

## Article

# Drivers and Outcomes of Digital Transformation: The Case of Public Sector Services

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**Abstract:** Governments are altering how they operate to enhance the provision of public services, be more successful and efficient in their plans, and accomplish goals such as greater transparency, interoperability, and citizen pleasure. There are, however, limited studies about how public sector managers are currently identifying digital transformation in their own day-to-day practices, how they are implementing digital transformation projects, and what their expected results are, aside from the reports provided by consulting firms. The aim of this article is to present a case study in order to gain an understanding of the current expectations that public managers have regarding the implementation of digital transformation projects, as well as the outcomes that they anticipate these projects will produce. A qualitative analysis was conducted based on experts who were involved in digital transformation projects with a thorough understanding of government decisions and in-depth knowledge of execution procedures. Based on the results derived from interviews, this paper aims to support managers in examining the barriers of digital transformation in the public sector in order to improve this process.

**Keywords:** digital transformation; digitalization; digital government; change management; digital services



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## 1. Introduction

Citizens' expectations of the capability of public administration bodies to provide qualitative digital services are changing due to digital transformation strategies implemented in industries other than the public sector. The mode of operation that governments use is undergoing significant transformations to enhance the delivery of services, become more economical and productive in their designs, and accomplish goals such as increased interoperability, transparency, and citizen satisfaction [1].

The use of more time-honored methods of public management in organizations dates back several years. The public was not given a choice regarding the service provider because the public services that were offered were highly bureaucratic and compartmentalized. Information and communication technologies (ICTs) were retrofitted onto pre-existing organizational structures and procedures without giving any thought to how these aspects of the organization could be made more effective [2].

In this setting, modifying the behavior of public organizations and developing cooperative relationships between governments are difficult tasks fraught with obstacles. In most cases, it is simpler for governments to establish their e-government presence by developing (national) web portals. However, this has merely resulted in the information being reorganized without any significant transformation to pre-existing back office procedures or information systems and new technologies [2].

Current studies [3,4] highlight many complex and multi-faceted challenges that face significant changes in the public sector. In order for the public sector to undergo digital transformation, new forms of collaboration with various stakeholders, new organizational structures for service delivery, and new kinds of relationships must be developed. In addition, both scholars and practitioners have hypothesized that if e-government is to

be implemented to successfully redesign public organizations (i.e., minimize costs and reduce waste, increase accountability, effectiveness, transparency, and service quality), governments will need significant changes in fundamental organizational processes that span boundaries in a way that has never been seen before in the public sector [4,5].

Therefore, the challenge that lies ahead is very similar to what was seen in the private sector in the early 1990s with business process re-engineering. At that time, in order to achieve significant improvements, a significant re-engineering of organizational processes was required [6]. However, there are limited studies regarding the manner in which public organizations are currently identifying digital transformation in their day-to-day tasks, how they are implementing digital transformation projects, and what the anticipated results will be.

This is consistent with a large number of criticisms, such as the statement made by Hyytinen et al. (2022) [7], who claim that the various e-government models' projections seldom ever match actual data because the definitions of the concepts themselves lack an empirical grounding. This is in line with the criticisms that have been leveled against the concept of e-government. Before beginning change initiatives that are presented as part of e-government programs, government agencies face the significant challenge of carefully considering and addressing the key change barriers and challenges.

Therefore, the aim of this article is to present a case study in order to gain an understanding of the current expectations that public managers have when it comes to the implementation of digital transformation projects, as well as the outcomes that they anticipate these projects will produce.

The research questions of this article are the following: what are the driving forces behind the transformation of public administrations? and what is the output, the outcome, and the impact of the transformation that public administrations are undergoing? A qualitative analysis was conducted based on 14 experts, who were involved in digital transformation projects, with a thorough understanding of government decisions and in-depth knowledge of execution procedures.

The structure of this paper is as follows: the theoretical background on digital transformation is provided in Section 2, the methodology is represented in Section 3, Section 4 represents the analysis of the results, and Section 5 discusses the findings, as well as limitations and avenues for future researchers.

## 2. Theoretical Background

At the same time that practitioners are attempting to conduct a comprehensive approach to e-government that goes beyond the simple digitalization of current offline processes, the goal of academics is to comprehend how and why certain projects succeed or fail [8–12]. Digitalization efforts show significant improvements for organizations in the public sector to become more efficient and effective in their processes and outcomes [13]. However, it is necessary to simply not pay attention to the advances in existing technology in order to achieve these goals.

The existing studies on the significant changes in processes that can be a result of digital transformation approaches are limited. The majority of the time, related terms such as e-government, transformational government, or digital government are used, which causes the meaning of these various approaches to be confused with one another. The examination of how public organizations use new technologies in order to increase service delivery, transform processes, and increase value, is one of the phrases that are interrelated and share common ground with the other concepts [1].

The term “digital transformation”, which was borrowed from the private sector, is most commonly linked with the requirement to make use of ICTs in order to maintain competitiveness in the digital age, which is characterized by the delivery of services and products both online and offline. Standardization is seen as a way to increase both the customizability and the automation that can be achieved through online service transformation [14]. Some scholars consider digital transformation to be a method of remaking

business models in accordance with the requirements of customers through the application of new technologies [15].

### *2.1. Digital Transformation in the Public Sector*

The term “digital transformation” has been used to describe the majority of the research that has been carried out on changes in service delivery within the public sector. In general, the attention is not paid to the development of new business models but mainly on efforts to increase the efficiency and accessibility of public services for citizens. This is because the creation of new business models is not the primary concern of the public sector [16]. Many researchers have paid attention to digital transformation in the public sector over the past two decades and have understood it in many ways. In their study, Rooks et al. (2017) [17] differentiate between broad and narrow definitions of the public sector. While some definitions of the public sector place more of an emphasis on the usage of new technologies to make government information accessible to citizens, others place more of an emphasis on the usage of new technologies to make public services accessible to citizens. Other definitions put an emphasis on interaction with citizens through the use of ICTs [18,19].

The question of whether or not the public sector will have a transformative impact on organizations and the environments in which they operate is still open for debate. The advantages of digital transformation are primarily concentrated on the enhancement of services and the delivery of those services, which ultimately results in an increase in the effectiveness of the public sector [20–22]. Theoretical models that focus on the development of digital transformation within public organizations argue that in the later stages of e-government, there will be a greater emphasis on the public sector as a strategic business tool [23].

In the public sector, managers direct their attention outside of the public sector and account for how the project will impact their stakeholders. The literature that will be discussed in this article demonstrates that studies regarding the public sector concentrate primarily on digital transformation and that this change focuses primarily on transitioning service delivery from offline to online. Despite this, however, the research does not appear to be concerned with rethinking or re-evaluating the purpose and style of service delivery itself. In addition, analyses of digital transformation frequently center on how technological advancements are implemented, most prominently the utilization of the Internet to carry out service provision.

The problems that have been highlighted have been around for some time. Janowski (2015) [24] comes to the conclusion that digital transformation only causes change within the organization, whereas digital transformation changes relationships with outside parties. Meijer and Bekkers (2015) [16] highlight the fact that studies in the public sector pay attention to incremental change initiated through the use of new technologies. Tassabehji et al. (2016) [25] contend that digital transformation aims to increase effectiveness in service delivery. According to Tassabehji et al. (2016) [25], more fundamental shifts occur as a result of changes in institutions that are made possible by technological advancements.

Early glimpses of the digital transformation of services in the public sector can be seen, e.g., the shift from paper-based to digital government has already gone through many stages that were initiated by policy transitions. These policy changes are frequently tied to waves of ideological trends in public policy and public management [23]. The majority of efforts, on the other hand, should be classified as transitional. This refers to the process of moving offline administrative acts 1:1 into online digital services without rethinking either the service or the processes that lie beneath it. The literature uses terms such as digitization (downloading forms online), digitalization (filling out forms online), and digital transformation (full service delivery online) interchangeably, and most of the time, they only concentrate on the first two functions. This is not surprising.

### *2.2. Digital Transformation and Organizational Structure*

The need to enhance service delivery and to become more effective is something that public administrations are well aware of, in order to achieve goals such as improved integrity, transparency, and citizen participation [26,27]. The use of digital tools not only

makes it possible for public administrations to alter the way in which they carry out their tasks, communicate, and provide services, it also has the potential to have much more far-reaching effects, such as altering the organizational structure or engaging citizens and other stakeholders in the co-development of public services [23,28].

The literature on e-governance discusses how changes in relationships with citizens and other partners can be influenced by technology. According to Meijer (2015) [29], the implementation of e-governance results in a more active role for citizens. Citizens and other external stakeholders are viewed as co-producers, rather than as customers, of government services. Luna-Reyes (2017) [30] examined how technological advancements, such as the development of platforms for electronic petitioning or the utilization of social media, made extensive citizen participation possible. Other types of research investigated the effect that e-governance can have on democratic representation and democracy itself [31–33].

### 3. Methodology

A case study approach was adopted in this paper, in order to provide an analysis for a specific department in the public sector that implemented the digital transformation process. A case study is an approach that aims to present an understanding of the dynamics based on a single setting. This approach involves either single or multiple cases and combines either qualitative or quantitative data collection methods [34–36]. This approach has been implemented because little is known about the impacts, the outcomes, and the main reasons of digital transformation in the public sector.

This paper analyzes the digital transformation process in a specific department in the Greek public sector. The Ephorate of Antiquities is responsible for the conservation and protection of antiquities; the scientific research, the discovery, and the preservation of antiquities and monuments; as well as the execution of any archaeological project, conservation, repair, and restoration, of monuments and archaeological sites. This department is part of the Ministry of Culture.

As a result, we chose experts who would grant us access to in-depth insights from experts who are directly involved in digital transformation projects and who are likely exposed to the research field in their everyday work environments. We used expert interviews as our mode of inquiry to gather information directly from the persons involved in digital transformation processes, providing a comprehensive overview of governmental decisions and in-depth insights into implementation strategies. Through the use of expert interviews, we explored their perspectives, as well as their privileged access to decision-making processes and individuals as representations of a wider domain, such as the organization.

The sample selected is defined by its ability to provide the richest and most relevant information. The decision to use this sample permits a thorough investigation and comprehension of the problem under investigation. The researchers focused their investigation on a select few public sector actors who are most pertinent to the subject at hand. Since these individuals are actively involved in digital transformation projects, and are likely exposed to the primary phenomenon we are researching in their real-life contexts, we chose specialists who allowed access to in-depth insights from these individuals. Using the casing approach, we may produce the data required to identify any variations, as well as the many categories or dimensions, of the core concept from the viewpoint of the experts.

In total, 14 managers in the public sector in Greece were interviewed. They are involved in digital transformation projects and they developed strategy and policy for the implementation of these projects. They are known to have made assertions about the general vicinity of digital transformation in, and have specialized knowledge and experience as a result of their operations or commitments, or as a result of their involvement in formulating digital strategies [1]. The standard duration of each interview was 60 min with a scope of 50–75 min.

The questions were formulated in an open-ended manner and were derived from the previous research that had been conducted [1,2]. The following categories have been

assigned to the questions: In the first part, we asked the interviewees open-ended questions about their experience and background, in order to get a sense of their level of expertise. Questions pertaining to the reasons of digital transformation are covered in the second part. Part three includes questions regarding the dimensions, the processes, and the outcomes of the digital transformation process.

The data were coded, and thematic analysis was conducted based on Braun’s and Clarke’s (2006) [37] guidelines. Open coding looked at the transcripts for topics posed during the interviews. Secondly, selective encryption was implemented. Selective coding contains patterns within similar concepts. Selective coding was intended to encourage further elaboration of the data while making the relevant inferences [38,39]. All interviews in this study were subject to member checks, where each interviewee obtained their verbatim transcript to be reviewed for consistency. Once the transcripts were confirmed to be correct, they were analyzed. Although generalizable findings are not the primary aim of this paper, transferability is nevertheless important. The data collection and analysis processes were carefully recorded to allow other researchers, if they wish, to adopt similar processes [38].

In order to evaluate the data, a qualitative content analysis [40] was carried out, utilizing a bricolage of deductive concept-driven and inductive data-driven coding techniques. Its goal was to identify all components that could be considered relevant to the study’s issue. These were divided into categories (the study’s main thematic emphasis areas), dimensions (questions covered in the interviews), and themes (different themes arising as responses to the interview questions).

As we had lengthy discussions, we decided to expand the list so that the subcodes listed below would emerge from the data. These subcodes can be characterized as process codes, as they display the reasons and conditions under which particular objects are transformed in a particular way to achieve a particular goal.

- Reasons: What are the driving forces behind the transformation of public administrations?
- Dimensions: What exactly will be changed?
- Processes: What are the different ways that public administrations are evolving?
- Output, outcome, and impact: What is the output, the outcome, and the impact of the transformation that public administrations are undergoing?

Figure 1 presents the classification of codes.

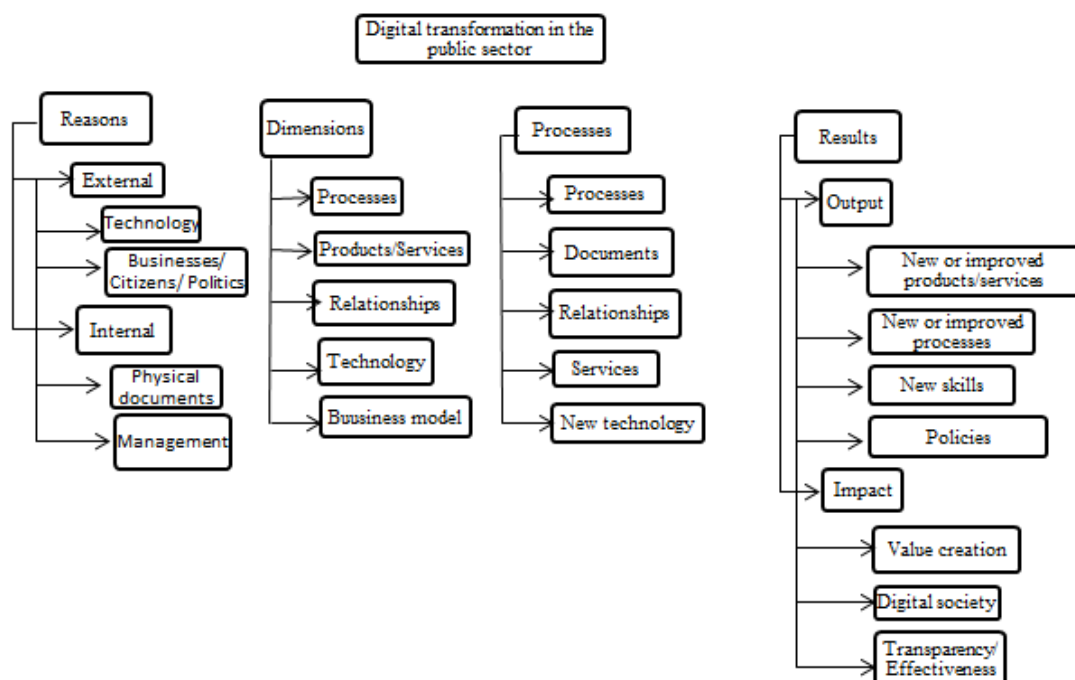


Figure 1. Classification of codes.

## 4. Results

### 4.1. Reasons

Most of the interviewees argued that pressures from the external environment of public organizations, such as citizens, policies, and technology, are significant drivers that impose digital transformation. Some additional factors that promote digital transformation included the digitization of documents and any file that still exists in physical form. Finally, another influencing factor was the management of public organizations. Table 1 presents the percentiles for each of these reasons.

**Table 1.** Reasons for digital transformation.

External	
Technology	71.4%
Businesses, citizens, policies	64.2%
Internal	
Physical files	50.0%
Management	21.4%

*“There are many reasons that lead us on the path of digital transformation. The main reasons refer to the citizens. Today, many people choose digital services because they save time and money. Therefore, we should increase the effectiveness of public services using new technologies. Another reason is the policies implemented by each government. Digitization in Greece may be in its infancy. However, it is something that is coming, so we cannot stand still. Finally, internal factors have a great influence. Changing the physical file to a digital one may not be something imperative yet, but it can only bring benefits and it may cause changes to public processes”.*

Interviewee 1, CEO in the public sector

### 4.2. Dimensions

The dimensions that tend to be transformed in the public sector are mainly the processes that take place in public organizations, their business models, the use of technological tools, and the services they provide to citizens. Table 2 presents the percentiles for each of these dimensions. The majority of experts noted that the digitalization of processes is their main priority (42.8%).

**Table 2.** Dimensions for digital transformation.

Processes	42.8%
Services	28.5%
Relationships	14.2%
Technology	7.14%
Business model	7.14%

*“With the digital signature and circulation through an electronic protocol, the time for the production of a document has been reduced so that it fulfills its purpose immediately. Furthermore, our main concern is the redesign of certain processes and their optimization”.*

Interviewee 2, CFO in the public sector

Some other dimensions that seem to be changing refer to the services provided inside and outside public organizations (28.5%), as well as the relationships between citizens and organizations (14.2%). The increase in service quality and effectiveness are some of the key features that are rapidly changing and greatly facilitate the work of public administration.

*“The relationships we have with the citizens, as well as with other organizations, play an important role in optimizing the existing situation, as well as the services we provide to the public. The increase in service quality helps us redesign processes and the development of services in our organizations. The availability, ease of use and understanding by all interested parties result in more efficient development of public services”.*

Interviewees 3 and 12, CEO in the public sector

*“Business models are influenced by many factors, and it is not clear how they should be transformed. Regarding technology, it needs specialized knowledge and alignment with external factors for this type of change. More specifically, such changes are not easily applicable to our organization due to the external factors that are directly related to public services”.*

Interviewee 4, CFO in the public sector

#### 4.3. Processes

The process of digital transformation includes the digitization of processes, files, changes in the development of services, the use of new technologies, and the development of new skills. It is obvious that new technologies and the digitization of processes are linked. The majority of respondents claimed that new technologies helped digitalize processes. An example is the forms of documents that have been created in electronic format and their direct use by citizens, but also by the public administration itself. Table 3 presents the percentiles for each one of these processes.

**Table 3.** Processes of digital transformation.

Processes	28.57%
Technology	28.57%
Documents	14.28%
Relationships	14.28%
New skills	7.16%
Services	7.14%

*“As a result of the digital transformation, we primarily expect more efficient services for citizens. This is the concept of the public sector. Forming some services or processes, time-consuming and complex digital transformation and shrinking or even eliminating them makes our work easier and more targeted”.*

Interviewee 5, CEO in the public sector

*“We live in a digital society with demanding citizens and we must follow their dictates. Security, immediacy, and ease of use of the provided services should be a primary goal for public services. The public administration must focus on efficiency in terms of its benefits to society, and this happens because of the external pressures it receives from citizens and external factors. This is in contrast to the relations between public services among themselves, which are mainly influenced by internal factors”.*

Interviewees 6, 7 and 13, CIO in the public sector

#### 4.4. Results (Output and Impact)

According to the interviewees, digital transformation focuses on long-term impacts. Re-engineering, transparency, and digital society are the desired impacts that digital transformation should have on an organization. Transparency will increase the level of trust for public services. Finally, a significant output of digital transformation is the minimization of complex services and bureaucracy for citizens. Table 4 presents the percentiles for each one of these results.

**Table 4.** Results of digital transformation.

<b>Output</b>	
New services	21.42%
New processes	14.28%
Policies	3%
Relationships	2%
<b>Impact</b>	
Re-engineering	14.28%
Transparency	14.28%
Digital society	7.14%

*“The change cannot be seen immediately. Old tactics cannot be transformed by the use of new technologies. The new skills that will arise during this transformation will be able to give long-term benefits”.*

Interviewees 8 and 14, CEO in the public sector

*“Regarding transparency, a typical example is the development of an e-Procurement platform, where all tenders for public sector projects or assignments appear on a common platform. Anyone who is included in this platform can submit the most economically advantageous offer for any project, tender, or assignment. Through this platform, each prospective contractor can compete on equal terms with others. We have to evaluate if they meet the technical specifications and if they offer the most advantageous offer on behalf of the public. Therefore, it is difficult to be flexible with third parties known to us”.*

Interviewee 9, CFO in the public sector

*“Another example is the platform called Diavgeia. On this platform, the results of announcements, tenders, as well as financial transactions of the public with the respective contractor or citizen are posted. The development of this platform and its connection with ERP for public services makes it immediate and therefore provides accurate data. As a result, or any, anyone who makes a financial transaction and believes that his or her interest is affected can file an objection”.*

Interviewee 10, CFO in the public sector

*“We primarily expect more efficient services for citizens. This is the mission of the public sector. Redesigning some complex services or processes through digital transformation and shrinking or even eliminating them makes our work easier and more targeted”.*

Interviewee 11, CEO in the public sector

## 5. Discussion

In the past, numerous research avenues have been pursued to investigate the role that technological advancement plays in the transformation of organizations within the public sector. Many empirical studies can be found in the e-government field, which is predicated on theoretical models, in order to analyze the processes involved in e-government transformation [16]. However, other types of theoretical models that provide a larger picture of the structure of public administration and its working methods offer a better fit to our findings since they cover a wider range of ICT-related topics than the e-government research stream does. This is because e-government research focuses on how ICT can be used to improve government operations [1,41].

The findings that have been presented here, which are the results of interviews with industry professionals reporting on their tasks, demonstrate that it is essential to think about digital transformation as an all-encompassing organizational strategy, as opposed to one that merely makes forms available online or the transformation from analog to digital public service delivery. This is because the findings have shown that it is not enough to simply make forms available online. The process of digital transformation is one that is



mainly impacted by a variety of external drivers, such as the adoption of cutting-edge technology by various stakeholders within public organizations.

It is uncommon for experts to be able to describe what a digitally transformed public organization might look like, despite the fact that they have a general idea of what the potential end result of digital transformation might be. This demonstrates that digital transformation is considered to be a process rather than a project with a measurable and defined end status, as well as a fixed budget, in contrast to previously structured e-government projects that had a commencement date and a completion date, as well as a quantifiable and characterized end status. Instead, digital transformation is an ongoing process that calls for frequent adjustments to be made to the company's procedures, products, and services in order to meet the requirements of external stakeholders. It is likely that this will result in improved relationships between managers and other stakeholders, increased satisfaction among citizens, and most importantly, a transformation in the organizational structure of bureaucratic institutions.

According to the findings of the expert interviews, the goal of public administrations is to demonstrate that they are able to respond and adapt to changes in the environment, such as an increase in the expectations of citizens for the efficiency and effectiveness of online services, by adopting ICTs. For example, in Norway, the government encourages the use of Artificial Intelligence in public administration in an effort to set the bar for creating dependable and humane solutions. In the summer of 2018, the Norwegian Labour and Welfare Administration debuted a chatbot to respond to citizen enquiries. Since then, the chatbot service has continued to be improved. The chatbot has been managing queries equivalent to 220 service agents at times of high demand. Finding new methods to recombine available resources to improve public service delivery requires combining lessons learned from chatbot-human interactions [42]. The public sector faces a number of unanswered problems, which presents chances for new human–Artificial Intelligence interactions to be used to execute service activities [43].

Other researchers highlight that, despite the potential of big data, very few organizations are adept at utilizing the information that is currently available in their operating systems. Organizations must alter their structure of decision-making in order to fully utilize data. Senior managers must adopt evidence-based decision-making, combine data management approaches, and create new jobs that are analytics-focused, in order to meet the difficulties of the digital transition [44]. Digital transformation enabled constant connectivity between objects and people, and allowed generating and processing data in new manners [45].

Managers in public organizations are undergoing fundamental shifts and are working toward the goal of providing online services that are user-friendly, trustworthy, and secure. Furthermore, when managers in public organizations are acting on their own—whether as a result of pressure from the internal environment or public servants' dissatisfaction regarding existing services—digital transformation does not only concentrate on citizen-oriented artifacts and processes. Instead, managers are moving forward with a process of change that will encompass both the bureaucratic and organizational structure. The competencies of public managers, leaders, and citizens, as well as their mentality toward the delivery of public services, need to be addressed and altered in order to achieve an approach that prioritizes customer satisfaction with the provided goods and services. When this occurs, the focus of public administration shifts away from modifying the services themselves and toward reworking the relationships with the people they serve.

Awareness of the demands placed on the organization by its users, along with newly developed technology, is what drives organizational change. Changes in the environment and the need for transformations made by various stakeholders are seen as the primary drivers of transformation in the public sector. Despite the fact that the findings show that public administration needs to change, the need for administrations to improve services while also adjusting to the new requirements and technologies is something that is not lost on them. Pre-digital enterprises frequently need to restructure their entire organization,

business strategy, and processes when they incorporate digital technology, in contrast to born-digital companies such as Alphabet, Amazon, or Tencent. This finding was supported by Chanas et al. (2019) [46], who presented the digital transformation process of a non-digital organization.

There is still an approach that prioritizes conservatism and caution, which is in direct opposition to innovative business approaches and the expectations of stakeholders. In contrast, Mergel et al. (2019) [1] did not address the pressures from internal and external environments that initiate organizational change in a comprehensive manner. However, they mentioned that public organizations are starting to use ICTs in different ways, which can be seen as a form of external pressure.

The research conducted by Dunleavy et al. (2006) [41] relied on two different sources of pressure that ultimately result in changes made within the organization. On the one hand, it is required to roll back and develop the transformations that have been made in the government, such as the fragmentation of government agencies and the outsourcing of core government functions to the private sector. However, on the other hand, it is necessary to continue these changes. Additionally, since private companies have already implemented the newest information technologies, their expectations of the government and the administrative system are significantly different. In contrast to these ideas, we have found that the type of pressure affects the way digital transformation is implemented. Whereas pressures from the internal environment cause a more comprehensive transformation in the organization, such as a transformation in organizational structure, pressures from the external environment cause the digitalization of processes and services.

The process of formulating a goal that can be accomplished is one of the more challenging aspects of digital transformation. The examination of the findings reveals the importance of making a distinction of the highest order between outputs, impacts, and outcomes. It is difficult to determine what the short-term and long-term effects of digital transformation are going to be because these terms are so frequently and interchangeably used by industry professionals and academic researchers. In addition to this, it makes it more difficult to assess whether or not the transformations have been implemented, and to determine what the effects of transformation are. The findings of this study indicate that digital transformation is primarily understood in terms of its impact, which is frequently long-term and focuses on qualitative rather than quantitative aspects, both of which can be challenging to measure.

There is a predominance of an approach that is based on technological determinism. This approach asserts that the usage of digital tools and the digitalization of processes lead to improved services and processes, the organization's ability to change, and additional positive effects such as minimizing costs, contributing to society, and strengthening democratic principles. Therefore, it is required to consider and assess the extent to which ICTs are able to accomplish such goals, and to determine what the additional benefits and consequences are that follow the development of ICTs and transformations that have been made.

Furthermore, although the digital transformation of the public sector holds the promise of change, there is no guarantee that it will result in the desired improvements. Change on a holistic scale necessitates organizational shifts, which are made possible by the development of new technologies. According to the findings of our research, it is essential to transition organizational services and processes from analog to digital form. However, this change will result in the production of new organizational services. A deeper level of organizational change is required in order to achieve long-term benefits, such as an increase in service delivery or an increase in the accountability or responsibility of organizations operating in the public sector. This organizational change also includes a shift in the bureaucratic structures of the organization.

According to the results, the most significant barriers are the training and education of employees in order to allow them to use new technologies and develop digital skills. It is necessary to create a culture of digital transformation to increase the adoption of digital tools. There is a need for a shift in the bureaucratic structures of the organization. Therefore,

the effectiveness and the quality of public services will be increased and citizens will be more satisfied. Furthermore, a significant output of digital transformation will be the minimization of complex services and bureaucracy for citizens. Managers in the public sector have to understand the significance of digital tools and the expected benefits for their organizations.

## 6. Conclusions

### 6.1. Contribution

We broaden the environment of the organization by taking into account citizens as significant stakeholders in the transformation process and by including the reasons that organizations undergo change. Because we contend that technology is the impetus for change and has an effect on organizational behavior, we evaluate the role of technology in a manner that is more straightforward, albeit possibly more constrictive. The implementation of technology does not have an effect on the organization; rather, the organization is transformed as a result of the incorporation of technology into the process of providing services to customers. The terms “output”, “outcomes”, and “impacts” are used to define the results. According to our point of view, organizational transformation is the end result of the process that it entails. This process includes the development of new services and procedures as an integral part of the day-to-day work of public administration as well as interactions with citizens, which in turn change the relationships that exist both within the organization and with its stakeholders.

The provision of digital services can be seen as a key tool for enhancing value generation for citizens within the framework of digital transformation. Utilizing technologies such as data analytics, the Internet of Things, artificial intelligence, cloud native applications, social media networks, mobile connection, etc., digital platforms let organizations provide services and products more effectively. Digital platforms enable data sharing and interchange across many organizational players in order to create multifunctional digital services. Thus, for the benefit of citizens and organizations, traditional services are made more efficient through the use of digital systems and technology known as digital platforms [47].

Generally, the implementation of “citizens’ expectations” can be referred to as public value in public sector digital transformation activities. The several types of value include societal value, such as increased transparency, economic value through time and money advantages as a result of enhanced administrative efficiency, and citizen value by fostering improved interactions with citizens [48]. According to Twizeyimana and Andersson (2019) [49], attaining public value in e-government should be interpreted as the capacity of e-government systems to provide improved services to citizens, improved government efficiency, and social values such as inclusion, democracy, transparency, and participation. Major concerns that nations are currently facing include sustainable urban growth, maximizing economic possibilities, social inclusion, and reducing environmental damage [47]. Studies on sustainability have conclusively shown that companies and communities cannot move toward sustainable development without cooperation and competition [50].

This paper makes a contribution to the process of digital transformation. These insights can be evaluated in the future. Technology makes change possible. However, for an organization to experience the long-term benefits of transformation, the organization itself needs to be the one to implement the necessary changes. We demonstrate the active role that public administrators play and the responsibility that falls on their shoulders to maintain the change over the long term. The knowledge obtained here is representative of how people currently operate in government at all levels and how people who collaborate closely with the government carry out digital transformation projects work. In this paper, we provide insights into the significance of determining the main concepts of digital transformation and linguistic clarity. Additionally, we use the empirical data to differentiate the concept from existing approaches that have been used in the e-government area.

## 6.2. Limitations and Suggestions for Future Research

In order to improve transparency and integrity in our results, reporting, and distinguishing between the experts' views and opinions in our research, we present evidence in the form of direct quotes from the experts who were the focus of our study. We demonstrate that we functioned with a large, albeit limited, sample that contained a fair amount of stratification in terms of context, level of government, and geographic location. We simultaneously encourage future researchers to evaluate the generalizability of the results. This is because we worked with a sample that varied in terms of context, level of government, and geographic location.

Additional research has to be implemented to understand the specifics of the digital transformation approaches utilized by each country, the manner in which analogous public services are digitally transformed, and the appearance of a particular digital transformation project within public administrations. Future research is required in order to differentiate digital transformation approaches in practice in relation to the digital agendas of respective organizations. This will help determine how the process of digital transformation varies depending on the size of the country, its history, and the present context, as well as how the various aspects of these factors may have an effect on the efforts that are being made to transform digitally.

The complexity of the service delivery process itself may also result in differences in the manner in which digital services are provided. Therefore, additional research is required to comprehend the impact of the character of the service on the level of the process. In order to understand how the digital transformation leads to the creation of public value, additional research and analysis is necessary to delve deeper into specific services and the requirements of users.

According to the findings of this research, the process of digital transformation within the public sector is not a mission that should be accomplished solely by managers. Citizens are no longer merely seen as customers of public administrations; rather, they are regarded as partners that contribute to the transformation of public organizations by actively participating in the delivery of public services made possible by ICTs. This shift in the nature of the relationship between citizens and managers suggests that citizens play a more active part. It is much simpler for a public organization to realize its long-term objectives and have a significant impact, such as the generation of value, if it can obtain a higher level of participation from its constituents. However, only a select few industry experts have brought up the possibility of a shift in relationships and an increased emphasis on citizens. This proposed link has scant empirical grounding so far and, as a result, needs further investigation in subsequent research that will hopefully be conducted.

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