoption of digital governance (DGA) in the public sector	IF→ DGA
H5	There is a relationship between the adoption of digital governance (DGA) and safety and trust (ST) in public services	DGA→ ST
H6	The adoption of digital governance (DGA) in the public sector positively relates to the transparency (TR) of public services	DGA→ TR

Thus, this study aims to reveal and analyze the factors that impact the adoption of digital governance in the public sector. Based on the above considerations, the following hypotheses were formed:

H1: *Quality of digital services positively relates to adopting digital governance in the public sector.*

H1a: *Quality of digital services positively impacts the safety and trust of public services.*

H2: *New technologies and BCTs positively impact the adoption of digital governance in the public sector.*

H3: *There is a relationship between external factors and the adoption of digital governance in the public sector.*

H4: *There is a relationship between internal factors and the adoption of digital governance in the public sector.*

H5: *There is a relationship between the adoption of digital governance and safety and trust in public services.*

H6: *The adoption of digital governance in the public sector positively relates to the transparency of public services.*

2. METHODS

This paper adopts a perspective that concerns employees' perceptions (in total quality management, they are also referred to as internal customers) for all the structures and assumptions proposed in the conceptual model based on the hypotheses (Table 1). The conceptual model is suggested from the formulated assumptions (Figure 1).

The study explores the factors influencing the digital governance of the public sector but also the successful integration and acceptance of new technologies with an emphasis on blockchain, which is discussed through the testing of a current
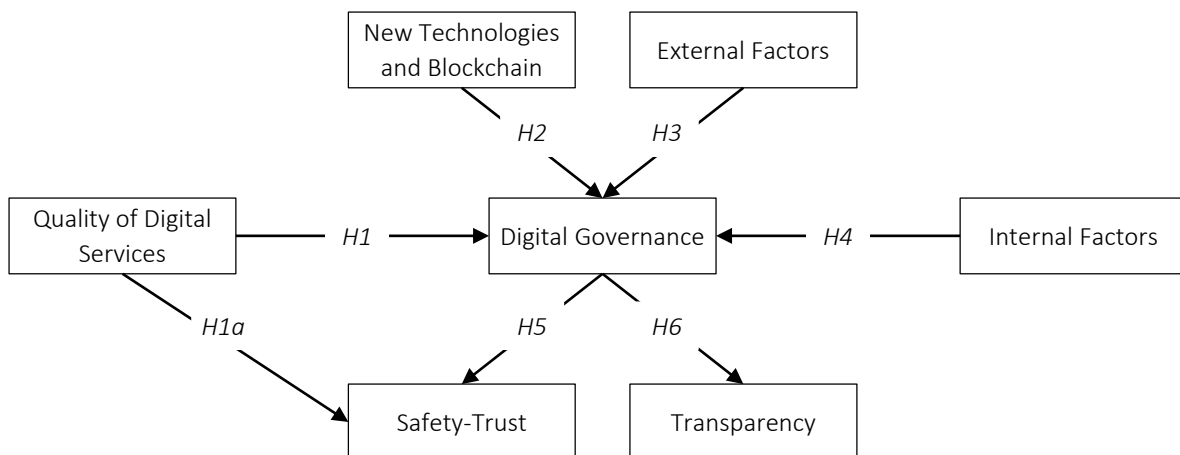
Figure 1. Conceptual model

theory, the validation of a developed conceptual model and the testing of relevant hypotheses. The study population comprises public sector managers mainly from the middle and upper hierarchical levels of the organization, as the newly entering managers have no previous experience in organizational methods and operations before the adoption of new technologies. The exclusion of newly entering managers is based on the assumption that they lack previous experience with the organization's methods, which might limit their ability to contribute relevant insights to the study. As a non-probability sampling technique, convenience sampling was utilized, in which units are chosen for inclusion in the sample because they are more convenient. The snowball technique was also used to boost the number of participants, as executives distributed the survey and interview questions among their peers. Existing literature suggests that there is no specific number for an appropriate sample size, as it depends on a number of factors (L. Muthén & B. Muthén, 2002). The sample size is 556 people from different organizations, such as courts, universities, ministries, and local government, who attended the postgraduate public administration program at the University of Cyprus. Table 2 depicts the profiles of participants.

Table 2. Sample demographics (*n* = 556)

Demographic characteristics	Respondents	(%)
Gender		
Male	155	27.9
Female	401	72.1
Age		
<30	35	6.3
>50	160	28.8
31-40	94	16.9
41-50	267	48.0
Education level		
High school	38	6.8
Master/Ph.D.	274	49.3
Bachelor	244	43.9

This survey uses a structured questionnaire as its measurement tool, which lets the study's participating government employees choose the best response from a list of a few possibilities. Therefore, the validity and reliability of the questionnaire developed was heavily influenced by the review of the relevant literature (Parasuraman et al., 1988; Crosby et al., 2016). All measuring items were evaluated using a five-point Likert scale. Different types of questionnaires are available in terms of how they are distributed (Etikan et al., 2016). Individual types include Internet-mediated questionnaires, mail questionnaires, and on-site delivery and collection questionnaires (Etikan et al., 2016). This study uses questionnaires mediated by the internet (online), which can be called online questionnaires (Nardi, 2018). Pre-testing of the questionnaire was conducted on 151 participants in a pilot study, of whom 109 (72.2%) were women and 42 (27.8%) were men. The pilot survey began in August 2020 and ended in June 2021. The results of this pilot study demonstrated the validity and reliability of the questionnaire's items and scores. A 39-item questionnaire was constructed to examine the factors that influence public units' adoption of digital governance (Parasuraman et al., 1988). The final survey was run from December 2021 to October 2022.

The proposed research model was analyzed utilizing maximum likelihood estimation and structural equation modeling (SEM). SEM is recognized as a legitimate technique for utilizing estimated regression parameters to examine the underlying postulated structural links between several independent and dependent variables since it combines the advantages of a measurement and structural models (Hair et al., 2012). Hair et al. (2012) state that SEM requires a sizable sample of at least 200 responses. Additionally, SEM with IBM SPSS Amos 24 version software was used. Concerning the measurement, the model allows the evaluation of latent variables reflecting constructs of interest. Noticeably, using the exploratory and confirmatory factor analysis, the dimensions for all six constructs, their reliability, convergent, and discriminant validity, were measured. When determining whether a measuring model is convergent, three accepted criteria are used: (1) all indicator factor loading values should be greater than 0.4 (Hair et al., 2012); (2) composite reliability (CR) should be greater than 0.6 (Bagozzi & Yi, 2012); and (3) the average variance extracted (AVE) of each determinant must be greater than 0.5 (Fornell & Larcker, 1981), depending on the measurement scale being used. Additionally, the square roots of AVE values discriminant validity were used to examine potential correlations across components (Fornell & Larcker, 1981). Their relationships were determined when the constructs had attained the nec-

essary measurement standards. This demonstrates the validity of the structural model, which is used to assess the direction and strength of the linkages between the theoretical constructs. Various metrics should be used to evaluate the goodness-of-fit model as a whole. Specifically, the values of the Tucker-Lewis index (TLI), comparative fit index (CFI), normed fit index (NFI), incremental fit index (IFI), adjusted goodness-of-fit index (AGFI), and goodness-of-fit index (GFI) (Hu & Bentler, 1999) should be greater than 0.90. The root mean square error of approximation (RMSEA) should be less than 0.05 (L. Muthén & B. Muthén, 2002).

3. RESULTS

In exploratory factor analysis, principal component analysis (PCA) and orthogonal rotation (VARIMAX) were used to assess the validity of the variables, categorize measurement items into latent factors, and ascertain component loadings. The correlation matrices' substantial relationships between the variables were shown by Bartlett's tests of sphericity (Chi-square = 3014.373, $p < 0.001$). The sampling adequacy (MSA) measurement ranged from 0.706 to 0.945, and the Kaiser-Meyer-Olkin (KMO) measure was 0.874, showing that both values were acceptable. These MSA values exceeded 0.50 (Hair et al., 2012). All detected indicators (Table 5) have standardized indicator factor loadings that surpass 0.5 and are statistically significant. The range of composite construct reliability (CR) is higher than the advised criterion of 0.6, at 0.690 to 0.789. Cronbach's alpha values, which range from 0.456 to 0.805 (Table 4), are considered sufficient for every single factor. All requirements for convergent validity are satisfied, as evidenced by the average variance extracted (AVE) values, which ranged from 0.431 to 0.566 and were thus very close to the 0.5 criterion. Also, Table 5 findings demonstrate that discriminant validity was preserved. Finally, the modification indices do not suggest any significant model modifications.

Therefore, 59.882% of the variance of the measurement items can be explained by the six latent components (Table 3). The 21 elements in the confirmatory factor analysis model correspond to the 7 underlying constructs. The findings show that the

goodness-of-fit is generally satisfactory because the measurement model's necessary standards are all met (Table 3, third column). As regards the structural model, findings provided in Table 6 constitute a good model ft. Precisely, all goodness-of-fit measures are conforming to the suggested thresholds.

Based on the structural model, 1 out of the 6 hypotheses was corroborated. The hypothesis that was not confirmed was related to the internal factors and their impact on the adoption of digital governance (i.e., H4). The quality of digital services has a strong positive impact on digital governance and safety-trust (H1: $\beta = 0.335$, $p < 0.001$; H1a: $\beta = 0.72$, $p < 0.001$). Regarding the internal factors, the executives' responses demonstrated that these factors did not significantly influence the adoption of digital governance. Next, new technologies, blockchain technologies, and external factors positively impact digital governance (H2: $\beta = 0.33$, $p < 0.001$; H3: $\beta = 0.20$, $p < 0.01$). The results indicate that both new and blockchain technologies significantly positively impact digital governance adoption (H2: $\beta = 0.33$, $p < 0.001$). Also, the finding reveals the importance of external factors (H3: $\beta = 0.20$, $p < 0.01$) in facilitating the adoption of digital governance. Digital governance has also a positive impact on safety-trust (H5: $\beta = 0.09$, $p < 0.1$). Finally, digital governance strongly impacts transparency (H6: $\beta = 0.38$, $p < 0.001$).

Table 3 outlines the measurement model for various constructs, such as quality of digital services, new technologies, blockchain technologies, external factors, internal factors, safety-trust, and transparency. Factor loadings, indicative of the strength of relationships between latent constructs and observed indicators, are provided for each item. Convergent validity is assessed through mean, standard deviation, composite reliability (CR), and average variance extracted (AVE), with generally favorable values observed. Reliability, as measured by Cronbach's α, indicates good internal consistency. The overall model is robust, with 59.882% of the total variance explained. These findings affirm the reliability and validity of the study's measurement model, offering confidence in the constructs' representation and measurement precision.

Table 3. Factor loadings, reliability, and convergent validity

Construct	Item	Loading	Mean	Standard Deviation (SD)	Composite Reliability (CR)	Average Variance Extracted (AVE)	Cronbach's α
Quality of Digital Services F1	1	.817	3.67	.835	0.827	0.498	0.805
	2	.814	3.48	.869			
	3	.629	3.90	.929			
	4	.571	3.47	.847			
	5	.646	3.28	.982			
New Technologies and Blockchain Technologies F2	1	.752	2.62	.885	0.700	0.443	0.456
	2	.516	2.69	1.054			
	3	.705	2.25	.907			
External Factors F3	1	.711	4.07	.812	0.690	0.527	0.558
	2	.740	3.58	1.055			
Internal Factors F4	1	.706	4.24	.709	0.747	0.431	0.665
	2	.700	4.43	.633			
	1	.720	4.28	.743			
	2	.465	3.87	1.022			
Safety-Trust F5	1	.622	3.45	.821	0.789	0.490	0.788
	2	.776	3.78	.834			
	3	.816	3.68	.805			
	4	.552	3.60	.827			
Transparency F6	1	.755	3.19	1.020	0.723	0.566	0.487
	2	.750	3.26	.864			

Note: Total Variance Explained = 59.882.

Table 4 describes the goodness-of-fit evaluation of a statistical model, comparing various measures against recommended values for both the measurement and structural models, indicating how well the model fits the data.

**Table 4.** Evaluation of model's goodness-of-fit

Measures	Recommended value	Measurement model	Structural model
χ^2/df	5.00	1.732	1.480
GFI	0.90	0.954	0.961
AGFI	0.90	0.934	0.946
CFI	0.90	0.963	0.974
NFI	0.90	0.918	0.926
IFI	0.90	0.963	0.975
TLI	0.90	0.951	0.968
RMSEA	0.08	0.036	0.029

Table 5 presents the square roots of the average variance extracted (AVE) and correlations among different factors (F1 to F6), providing insights into these factors' relationships and internal consistency within the model.

The structural model reveals the acceptance of 5 of the 6 hypotheses (Table 6). Standardized regression coefficients are reported, denoting the strength and direction of relationships between predictor variables and the dependent variable. Five out of the six hypotheses receive support (accepted), with statistically significant path coefficients. Specifically, H1, H1a, and H3 demonstrate positive and significant associations, substantiating their acceptance. However, H4 does not attain statistical significance. Additionally, H5 and H6 reveal positive but relatively weaker associations.

Table 5. Square roots of AVE and correlations

	1	2	3	4	5	6
F1	0.706					
F2	0.518	0.666				
F3	0.346	0.286	0.726			
F4	0.303	0.121	0.764	0.657		
F5	0.677	0.439	0.354	0.333	0.700	
F6	0.523	0.412	0.230	0.169	0.548	0.752
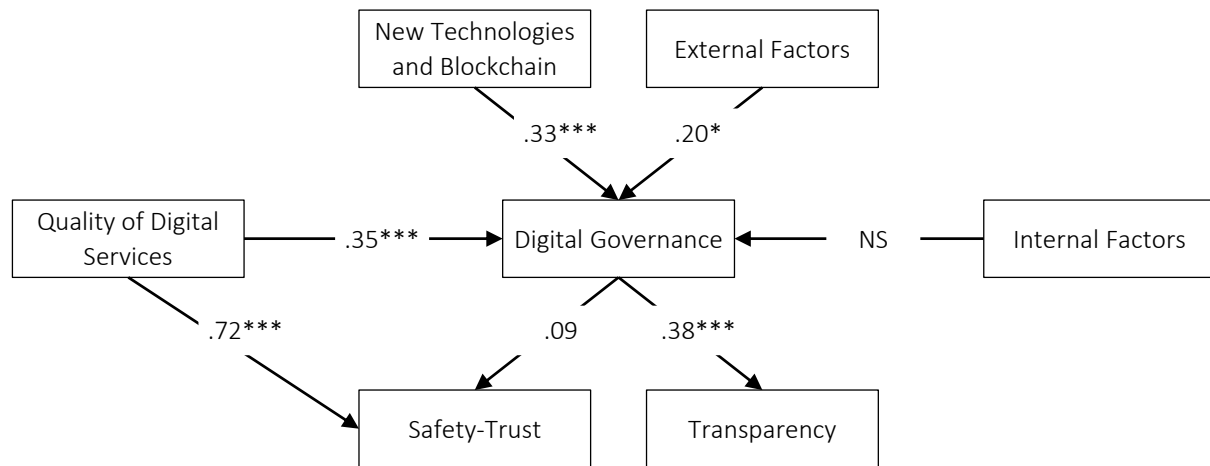
Note: p < .1, * p < .05, ** p < .01, *** p < .001; NS: Not significant.

Figure 2. Results of the structural equation modeling showing statistically significant paths

Table 6. Path coefficients (standardized regression coefficients)

Hypothesis	Path	Coefficient
H1	QS→ DGA	0.35***
H1a	QS→ ST	0.72***
H2	NT/BCT→ DGA	0.33***
H3	EF→ DGA	0.20***
H4	IF→ DGA	NS
H5	DGA→ ST	0.09
H6	DGA→ TR	0.38***

Note: p < .1, * p < .05, ** p < .01, *** p < .001; NS: Not significant.

Finally, the path diagram in Figure 2 with the standardized regression coefficients shows the degree and direction of correlations between the variables. The standardized coefficients elucidate both the magnitude and direction of the correlations between the variables. This visual representation enhances the comprehension of the complex network of relationships in the structural model, offering a comprehensive overview of how various factors contribute to the observed outcomes and reinforcing the statistical significance of these associations.

4. DISCUSSION

The majority of research hypotheses were confirmed. The exception is the internal factors' relationship with digital governance (i.e., H4). The first finding revealed that the quality of digital services has a strong positive impact on digital governance and safety-trust. This strong impact of quality of services on digital governance's adoption is in line with Sabani et al. (2023), Parasuraman et al. (1988), Nguyen et al. (2023), and AlHussainan et al. (2022). Surprisingly, although the literature argues that internal factors play an essential role in the adoption of changes, reforms and especially digital transformation, the responses of the managers in this study demonstrated that these factors did not significantly affect the digital governance's implementation (Lokuge et al., 2019; Xanthopoulou et al., 2022; Sahinidis & Kanellopoulos, 2010; Laforet, 2014; Edmonson & Weberg, 2019; Al-Tkhayneh et al., 2019; Hoai et al., 2022; Basyal & Seo, 2017; Lorentz et al., 2021; Brunetti et al., 2020; Orji et al., 2020; Mingaine, 2013). This can be attributed to various causes.

Resistance to change can be a significant barrier to adopting digital governance. Sahinidis and Kanellopoulos (2010) and Naranjo-Valencia and Calderon-Hernández (2018) reported similar results as they showed that organizational culture, when it is strong, with specific rules, precise and clear procedures, hinders innovation and the acceptance of change and reforms. A similar conclusion was observed by Xanthopoulou et al. (2022), Bousdekis and Kardaras (2020), Clavel (1999), and Sahinidis and Kanellopoulos (2010), which highlighted that in Greek public organizations, strong cultures prevent innovation and reforms. This result can be further attributed to the lack of digital skills in the Greek public administration (Bousdekis & Kardaras, 2020). To summarize, although internal factors are crucial for any reform,

in this particular case, this finding was not aligned with other studies (Laforet, 2014; Edmonson & Weberg, 2019; Al-Tkhayneh et al., 2019; Hoai et al., 2022; Brunetti et al., 2020; Orji et al., 2020) mainly due to the differences in culture and level of innovation and development in the public sector. As a result, overcoming cultural obstacles and improving digital competencies may be crucial for a successful digital transition.

Another finding is that new technologies and blockchain, as well as external factors, positively impact digital governance. This finding confirms Martínez-Córdoba et al. (2021), Robinson (2020), Tangi et al. (2021), Turner et al. (2022), Xanthopoulou and Plimakis (2021), Laukyte (2023), and Orji et al. (2020). The results indicate that both new and blockchain technologies have a significant positive impact on adopting digital governance in the public sector. This result supports the idea that leveraging new and innovative technologies is critical for improving government services and operations. New technologies, such as enhanced software applications, cloud computing, and artificial intelligence, can improve citizen involvement and overall efficiency.

Blockchain in identity management, procurement, and public records can result in more responsible and robust government services. Addison (2021) analyzed Malaysia, where the effect of new technologies was not related to motivating employees to promote digital reforms. Favorable sociopolitical conditions, such as government support for digital projects and public awareness campaigns, provide a climate suitable for digital transformation. Another explanation for this impact could be the strong ties between the government and the public administration in Greece. This means that the operations and decision-making processes of the public sector are inextricably linked to political leadership and government policy. As a result, political support, dedication, and vision for digital transformation significantly affect the successful implementation of digitalization efforts.

Moreover, digital governance also has a positive impact on safety and trust. This finding aligns with Li and Shang (2020), Wang and Teo (2020), Filgueiras et al. (2019), and Demir (2022), who underline that digital governance contributes to safety and trust in the public sector by enhancing data security, improving service delivery, promoting transparency, and facilitating citizen participation. The potential of digital governance to improve data security, optimize service delivery, promote transparency, and encourage public engagement has a beneficial impact. Governments may develop more secure and efficient procedures by embracing digital technology and new solutions, enhancing public confidence and trust in the services offered. Furthermore, the transparency and citizen participation enabled by digital governance practices leads to increased safety and accountability in the public sector, strengthening the notion that adopting digital governance is crucial for encouraging safety and confidence in public sector operations. On the contrary, digital governance did not demonstrate a significant relationship with safety-trust in other countries. For instance, Dehkordi et al. (2011), researching factors influencing the adoption of government to citizens (G2C) services in Iran, showed that trust was not a significant factor.

Finally, digital governance positively affects transparency, confirming the results of Karpenko and Osmak (2018), Ølnes and Jansen (2021), and Gil-Garcia et al. (2018). Governments may improve data accessibility and transparency by using digital solutions and technology, giving the public more visibility into public sector operations and decision-making processes. A transparent public sector increases public trust and accountability by allowing citizens to analyze actions and policies, resulting in more effective and responsible governance.

Considering the rejected hypothesis, future research can focus on a more detailed examination of public organizations' culture and organizational structure and their impact on digital governance. Also, a supplementary study on citizens' perceptions, both quantitative and qualitative, could lead to the identification of good practices as well as inhibiting factors that prevent the successful integration of digital governance in public administration. Also, other new technologies, such as artificial intelligence (AI) and their results in the public sector, would be interesting. Finally, future research should investigate the potential impact of cross-cultural variations when testing hypotheses using statistical data from different countries.

CONCLUSION

The purpose of the study was to examine the elements that influence public administration's adoption of digital governance. The findings showed that the adoption of digital governance is significantly influenced by the caliber of digital services, highlighting the importance of providing effective and user-friendly digital services to enhance public sector transparency. Furthermore, the adoption of new technologies, such as blockchain, has the potential to transform digital governance and improve service delivery by ensuring secure and transparent transactions. The present study also emphasized the role of external factors, including socio-political conditions and political leadership, in shaping the successful implementation of digital governance initiatives. Contrarily, internal factors such as organizational culture, leadership, and skills had no crucial role in facilitating the adoption of digital governance within public sector organizations in Greece. This highlights the importance of developing flexible and innovative structures and processes within public administration that will encourage the adoption of digital governance. Findings also revealed the positive relationship between digital governance and the safety, trust, and transparency of public services. By providing secure and trustworthy digital services, governments can enhance citizens' confidence in the public sector and promote transparency in their operations.

Overall, findings support the idea that enhancing the quality of digital services and embracing new technologies can play a pivotal role in advancing digital governance within public administration, leading to increased safety, trust, and transparency in the delivery of public services. However, the complex interplay of internal and external factors suggests that tailoring digital governance strategies to the specific context of each public organization is crucial for success, and additional study is required to fully comprehend these dynamics in the Greek public sector.

AUTHOR CONTRIBUTIONS

Conceptualization: Panagiota Xanthopoulou.
Data curation: Panagiota Xanthopoulou.
Formal analysis: Panagiota Xanthopoulou, Giorgos Avlogiaris.
Funding acquisition: Ioannis Antoniadis.
Investigation: Panagiota Xanthopoulou.
Methodology: Panagiota Xanthopoulou, Giorgos Avlogiaris.
Project administration: Panagiota Xanthopoulou, Ioannis Antoniadis.
Resources: Panagiota Xanthopoulou.
Software: Giorgos Avlogiaris.
Supervision: Panagiota Xanthopoulou, Ioannis Antoniadis.
Validation: Panagiota Xanthopoulou, Ioannis Antoniadis, Giorgos Avlogiaris.
Visualization: Panagiota Xanthopoulou, Ioannis Antoniadis, Giorgos Avlogiaris.
Writing – original draft: Panagiota Xanthopoulou.
Writing – review & editing: Ioannis Antoniadis, Giorgos Avlogiaris.

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