

Developing a Framework for Digital Government Transformation for Policymakers¹

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ABSTRACT

In the age of rapid technological advancement, digital transformation has become imperative for government bodies and policymakers to enhance efficiency, transparency, and citizen engagement. However, the complexity of integrating digital technology into the public sector poses significant challenges. This research paper proposes a contextual framework designed to guide policymakers through the intricacies of digital transformation. The framework is developed through a multidisciplinary approach, combining insights from information technology, public administration, and organizational change management.

The proposed framework is structured around four core pillars: organizational elements, power dynamics, management role, and external factors. Each pillar is discussed for effective implementation. The importance of building robust and secure digital infrastructure is emphasized as the foundation for transformation, alongside fostering digital literacy among both policymakers and the public to ensure inclusive participation.

Moreover, the paper outlines the need for agile policy and regulatory mechanisms that can adapt to technological progress, promote innovation, and address emerging challenges such as data privacy and cyber security. Lastly, a shift towards citizen-centric services is advocated, utilizing digital platforms to deliver public services that are accessible, personalized, and responsive to citizen needs.

Through this framework, the research paper aims to provide policymakers with a strategic roadmap to navigate the digital transition, ensuring that government institutions remain effective, accountable, and relevant in the digital era. The ultimate goal is to create a public sector that is not only transformed by technology but also transformative in its ability to serve the public good.

Keywords: digital transformation, government, technology, and management.

¹ Received in 1/7/2024, accepted in 17/8/2024.

I. INTRODUCTION

The digital revolution has put pressure on traditional firms, some of which have declined as a result of being eclipsed by creative, quickly expanding digital newcomers. For example, the emergence of internet retailers like Amazon and Alibaba has had a significant impact on traditional retail companies. Notable examples of this include the bankruptcy of retail behemoths like RadioShack, Toys 'R' Us, and Claire's. In an effort to pursue new growth prospects, these online retailers have also extended their reach outside of the conventional retail sector by using their digital capabilities to enter markets that were previously thought to be unconnected to retail.

Other industries are also being affected by this market disruption: TiVo and Netflix are upending the TV broadcasting and film industries (Ansari et al., 2016), Spotify is revolutionizing the music industry (Wölmert and Papies, 2016), Booking.com and Airbnb are reinventing the hotel industry. Customer expectations have been drastically altered, and multiple businesses have been disrupted by the speed at which digital transformation is occurring and the creative business models emerged in response. Consumers today may easily communicate with businesses and other consumers, and access a wide variety of media outlets (Lemon & Verhoef, 2016).

However, scholarly writing on topics like digitization, digitalization, and digital transformation has just lately started to appear, despite the pervasive and obvious effects of digital transformation and the rise of new digital business models (Venkatraman, 2017). A large portion of current research has been restricted to particular business specialties. Marketing academics, for instance, have mostly concentrated on the effects of social media and digital advertising (Lamberton and Stephen, 2016; Kannan and Li, 2017) and the creation of multi- and omni-channels (Verhoef et al., 2015). Information systems researchers have focused on the technical advancements surrounding the adoption digital technologies and their subsequent business value (Nambisan et al., 2017; Sambamurthy et al., 2003). In contrast, the strategic management literature has primarily focused on the conceptualization, operationalization, and renewal of digital business models (Foss and Saebi, 2017; Osterwalder and Pigneur, 2010).

The digital transformation is driven by the widespread adoption of digital technologies in various sectors worldwide. This has significant implications for both digital transformation and digital government transformation. Discussing digital transformation provides a significant background to discussing digital government transformation. The purpose of this discussion is to lay conceptual groundwork about digital transformation, with extensive references for detailed extensions.

The digital government transformation is the natural course and direct result of digital transformation. The process of shifting from digital transformation to digital government transformation should consider and take into account each of the transformation components—the actors involved in the transformation process; the affected procedure (management and social innovation); and the latest scientific and technological approach. In the context of digital government, policy actions on technology components such as infrastructure and data cannot rest on their unique governance. A digital government will provide a more efficient, responsive, and effective service to citizens. It can also deliver a lot more transparency and accountability because there is a generation of digital natives who expect to see government interact in a very similar way to the other digital services they use. A digitally transformed government can also lead on its integrated service design.

Therefore, the research paper articulates a framework for policymaker to implement for the digital government transformation DGT. The term digitalization should be advocated and used in the context of public administration to designate a comprehensive effort involving changes at the individual, organizational-institutional, policy, and technology levels. The following subsections address the research problem.

Digital transformation in the public sector, while promising significant benefits in terms of efficiency, transparency, and citizen engagement, presents a host of complex challenges that can hinder its successful implementation. The primary research problem addressed in this paper is the lack of a cohesive, multidisciplinary framework that can guide policymakers through the intricate process of integrating digital technologies into governmental operations. Current approaches often suffer from fragmented strategies that do not adequately consider the multifaceted nature of public administration, including

organizational structure, power dynamics, management roles, and external influences. This fragmentation results in inefficiencies, resistance to change, and suboptimal outcomes in digital transformation initiatives. Hence, there is a pressing need for a comprehensive framework that synthesizes insights from various disciplines to provide a holistic roadmap for policymakers, ensuring a coherent and effective digital transformation process.

The main objective of this research is to develop a contextual framework that can assist policymakers in navigating the complexities of digital transformation within the public sector. To achieve this, several specific objectives are outlined:

1. Identify the key organizational elements that influence digital transformation in government bodies, including leadership, culture, and structural dynamics.
2. Examine the role of power dynamics within public institutions that either facilitate or impede the adoption of digital technologies, with a focus on stakeholder interests and resistance to change.
3. Assess the critical role of management in driving digital transformation, including the strategies and skills required to manage technological change effectively.
4. Evaluate external factors such as regulatory environments, and technological trends that impact the digital transformation process.
5. Develop a framework that integrates these elements, providing a strategic guide for policymakers to implement and sustain digital transformation initiatives.
6. Propose recommendations for building robust digital infrastructure, enhancing digital literacy, and fostering agile policy mechanisms to support ongoing technological advancements and address challenges such as data privacy and cybersecurity.
7. Advocate for the adoption of citizen-centric service models that leverage digital platforms to improve the accessibility, personalization, and responsiveness of public services.

The importance of this research lies in its potential to significantly enhance the effectiveness and coherence of digital transformation efforts within the public sector. By offering a comprehensive and multidisciplinary framework, this research addresses a critical gap in existing literature and practice, providing

policymakers with a structured approach to manage the complexities of digital integration. The framework's emphasis on organizational elements, power dynamics, management roles, and external factors ensures a holistic understanding of the digital transformation process, which is crucial for overcoming resistance, optimizing resource allocation, and achieving desired outcomes.

Furthermore, the research stresses the necessity of building secure and robust digital infrastructures and promoting digital literacy, which are foundational to successful digital transformation. By advocating for agile policy mechanisms and citizen-centric service delivery, this study aligns technological advancements with the public sector's mission to serve the public good. The insights and recommendations provided by this research can lead to more transparent, efficient, and responsive government institutions, ultimately contributing to enhanced public trust and engagement in the digital era. Through this comprehensive approach, the research not only reports immediate challenges but also sets the stage for sustainable and transformative public sector innovation.

This research contributes to the existing body of academic knowledge on digital transformation and the leaders' experiences in the public sector broadly in the following;

- Extensive Literature: Organizational behavior, management science, public administration and technology studies is reviewed and synthesized in the theoretical contributions of the study that lays down a roadmap for the policy makers.
- Framework Development: This work presents an original, integrative theoretical framework that combines and links organizational factors, politics and powers, managerial processes and external conditions into a systematic blueprint of managing digital change. The proposed framework has effectively addressed how an integrated infrastructure of digital technology can be implemented in the governmental processes and activities.
- Organizational Insights: Considering the fact that leadership, culture, and structures are some of the organization's key aspects, the study enhances the understanding of internal factors that affect digital transformation in the public sector. Furthermore, it is central to focus on different aspects of

the internal processes of public institutions when it comes to designing suitable transformations.

- Power Dynamics Analysis: The analysis of power relations offers useful information about the enablers and barriers to digital transformation, which analysis is essential to define resistance to change and provide methods on how to deal with it.
- Management Role: The research focuses on the importance of management in steering digital transformation, providing the necessary concepts and techniques regarding Technological Change Management. This contribution will be most useful for training and development programs for managers in organizations in the public domain.
- External Factors Evaluation: Through evaluating the effects of regulatory environments and technological trends, the study empowers the policymakers with knowledge and ability to manage external forces pertaining digital transformation. This evaluation is crucial in developing policy instruments that are sensitive and appropriate to the social realities of the continent's societies.
- Citizen-Centric Service Adoption: The research supports the idea of the digital transformation as a continuation of the public sector's mission and highlights the aspects of openness, individualization and proactivity in the sphere of public services delivery. Citizens' participation is a crucial element of empowering and encouraging the public to trust the government and its agencies.
- Infrastructure and Digital Literacy Recommendations: The suggestions provided in the study for establishing stable digital platforms and increasing competencies that withstand the modern conditions are essential preconditions for the proper digitalization. They are not just finite conclusions to the present investigation but are solutions that can inform short- and long-term policies.

In sum, the research not only closes a gap in the current literature by designing a conceptual framework for digital transformation in the public sector but also paves the way for future research on constant enhancement of government services. From this perspective, the findings of this study have the potential to

significantly improve the understanding of the determinants and outcomes of digital transformation, thus contributing to the development of more effective, open, and agile public administration entities.

The upcoming sections provide background information, an illustration of the methodology, and explore the digital transformation's conceptualization and its growth leading to the digital government transformation with the exemplification of its challenges to end up with the proposed framework for DGT implementation and its implications.

2. BACKGROUND

The digital revolution has brought about disruptive changes in various industries, forcing companies to adapt their business models and adopt digital transformation strategies (Lanzolla and Anderson, 2008). Digital transformation involves rethinking and redesigning existing activities, processes, and capabilities to create and capture value in the digital era (Fatorachian and Kazemi, 2018). Digital transformation refers to the process of using new digital technologies and approaches to fundamentally change and improve the operations and services of organizations. In the context of public administration, digital transformation involves adopting digital technologies to enhance service delivery, improve efficiency, and achieve objectives such as increased transparency, interoperability, and citizen satisfaction (Mergel et al., 2019).

Majchrzak et al. (2016) discussed the importance of understanding the ICT artifact and its role in digital transformation. They argue that researchers should define the ICT artifact in both broad and specific ways, considering the affordances and constraints provided by the artifact, and examining the unintended consequences of its use. They highlighted the need for IS researchers interested in societal or business change to define theories of the problem and theories of the solution. These theoretical contributions should address the specific challenges and context, as well as the expected outcomes and conditions for the success of the ICT solution.

Furthermore, they emphasized the importance of considering technology affordances and constraints in IS research. They argue that ICT artifacts afford certain actions and constraints for users based on their goals and capabilities. Understanding these affordances and constraints can help explain how and why

ICT is used differently in various contexts and deepen the theoretical understanding of ICT use. They state that researchers should not only focus on the positive outcomes of ICT but also acknowledge the potential negative effects and unintended consequences that may arise to inform policymakers and managers.

The main objective of this research paper is to present a roadmap for policymakers to implement a successful digital transformation through the development of a contextual framework. The structure of the research paper will follow a logical progression, beginning with a comprehensive definition of digital transformation to provide a clear understanding for the reader. Afterwards, the paper will delve into an analysis of related work and challenges within the field, introducing a contextual framework, then outlining its key components and building blocks in detail, while also clarifying its potential implications within the context of digital government transformation. Finally, the research paper will culminate in a robust conclusion, and offer recommendations for future work in the field.

3. RESEARCH GAP

A significant gap in the current literature is the lack of comprehensive frameworks that encapsulate all the building blocks of digital transformation. Existing frameworks often focus on specific aspects, such as technological adoption or policy development, without a holistic consideration of all critical elements. For example, Tangi et al. (2021) focused only on cultural barriers and organizational barriers and Moser-Plautz et al. (2023) on external factors only. There is a need for the development of a framework to include a broader range of elements encompassing technological infrastructure, organizational aspects and elements, policy and regulation, user and data engagement, and socio-cultural aspects. A comprehensive framework would provide a more robust tool for analyzing and understanding the multifaceted nature of digital transformation, particularly in the public sector. Yuan et al. (2023) and Tangi et al. (2021) discussed the importance of Cross-Cultural Comparative DGT Studies. Hence, this study will support measuring the initiatives in varying cultures and governments.

There is a need for academic discussions around Digital Government Transformation DGT to be grounded in rigorous scientific research, focusing on the co-evolution of technology and government (Eom & Lee, 2022). This

approach aims to create a world free from abuses and destruction, moving away from overly optimistic consultancy reports or political slogans (Littman et al., 2021). Finally, there is an observable gap in measuring government digital platforms' impact on Digital Transformation initiatives, such as official websites and social media. Yuan et al. (2023) suggested more research to be invested in this area. With the support of new technologies and tools, researchers have access to a huge amount of digital data which will enable more advanced insights (Eom and Lee, 2022). The current literature lacks a systematic approach to evaluating the digital presence impact on the effectiveness of government initiatives. Research is needed to develop metrics for assessing the digital maturity of government entities based on their online interactions and service delivery.

4. RESEARCH METHODOLOGY

The research approach aims to provide a richer understanding of the complexities and challenges of DGT, contributing to the development of a more holistic framework for digital transformation in the public sector through the following research question:

How do various stakeholders perceive and experience the complexities and challenges of Digital Government Transformation DGT across different government sectors, and what framework can be developed to encapsulate all critical elements of DGT?

To address the above research question, a comprehensive qualitative research approach will be employed. This approach involves in-depth thematic analysis to capture the nuanced experiences and perceptions of diverse stakeholders involved in DGT. Braun and Clarke (2006) demonstrated that the thematic analysis seeks to identify recurring themes and patterns and to visualize the relationships between different themes and how they are contributed.

The thematic analysis will be developed iteratively, allowing for the emergence of new insights that reflect the complex nature of DGT. The research will adopt a multi-faceted framework, integrating the critical key components of DGT. Overlooking the strategic plans, reports and archival records and previous studies related to DGT worldwide will provide contextual background and help identify existing frameworks and their limitations.

5. DIGITAL TRANSFORMATION DEFINITION

Digital transformation, as defined by Kane et al. (2015), Liu et al. (2011), and Schallmo et al. (2017), is a shift in how a company uses digital technologies to create a new digital business model that helps to create and appropriate more value for the company. However, there hasn't been a lot of multidisciplinary discussion on this topic. Considering that the process of digital transformation entails adjustments to a number of areas, including information technology, supply chains, marketing, strategy, and organization.

Consumer behavior has changed significantly as a result of the digital revolution, with a growing number of people choosing to make purchases online. Customers are becoming more aware, empowered, and connected as a result of the proliferation of social media and search engines. Customers can now co-create value by sharing product feedback and customizing products (Beckers et al., 2018; Grönroos and Voima, 2013). The emergence of mobile devices has enabled the practice of showrooming, in which buyers inspect things before making an online purchase (Gensler et al., 2017). Additionally, consumers are depending more and more on apps and AI-based products like Google Home and Amazon's Echo. Consumer behavior is being profoundly changed by these technology advancements (Verhoef et al., 2017).

A multidisciplinary approach is necessary to comprehend the digital transformation, and how it affects different functional domains such as marketing, information systems, innovations, strategic, and operational management (Paré et al., 2015). Digitization, digitalization, and digital transformation are the three stages of digital transformation (Loebbecke and Picot, 2015; Matt et al., 2015; Parviainen et al., 2017). Analogue information is transformed into a digital format that computers can analyze, store, and communicate through the process of digitization (Tan and Pan, 2003; Dougherty and Dunne, 2012; Loebbecke and Picot, 2015). According to Li et al. (2016) and Ramaswamy and Ozcan (2016), digitalization is the process of using IT or digital technology to change how business activities are currently carried out, such as by opening up new online or mobile communication channels.

The most widespread stage, known as "digital transformation," describes a shift that occurs throughout the entire organization and results in the creation of new

business models (Iansiti and Lakhani, 2014; Kane et al., 2015; Pagani and Pardo, 2017). It goes beyond digitalization by rearranging the processes to alter a company's business logic (Li et al., 2018) or value creation process (Gölzer & Fritzsche, 2017). It impacts the entire company and its business operations (Amit & Zott, 2001).

In today's dynamic marketplaces, digital agility; the capacity to recognize and take advantage of market opportunities, is essential for survival (Lee et al., 2015; Lu & Ramamurthy, 2011; Tallon & Pinsonneault, 2011). Businesses must be able to adapt and reconfigure their current digital assets and capabilities on a regular basis (Eggers & Park, 2018). To facilitate a smooth transition from digitization to digitalization and ultimately to digital transformation, organizations must possess critical competencies like digital agility, digital networking capability, and big data analytics capability. The ability of an organization to re-engineer digital resources and integrate them with other organizational assets in order to transform company processes is known as "digital agility." It enables the creation of novel goods and services as well as business models that increase consumer value (Sambamurthy et al., 2003; Teece, 2010; Karimi & Walter, 2015).

The capability of a company to digitally connect disparate consumers in order to satisfy their shared demands is known as digital networking competence. In the current digital environment, businesses must take a network-centric strategy and work together with other digitally connected businesses to co-create value (Libert et al., 2016; Koch & Windsperger, 2017). According to a recent survey conducted by Accenture (2017), 75% of CEOs feel that their chosen partners' and ecosystems' strength, rather than their own internal competencies, determines their competitive edge. Prahalad and Ramaswamy (2000) asserted that this network-centric strategy co-creates value through content production, product customization, and brand ambassadorship, making them a valuable asset for competitive advantage.

Big data analytics is another essential asset for digital transformation. Digital technologies function only when people can gather, process, and use large amounts of data for decision-making (Loebbecke & Picot, 2015; Dremel et al., 2017). Nevertheless, companies frequently find it difficult to use big data collection efficiently, despite its ease of use (Accenture, 2018). It is therefore

imperative that businesses build teams with analytical, data management, data visualisation, and business expertise.

The organizational structure is vital to digital transformation in addition to these digital resources (Eggers & Park, 2018). Flexible organizational structures with distinct business units, adaptable organizational forms, and digital functional areas are necessary given the rapidly changing digital context. Divided business divisions facilitate quicker reactions to digital transformations and the timely identification of important technologies (Christensen & Overdorf, 2000; Christensen et al., 2016). Agile organizational models are more appropriate for the fast-paced digital environment than hierarchical ones. To respond quickly to digital changes, for example, ING implemented the Spotify model, which consists of self-navigating teams with specific responsibilities (McGrath, 2010). Along with improving digital capabilities in marketing and service operations, the digital transformation also mandates the IT departments to take on a more proactive role (Leonhardt et al., 2017).

6. DIGITAL TRANSFORMATION GROWTH

The growth of digital firms, particularly those that operate on digital platforms, has proven to be significantly impressive over the years. For instance, Google's annual search volume increased from 1 billion in 1999 to a whopping 2 trillion in 2016, representing a growth rate of 50% per year over a 17-year period. Similarly, the ride-sharing platform Lyft saw its annual ride volume climb from 2.7 million in 2013 to 162.6 million in 2016, which translates to an annual growth rate of nearly 300%. Facebook also experienced a similar trend, with its active user base growing by roughly 25% per year between 2009 and 2017 (Business Insider, 2017a; Statista, 2018).

This impressive growth of digital platforms can be attributed to two key factors: their high scalability and the network effects they generate. Because digital platforms are highly scalable, they can handle an increasing user load at a low additional cost, and in some cases, this cost is virtually negligible. Moreover, the network effects created by digital platforms create a positive feedback loop where the growth in the number of users on one side (e.g., customers or suppliers) attracts users from the other side, as they derive greater utility from using the platform (Eisenmann, et al., 2006).

To understand how digital platforms can leverage these properties to drive growth, it is helpful to refer to the Ansoff Matrix, which presents four growth strategies: market penetration, product development, market development, and diversification.

In the context of market penetration, digital platforms can leverage their disruptive technologies to convert non-users into customers, thereby driving growth. For instance, about thirty percent of Netflix users do not watch TV, but instead, they stream content using tablets, laptops, or mobile phones (Recode, 2018). Platforms can also lead to the creation of entirely new markets. For instance, the launch of the Apple Watch spurred the growth of the smartwatch market (Business Insider, 2017b).

In terms of vertical expansion, digital platforms can pursue product development and the creation of co-creation platforms leading to new market development. Product development involves launching new products in a platform environment, which often enables more efficient development and marketing due to synergies among products. On the other hand, co-creation platforms allow external users to actively participate in value creation by performing certain activities themselves on the platform. Examples of such platforms include TripAdvisor, Booking, Airbnb, eBay, Dell PCs, NikeID, and Threadless (Cui & Wu, 2016; Grönroos & Voima, 2013).

Lastly, the strategy of platform diversification involves combining all of these approaches, which is often pursued by large, successful platforms aiming to create additional growth in unexplored markets. The current discourse on digital transformation is multifaceted, encompassing diverse elements from platform expansion to performance measurement. This approach involves extending the business platform to serve novel markets, updating the product and service assortment, and opening the business to co-create value through strategic partnerships (e.g., Google & Android) or collaborations with other platforms, suppliers, consumers, and complementary service providers (e.g., Facebook's Libra coin) (Libert et al., 2016).

In order to fully leverage digital transformation, firms need to monitor performance improvements using key performance indicators (KPIs). This enables learning and fine-tuning of the business model. However, the relevance

and use of KPIs may vary across the phases of digital transformation (Verhoef et al., 2015). While digitization and digitalization phases may involve changes and updates to metrics (e.g., website clicks, video views, mobile downloads), traditional outcome-related metrics like ROI, profitability, and revenue growth remain relevant (Verhoef et al., 2015).

The ultimate goal of new business models, generated through digital transformation, is to generate revenue, profit, and improve investor value (Teece, 2010). However, it is also crucial to monitor intermediate results via process-related metrics. This aids in assessing the efficiency of the new digital business model in creating value (Libert et al., 2016). For instance, Apple and Google could benefit from tracking the number of developers creating apps for their app store, the revenue generated by those apps, and customer satisfaction levels. Such metrics can provide insights into how well the complex business activity system operates and where changes are necessary (Libert et al., 2016).

Traditional incumbents often prioritize profitability, while many digital firms focus on growth metrics (e.g., growth in the number of users, customers, sales) instead of profitability. For these digital firms, the primary objective is to boost the number of users in the digital ecosystem to create reinforcing network effects. A rapidly growing customer base enables them to accumulate valuable data at scale, which can be leveraged internally and externally (Christensen et al., 2016). However, achieving high growth should not be at the cost of profitability for digitally transforming incumbents, presenting a significant disadvantage when competing against digital entrants.

The necessity for firms to undergo digital transformation derived from the changes in digital technologies, increasing digital competition, and evolving digital customer behavior. The digital transformation process is conceptualized as comprised of three stages: digitization, digitalization, and digital transformation. Each phase imposes specific demands on firms' digital resources, organizational structure, growth strategies, and metrics. Figure 1 exemplifies the digital transformation flow previously illustrated. To successfully transform, firms need to possess not only digital assets but also capabilities related to digital agility, digital networking, and big data analytics. Within the organization, a shift towards agile structures with minimal hierarchy is necessary, along with the internalization of

IT and analytical skills (Teece, 2010; Verhoef et al., 2015; Libert et al., 2016; Christensen et al., 2016).

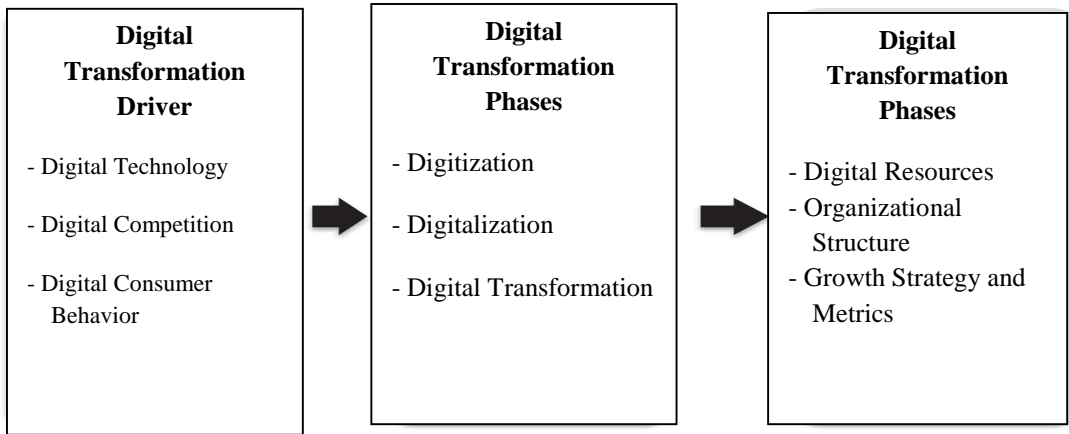


Figure 1: Digital Transformation adapted
from Source: (Verhoef et al., 2019)

Moreover, based on the above considerations, companies must decide which growth strategies to adopt. A particular challenge is how incumbent firms can replicate the growth rates of digital newcomers. Despite the fact that incumbent firms can successfully deploy new digital technologies, triumphant business examples are not common. Given the diverse productivity returns on digital investments, it is crucial to pinpoint the factors that can explain these differences. Companies need to determine the most effective sets of intermediary and outcome-oriented metrics to gauge their value creation and business performance across the various stages of digital transformation. However, it remains unclear how a company's reliance on and the significance of these metrics evolves throughout the transformation process.

Earlier research has explored the use of specific metrics in marketing (Katsikeas et al., 2016), but there is a need for further research to evaluate how digital transformation might influence the adoption and utility of performance metrics. Moreover, with the growing prevalence of digital platforms, there is a need for more understanding of how specific metrics impact these companies and how such metrics may support them in making more informed strategic decisions.

For instance, how can digital platforms that rely on the contributions of multiple users devise relevant metrics to capture users' sentiments and engagement levels, to ultimately explain their willingness to co-create and share content? Given the multidisciplinary nature of digital transformation and the interdependencies that exist in business models (Christensen et al., 2016), it is crucial for researchers from various fields to collaborate.

To sum up, given the recent advancements in digital technologies, digital transformation is expected to remain an important and multidisciplinary and the above offers a comprehensive and timely discussion on digital transformation, outlining how it imposes specific demands on organizations. The aim is to assist practitioners in making informed strategic decisions about their responses to digital technologies and the implementation of digital change in the public sector as detailed in the following section.

7. DIGITAL GOVERNMENT TRANSFORMATION

In context of public sector, the reasons for digital government transformation can be both external and internal. External factors include the changing expectations of citizens, businesses, and politicians, as well as advancements in technology. Citizens, in particular, have higher expectations for digital services and expect public administrations to adapt to the technological changes they experience in their daily lives (Mergel et al., 2019). Internally, public administrations may initiate digital transformation to improve their own processes and management. This may involve digitizing existing processes, forms, and documents, and rethinking relationships with stakeholders. It also requires the development of new competences and skills among public sector leaders, civil servants, and service providers (Mergel et al., 2019).

The objects of digital government transformation in the public sector include processes, services, products, relationships, technology, and business models. Digital transformation aims to transform these objects through digitization, innovation, and the use of new technologies. For example, public administrations can digitize their processes, making them more efficient and accessible to citizens. They can also develop new digital services and products, transforming the way services are delivered (Mergel et al., 2019).

The outcomes of digital government transformation in the public sector are diverse. They can include improved service delivery, streamlined processes, better relationships with stakeholders, and the development of digital policies and environments. Digital transformation can also contribute to the creation of value, both in terms of public services and society as a whole. It can lead to organizational change, shape the development of a digital society, and strengthen democratic principles such as citizen inclusion and engagement (Mergel et al., 2019).

Digital government transformation involves the use of new digital technologies and approaches to improve service delivery, enhance efficiency, and achieve various objectives. It is driven by external factors such as changing customer expectations and advancements in technology, as well as internal motivations for process improvement and organizational change.

8. DIGITAL TRANSFORMATION CHALLENGES

The rapid growth of digital technologies has led companies to undergo significant transformation in order to create and capture value in the digital age. However, many companies struggle to extract value from these digital transformation initiatives due to a misalignment between strategy formulation and strategy implementation. Correani et al. (2020) present a framework for implementing a digital transformation strategy based on the analysis of three case studies: ABB, CNH Industrial, and Vodafone. Considering these successful digital transformation projects, their framework provides actionable insights for companies seeking to navigate the challenges of digital transformation. The framework (shown in figure 2) includes the key building blocks such as scope, data sources, data platform, people, partners, artificial intelligence (AI), information and knowledge, processes and procedures, transformed activities and services, and customers. Through the understanding and effective management of these building blocks, companies can enhance their digital transformation efforts and drive successful outcomes.

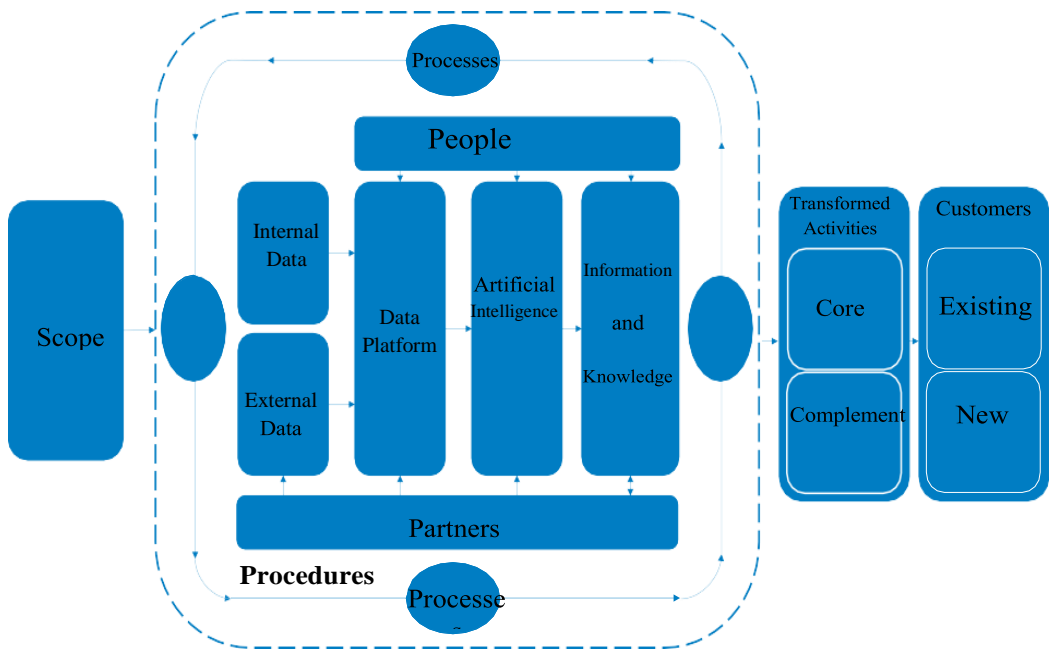


Figure 2: Digital Transformation Strategy Framework

Source: (Correani et al., 2020)

However, the implementation of digital transformation projects presents significant challenges, with a high failure rate ranging from sixty-six percent to eighty-four percent (Iansiti and Lakhani, 2014; Davenport and Westerman, 2018). One key reason for this failure is the disconnect between strategy formulation and strategy implementation (Beer & Eisenstat, 2000).

To effectively implement a digital transformation strategy, companies must clearly define the scope of their transformation efforts that involves identifying the strategic goals and desired outcomes of the digital transformation initiative. The goal is to align the scope with the overall strategy of the organization, ensuring a focused and consistent approach to digital transformation. Proper management of data is critical in supporting digital transformation initiatives (Pigni et al., 2016). Companies need to leverage both internal and external data sources to gain insights and drive decision-making. Internal data sources include data collected from sensors, devices, and various systems within the company. External data sources include data from partners, suppliers, and customers through which companies can gather valuable information to enlighten their digital transformation strategy. The data platform acts as a central repository for data

collected from various sources. It enables companies to process, and enrich the data, making it accessible for analysis and decision-making. The data platform should also prioritize data governance and compliance to ensure the security and privacy of data. This information and knowledge can be used to develop new products, services, and business models, as well as to improve existing ones.

Successful digital transformation requires a skilled and capable workforce. Companies must invest in developing the necessary digital competencies among their employees. This may involve hiring or upskilling individuals with expertise in data analytics, artificial intelligence, and other relevant digital technologies. Additionally, companies may need to establish new roles and organizational structures to support the implementation of the digital transformation strategy.

Partnerships play a crucial role in implementing a digital transformation strategy. Collaborating with external partners can bring complementary capabilities, resources, and expertise to the transformation process. Establishing strategic alliances with technology providers, research institutions, and other relevant stakeholders can accelerate the digital transformation journey and enhance the overall competitive advantage of the company.

AI technologies have a significant impact on digital transformation initiatives. Leveraging AI and machine learning can enable companies to extract insights from data, automate processes, and create innovative solutions. Companies should explore the potential application of AI across various areas, such as predictive analytics, natural language processing, and computer vision, to unlock new opportunities and enhance the value proposition.

Digital transformation often necessitates re-evaluating existing processes and procedures. Companies should adopt agile and lean approaches to accommodate rapid change and seize emerging opportunities. By revising and streamlining processes, companies can ensure alignment with the digital transformation strategy and enhance overall effectiveness.

Digital transformation involves redesigning core activities, tasks, and services to deliver new value propositions to customers. Companies need to identify how digital technologies can enable the creation of unique and differentiated offerings that address customer needs and preferences. This may include developing

innovative business models, enhancing customer experiences, and providing personalized solutions.

Digital transformation should always prioritize the needs and expectations of customers. The customer segment is a crucial component, for instance, CNH Industrial has been able to enhance its relationships with its current customer base by integrating them more closely into their new business model. This strategy is designed to increase the value of these relationships for both parties. Furthermore, access to new data has provided the opportunity to reach out to new customer demographics. Additionally, ABB has succeeded in expanding its customer base by including original equipment manufacturers (OEMs) and distributors. It is pertinent to note that customers can be internal and external as in Vodafone's digital transformation project, the target customers include internal business units as well as external end users.

The previous comprehends the effective implementation of digital transformation, and identifies the fundamental building blocks that underlie the execution of a digital transformation strategy and constitutes the framework developed by Correani et al. (2020), which facilitates a robust and seamless connection between strategy formulation and strategy execution. More specifically, this framework serves as a practical guide to help companies tackle the challenges associated with the execution of a digital transformation strategy. In this context, the framework can act as a checklist to ensure that senior executives do not overlook any key elements when implementing a digital strategy to support their companies to reevaluate and overhaul their business models to mitigate risk and uncertainty.

9. DIGITAL TRANSFORMATION CURRENT STATUS AND ITS INITIATIVES WORLDWIDE

Digital transformation has become a critical strategic priority for organizations and governments worldwide, as it promises to enhance efficiency, competitiveness, and innovation. The literature on this topic is vast and spans several disciplines, including information systems, business management, and public policy. The following will explore the initiatives of digital transformation on a global scale, providing a paraphrased synthesis of the recent scholarly and industry-related sources.

Recent research by Verhoef et al. (2021) elucidates the multi-faceted nature of digital transformation, stressing its impact on organizational strategy, structure, processes, and culture. The authors argue that to successfully navigate the digital transformation journey, organizations must adopt a holistic approach, integrating technology with a change in mindset and business operations.

A sector-specific perspective is provided by Hess et al. (2019), who focus on the digital transformation of the manufacturing industry. They highlight the emergence of Industry 4.0, a term that encapsulates the integration of the Internet of Things (IoT), artificial intelligence (AI), and big data analytics in manufacturing processes. The authors note that this revolution is not only about technological innovation but also about the reconfiguration of supply chains and production models.

On a macro scale, the work of Mergel et al. (2019) explores digital transformation initiatives in the public sector. They discuss the challenges governments face in digitizing services, such as legacy systems, digital divides, and cybersecurity concerns. The researchers underscore the potential for digital government to improve service delivery, citizen engagement, and policy outcomes.

Globally, initiatives such as the Digital Single Market strategy by the European Union (European Commission, 2020) aim to maximize the potential of digital technologies across member states. This strategy focuses on removing digital barriers and fostering a digital economy through regulation, investment in digital infrastructure, and support for digital skills development.

In the context of developing economies, the United Nations Conference on Trade and Development (UNCTAD, 2021) addresses the digital divide and stresses the need for international cooperation to enable these countries to participate fully in the digital economy. The report calls for investment in ICT infrastructure, digital literacy, and policy frameworks that promote innovation and protect against digital risks.

The United Nations Conference on Trade and Development (UNCTAD) in its "Digital Economy Report 2019" examines the efforts required to ensure inclusive digital transformation. The report underscores the importance of international cooperation in addressing the disparity in digital capabilities between developed and developing nations (UNCTAD, 2019). Industry 4.0 and its implications for

business models and value creation are further explored by Liao et al. (2017), who provide insights into how digital technologies are creating new opportunities for value proposition. They advocate for the need to rethink traditional business models to leverage these technological advancements effectively. Moreover, Hess et al. (2016) highlight the transformative potential of digital technologies in the manufacturing sector. Their research indicates that the advent of Industry 4.0 and the Internet of Things (IoT) has led to the emergence of 'smart factories' where the digitalization of manufacturing processes enables greater efficiency and customization.

In the financial sector, digital transformation has been characterized by the rise of fintech, as documented by Gomber et al. (2018). The authors discuss how fintech startups are disrupting traditional financial services through innovative applications of blockchain, AI, and other digital technologies, necessitating a reevaluation of regulatory frameworks and business strategies within the industry. Puschmann (2017) delineates how digital transformation is disrupting traditional banking models as Fintech companies, leveraging digital platforms, are challenging incumbents through offering more accessible and user-friendly financial services.

Kane et al. (2015) examine the digital maturity of businesses, revealing that while many companies are making strides in adopting digital technologies, few have fully realized the strategic potential of these tools. They emphasize the importance of developing digital leaders who can champion transformation efforts within their organizations. They elucidate digital transformation as an imperative driven by the convergence of digital technologies and the changing business environment, and contend that successful digital transformation does not merely rest on adopting new technologies but also necessitates a cultural and organizational shift towards agility and innovation.

Furthering this discourse, Westerman, Bonnet, and McAfee (2014) in their book, provide a strategic framework for organizations embarking on digital initiatives. They emphasize the dual focus on transforming customer experience and operational processes as central to achieving digital maturity. Reflecting on industry-specific transformations, Berman and Bell (2011) discuss the retail sector's evolution through digital technologies. They argue that retailers must adapt to the digital age by integrating online and offline experiences to meet the changing expectations of consumers.

Digital transformation, a sweeping phenomenon across the global landscape, has been reshaping industries and economies through the integration of digital technology into all areas of business and society. This shift towards a more digital world has become a critical component for the survival and growth of organizations and governments also, has profound implications for countries at various stages of development. The research on digital transformation is vast and consistently evolving, with research spanning multiple sectors and geographic regions. As the digital landscape continues to evolve, ongoing research efforts are required to understand the impacts and best practices of digital transformation across different contexts.

10. EMPIRICAL STUDIES ON DIGITAL GOVERNMENT TRANSFORMATION IN EGYPT

Digital transformation can be defined as the application of cutting-edge IT capabilities to automate or change manual exchange of information, knowledge, services, or transactions among key elements of public, private, and non-profit organizations. It is crucial to note that digital transformation shifts the entire organization to use technology to become more user-friendly and efficient in delivering high-value products and services to its comprehensive stakeholders, starting from its employees and officers to customers, clients, citizens, partners, suppliers, and contractors, and vice versa. Digital transformation necessitates the use of a consistent and comprehensive framework for the adoption of digital technology. The digital transformation framework implies the need for aligning various aspects such as goals, digital strategies, resourcing, culture and mindset, leadership, partnership, customer focus, process capabilities, and automation.

Abdallah et al. (2002) presents views and pragmatics on digital government transformation in Egypt and aims to contribute by providing new understandings of digital government transformation in Egypt and thereby offering a pragmatic approach to governments that are passing through similar cases. Gebba and Zakaria (2015) highlighted that there are increasingly visible signs of socioeconomic development in Egypt that can all be traced directly, or through intermediary policies, to the government's wide-ranging commitment to a strategy to build a knowledge-based economy. The government of Egypt has undergone major organizational, institutional, technical, and policy changes and has developed a

strategy with a large social component. Egypt pursues government transformation with the goal of establishing a cohesive approach that delivers performance improvements and high-impact citizen-centric services that will integrate isolated transactional activities into sets of comprehensive services that are better focused on addressing citizen needs.

They affirmed that in order to achieve this in Egypt, there will need to work on the implementation of several critical success factors, including the formulation of comprehensive policies, the development of an integrated architecture with respect to e-services delivery, work on building national frameworks for the validation of the identity of citizens, and in general, build up standards development, the protection of privacy and human rights, the enhancement of government cyber security and risk management, the creation of a modern government workforce, the development of initiatives to close the digital divide, the promotion of innovation, and legal updates on a regular basis.

For Egypt to enhance its digital economy, it will require efforts and commitment from the public sector and private sector to bridge the digital divide. The broad components of the government transformation involve: ICT industry applications and software development opportunities, and enhancing the capacity of the market to support regional and globally integrated services. Egypt must work towards the adoption of digital services to realize the development impact of the digital economy. Applying best practices and using tools, the government intends to design initiatives and achieve the desired citizens' experience.

World Bank Group's report (2020) provides an assessment of the current state and progress of the digital economy and digital government in Egypt based on the use of best practices, international standards, and tools. It provides detailed key stakeholder recommendations and next steps to further drive digital transformation in Egypt and the impact that an effective digital government can have, exceeding those 30 percent savings. However, Egypt can make more of the opportunities offered by the Fourth Industrial Revolution. With Egypt dealing with youth unemployment that remains a significant challenge, Digital Revolution 4.0 opportunities make it even harder for governments to act to reduce this significant problem. Although Egypt has launched several services to attempt to tackle technology trends, it has not moved ahead of these technology trends. Egypt establishing and implementing the digital government will allow

better services to better equip Egyptian citizens for current market needs. Egypt's current digital strategy recognizes Egyptian youth as a cornerstone to building a sustainable digital nation and prioritizes investment in education and training in support of those who are most in need. Finally, Egypt's approach aligns itself firmly with the United Nations 2030 Agenda for Sustainable Development, which outlines clear goals and targets that intersect with the long-term objectives of Egypt's digital transformation. Implementing Digital Government solutions also has an impact on government policies and capabilities. For Egypt to transform itself better, the operating model should change too.

Hassaballah (2021) conducted an exploratory analysis of a set of scientific articles on digital government transformation in Egypt. It discusses several studies and research proposals published from 2007 to 2020. He classified the references based on a proposed classification schema and listed the misused references. He also discussed some best practices to pursue in digital government transformation. He described digital government transformation as a complex field that requires a mature understanding of both the development of digital government and facilitating change management. In recent years, government services have witnessed several digital paradigm shifts aimed at increasing the performance of public authorities and enhancing the user experience of their clients. However, accessing such initiatives may be hindered as they rely on old and outdated technological infrastructure and services. His objective is to develop a classification system for digital government and electronic services references, providing insights about the international scientific literature mapping the digital government journey in Egypt.

Kamel (2021a) investigated the field of digital transformation in many sectors, in Egypt and many countries in the world, and that the concern is related to the quality of life of citizens and, consequently, the development prospects in various aspects. He considered that there are seven main aspects, of which the most important for achieving development in the digital transformation process for the public and private sectors in the Egyptian context. The unified national network is a significant service as a goal for linking all citizens in Egypt, and consequently, it is considered as a platform for digital transformation projects, achieving many social goals that are in line with the country's sustainable development plan. The ePassport, which represents a high-security achievement and allows industrial

countries to provide global citizen services, is no longer a national entitlement program me, as many benefits can be obtained, such as securing government funds, improving internal traffic services, impeding tax evasion crime, and controlling local and international trade in combination support several sectors.

The eStatement is an essential step in controlling the governmental financial situation and effectively participates in increasing the view of the government as a transparent and accountable entity in general and financial entity, in particular, whether the IE-states and that should be an overview of the government's financial procedures. The eGovernment system provides the ability of citizens, companies, and authorities to present and gain a variety of services. The eProcurement concept allows the government to request, provide, administer, and analyze contracts and associated tenders through the virtual combined administration of key procurement activities.

Kamel (2021b) contends that digital government transformation (DGT) "is arguably not taking place in low-income countries." He further observes that "pure digital versions of e-government services can be a mirage, and that in many cases 'e-government' involves little more than automating or digitizing the transaction of services." As the driver of DGT, business model innovation in government can be the "solution" to discouragement or disillusionment with DGT. Kamel (2021b) proposes using government business models as a promising route to drive the frequency, relevance, and value of online transactions between the state and its constituents. Digital business models should be designed with the specific objectives of facilitating engagement with citizens and maximizing the value of engaging with government.

Several actors can influence new designs: citizens, businesses, organizations, and others such as academia, digital businesses, and organizations such as Technovate. With the rapid digitization of life, it is salient for all these actors to be cognizant of the "multiple dynamics at play in organizations when designing and developing business models for public value creation." This is because "perceptions of public value are crucial when analyzing business models for the purpose of understanding how and why they co-evolve in a particular direction."

Various constructs emphasize the importance of business models in facilitating public value creation deliverability. Such business models seek to "support public

organizations' ability to sense the different dynamics at play within an organization to manage internal politics and achieve resilience, and to adapt and evolve internal operations to exploit the opportunities they encounter." As such, several propositions are developed aiming at facilitating the use of these constructs to enable robust business model development in the public sector leading to successful engagement of citizens with government. Different co-creation roadmaps are instituted as 'sensible avenues' that help in connecting citizens and supporting the government's design of business models that are considered legitimate, useful, and feasible for public interests.

ITU Publications (2023) issued by the leading International Organization (ITU) in covering the sociotechnical topics and for tracing digital government strategies and action items in different country e-governance visions, policies, planned projects and developments. It highlighted the current topics, which included international and regional cooperation, open government data, cyber security infrastructures, institutional development, best practices, human capacity building programmes, etc. Their declared reports specified the concerned digital e-governmental transformation and the presented strategies topics, with international conference discussions, debates and considerations, as to find out the main global standardization topics for all regions and how related e-services issues and problems were handled. It aims basically for specifying the relevant digital economy e-market-driven topics as to include the needs of developing countries and the required enhancements for the related e-readiness indicators, according to integrated sector analysis conclusions.

II. PROPOSED FRAMEWORK DISCUSSION

Digital transformation is influenced by a group of factors that interplay to determine the success and effectiveness of such initiatives. Understanding these components is crucial for any government or organization seeking to navigate the complex landscape of digital transition. In the proposed framework below, adding the broad range below for a better and more in-depth understanding of the DGT initiatives is recommended.

A comprehensive approach to digital transformation in government context necessitates a strong organizational foundation, awareness, adaptation to external factors, an understanding of internal power dynamics, and proactive and visionary

leadership. This multifaceted approach will ensure that digital transformation efforts are well-grounded, responsive to both internal and external environments, and led in a manner that promotes sustainable change. These elements are also supported by research as pointed out in Table 1 below.

Table 1: Building Blocks of Digital Transformation in Government; Source: The Authors

DT Building Blocks	Research
Organizational Foundation	Yuan et al. (2023), Abdel-Basset et al. (2021), Tangi et al. (2021), Gil-Garcia and Flores-Zúniga (2020), Ashaye and Irani (2019), Manda and Backhouse (2019), Mergel et al. (2019), Vial (2019), Tassabehji et al. (2016), Nograšek and Vintar (2014), Yildiz (2007)
External Factors	Moser-Plautz and Schmidhuber (2023), Barrutia and Echebarria (2021), Tangi et al. (2021), Gil- Fischer et al. (2021), Agasisti et al. (2020), Gabryelczyk (2020), Garcia and Flores-Zúniga (2020), Scott (2014), Feiock et al. (2010), Björck (2004)
Power Dynamics	Dragu and Lupu (2021), Manda (2019)
Effective Management Role	Tate et al. (2022), Tangi et al. (2021), Omar et al. (2020), Ashaye and Irani (2019), Cordella and Paletti (2019), Mergel et al. (2019), Tassabehji et al. (2016), Fernandez and Rainey (2006)

11.1 Organizational Foundation

Within the last two decades, digital innovations have stimulated extensive changes in society, creating a digital transformation process. This societal transformation describes governments' essential changes as they focus on achieving societal goals to create measurable public value. Research underlines that the success of this change process in digital government (DG) towards digital government transformation (DGT) largely depends on the construction and implementation of new and advanced organizational foundations. The following explores the organizational foundations of DGT.

Yuan et al. (2023) demonstrate five pillars that involve transformative change within the public sector to enable successful digital government transformation:

connectivity and visibility of digitally linked government ecosystems; designing digital governance capabilities to manage future complexities; managing trust building and citizen acceptance; talent development for public service transformation in the digital era; institutional adjustment; and policy co-creation to adapt digital government's role. According to Yuan et al. (2023), based on adopted public policy and the readiness of public management, the trajectory of DGT can follow three integration routes: digital transformation and new public management approaches; digital transformation of administrative governance knowledge-based index increments. The governance approaches aim to expand citizen engagement and innovations beyond just administrative efficiency improvement. The technology-driven digital transformation has been less questioned. It has often unrelatedly absorbed the digital service refill actions of new public management and governance approaches in policy practices. In stark contrast to official theory publication and websites' implicit ideas, for the private sector, digital transformation has an initial non-temporary effect on power and performance concerns where infrastructural and digital identity are the minimum change or maintenance proposition between government and citizens.

Abdel-Basset et al. (2021) mainly focused on the field of "smart cities". This increasing popularity clearly shows the interest of society in participating in the development of the city. The use of information and communication technologies and other means for public administration and citizen participation brings many benefits, significant improvements, and an overall development of cities. The most important part of a "smart city" is the "smart government", which plays a fundamental role. Although there is much research on "smart cities," there is a lack of studies that focus on issues such as open government data and perhaps citizen participation and transparency. Smart cities are important for the development, protection, and improvement of the quality of life for millions and millions of people. In their study, different aspects related to smart government are described, such as vision, priorities, investment, governance, and ICT infrastructure; political and leadership support; raising awareness of political leaders; encouraging collaboration between stakeholders; creating confidence to build societies and digital infrastructure; stimulating innovation; providing open government personalized services; re-engineering processes; encouraging entrepreneurship using models, architectures, and implementing systems. They hope that the

contributions realized in their research will help the leaders of governments, cities, and industries correctly apply the techniques and tools that allow the implementation at any stage of a "smart government."

Tangi et al. (2021) discussed that Digital Transformation in government requires a robust organizational foundation. Key elements include efficient and effective processes, skilled and innovative personnel, a culture that supports adaptation and acceptance of digital changes, sufficient resources, a clear decision-making structure, and advanced technology integration. Complementing this perspective, Gil-Garcia and Flores-Zúniga (2020) emphasize the crucial role of technology infrastructure and individuals' perceptions of technology in digital government projects. This aligns with Tangi et al.'s (2021) argument, emphasizing the need for an effective process and technology adoption within the organization. Ashaye and Irani (2019) further contribute to this discussion by arguing that digital transformation in governments necessitates a profound rethinking and complete redesign of institutional and organizational assets including processes, procedures, structures, and services. They supported the view that government transformation is a phenomenon shaped by history, social norms, and national cultural values and therefore were critical of Western-centric views of institutional isomorphism.

With a rising trend towards the use of technologies for domestic announcements, the coupling of technology enablement, which is essentially about using information and communication technologies with organizational enablers, is seen as salient to government transformation. Mandar and Backhouse (2019) conceptualized the age of the 'Digital Georgian Act' that focuses on the anticipated significant transformation digital innovations are expected to induce over the coming years and their ongoing impacts. Vial (2019) identified patterns that recur across various governance levels and are meant to organize collective activity, define the permitted patterns of behaviors, and recognize the coordinates with which public data are flowing. Tassabehji et al. (2016) developed a conceptual framework for digital government transformation, emphasizing cultural collision, restructuring of business processes, service orientation, and inclusive development partnerships. The Tassabehji et al. (TAI) 2016 framework brings forward a sophisticated and solid strategy for actors in digital government transformation.

Nograšek and Vintar (2014) define and elaborate on the concept of organizational foundations, adding to the conceptual and empirical challenges related to organizational research and the governance and management of digital government initiatives in public administration. Previously, Yildiz (2007) establishes the organizational foundation for digital government transformation as the starting point. This involves setting the stage for the following actions by governments to plan for their digital future, get their respective houses in order through a self-assessment, and strategically plan for the transformation. His examination includes a review of existing challenges and barriers in order to uncover strategies to address and then overcome them.

11.2 External Factors

The topic of digital government transformation is closely related to that of public administration in a process of constant change facing various challenges, so research on innovations that external factors play is of paramount importance. This section provides empirical evidence and a conceptual approach to comprehending the role of external factors in digital government transformation (DGT).

Moser-Plautz et al. (2023) & Manda (2022) argued that the success of digital transformation is significantly influenced by external environmental factors such as political, legal, social, economic, and technological contexts. These factors shape the opportunities and constraints within which digital government initiatives operate, emphasizing the need for governments to be responsive and adaptable to external changes and challenges.

Gil-Garcia and Flores-Zúniga (2020) presented an analysis of the key frameworks for studying the role and influence of external factors in the public sector's transformation towards digital government practices. First, one of these comprehensive approaches is the reformist perspective. Reforms are typically a response required, desirable, or advisable due to changes or inertia in the operating environment. The authors critically approach reforms, not as a response to necessary changes inspired by pre-specifiable advantages of 'best practices' or supposed recipes for the good functioning of public organizations, but as a result of institutional pressure from the political system. Second, the limits of the reformist perspective lead to the argument that if there is no crisis in the public sector, there is no need for reforms that will change the situation. This has become

known as the syndrome of change. Third, according to the first condition, the external driving forces must lead the country to a permanent search for public-sector reform as a way of surviving on the international level. Finally, the second condition may only occur when it attacks the restrictions that, until today, sustain the country's ability to compete.

Fischer et al. (2021) went deeply into the ever-evolving Digital Government Research (DGR), which is a critical issue considering how relevant society has proven the deployment of advanced information and communication technologies (ICTs) to transform the public sector to date. Barrutia and Echebarria (2021) reviewed articles with guidelines on how the big data paradigm might guide future trends in developing new delivery models for public services. Their findings contribute to articulating the public management research agenda.

Gabryelczyk (2020) analyses the e-government research from a bibliometric perspective. The author suggests considering less-cited but still widely recognized articles on e-government, better exploitation of the multidisciplinary of e-government, and expanding datasets to reinforce studies on e-government and foster public and business value. Although significant progress has been made in e-governance research around the world, the gap in terms of regional research development is evident. Agasisti et al. (2020) intended to identify the main trends in research on the use of digital technologies in higher education.

Björck is a Swedish digital society pioneer. In 2004, he stated that the ongoing process of public sector reforms should be considered in the context of the so-called information society, or digital society. The focus should be on how e-government has changed as a consequence of advanced technology, high-quality network infrastructure, high per capita income, high education standards, and the empowerment of citizens.

11.3 Power Dynamics

Power dynamics and institutional politics play a critical role in digital transformation. The distribution of power within the organization, decision-making processes, and the influence of various stakeholders can either facilitate or hinder the progress of digital initiatives (Manda, 2022). Understanding these dynamics is crucial for navigating potential obstacles and leveraging power structures to support digital transformation.

Dragu and Lupu (2021) undertook an extensive study examining power dynamics in digital government transformation in Mexico from a global governance perspective. Their findings suggest that digital government transformation is not value-free and defined exclusively by New Public Management values, but it is also advancing broader societal worldviews or even ideologies that reflect on the structure of global digital society. Dragu and Lupu's findings also suggest that digital technology presents an ideological instantiation that reproduces or reinforces social policy. They drew on interdisciplinary research to examine the power relations of digital government transformation in the two Pacific countries of Fiji and New Zealand.

The Manda (2019) study seeks to comprehensively investigate the dimensions of power that are displayed, performed, and enacted in the context of the ongoing digital government transformation of an EU Member State, particularly in forming the mandatory central government data architecture. The empirical findings presented bear out the significance of insufficient and one-sided treatment of power dynamics in the information systems responsibility literature, government information system literature, and lately in the digital government literature, as well as in relation to data-intensive operations and the responsible development of artificial intelligence AI.

Such dynamics and the prevalence of constitutive depth inequality in the 'data age' form and make government technologicalization's promises of an improved digital life disingenuous. These findings have several specific, in terms of vulnerability and oppression, but also more general, public policy relevance and associated implications, spanning matters related to the abandonment of government's inclusive and crucial responsibilities, impacting most those government is most responsible for; in particular, they highlight the intensification and the societal shift towards data-driven surveillance and emotion-driven oppressive automation, within central government and proceeding rapidly through mandatory digitalization. Furthermore, they discussed how government policymaking can more fully take into account the qualitative empirical findings on how the obligatory governance of effects contributes to making the dominant central government data infrastructure itself opposing to purposefully effective policymaking that is inclusive of the governed.

11.4 Effective Management Role

The effective role of management in conducting comprehensive change towards digital government aims to make public service delivery more transparent, accountable, efficient, and effective. To observe this matter, this section discusses a spectrum of relevant studies.

Tate et al. (2022) examined the managerial roles that digital government transformation requires. They identified four components relevant to digital government transformation: envision, architect, implement, and change manager. Based on their integrated perspective, the study results showed that the components 'envisioned', 'architect', and 'implement' contribute to the pursuit of efficiency and innovation as the four digital government outcomes for effectiveness, especially for those organizations focusing on service delivery. Additionally, the findings suggested that organizations should rotate focus on the manager components over time until they make up a substantial proportion of their portfolio.

Omar et al. (2020) authored a paper that demonstrates the outcomes of an empirical investigation into management roles in the process of digital government (DG) change. They mainly aim to draw evidence to highlight the "less" and "more" actions. Firstly, they distinguish three management role dimensions: "skill" (technical and mental action), "competency" (interactional action), and "role" (role-related policies and management action). They reveal that their respondents perceive the former two as the least important and the least taken responsibility for. Across the latter two, the project role was considered relatively less important and was less responsibly taken. In contrast, the service role was considered the most important and was mostly taken responsibility for.

Cordella and Paletti (2019) explore digital encoding of law in prison software. Their analysis highlights the paramount importance of deemphasizing the distinction between a rhetorical and formal construction of policy and between technology in-action and on-the-shelf. Drawing on the methodology of pragmatic philosophy, technical standards should be reconceptualized as normative artefacts; that is, prison software enacted should be described as a requirement of the law without becoming about the law. In the epistemic mediation that technology provides between the law and its addressees, all decisions become technical; moral decisions are scaled down to assessable or cancellable risks. This has consequences

on managerial efforts to effect change when policy is digital and digital is transformative at the same time. It is important to remember that managers assume these roles regardless of whether they or their organizations provide citizens with access to digital services. Some digital government investment might be better placed in manager-training. Managers are the government's civil services' software and organizational programme 'interpreters'. They thus strongly influence the outlays of their department or other organization. On-the-ground local managers' and leaders' affirmation of the importance of digital, or their digital skepticism, attests to the values that can enter the deliberative space around implementing such strategies. Therefore, the ability of managers and leaders to voice their concerns and hopes concerning digital policy and strategy, and their interpretation, is of relevance for the legitimacy of the digital government projects they front.

Vial (2019) supports the idea that new technologies require different management skills and competencies, as well as changes in organizational and inter-organizational structures. This perspective reinforces the notion that a strong organizational foundation is not just about technology integration but also encompasses management skills and organizational adaptability. This led to the role of Management. Mergel et al. (2019) also stressed the role of public managers and the significance of managerial activities in driving digital government transformation. This insight underscores the need for skilled leadership and workforce as integral components of the organizational foundation.

Silva and Backhouse (2007) deliberated that effective leadership drives digital transformation. This involves commitment from the top management, a clear and inspiring vision for digital transformation, and the ability to motivate and lead change within the organization to create a sustainable environment for digital initiatives.

Fernandez and Rainey (2006) are generally regarded as the scholars who managed to shift two venerable metaphysical issues from the ancient into the digital era by relating measurement of manager effectiveness to the incremental development of digital government. In a contribution that is still quoted, they initially describe the impact of new technologies on public organizations and the changes and progress achieved in public administration through changing information technology (IT) operations. Based their survey carried out in public organizations at all levels of

government, they found a negative impact of e-government on managerial activities and the need for increased communication, effective delegation, and performance orientation.

Based on the analysis of the literature, the following framework shown in Figure 3 below is proposed that encompasses all building blocks of digital transformation in governments as illustrated above.

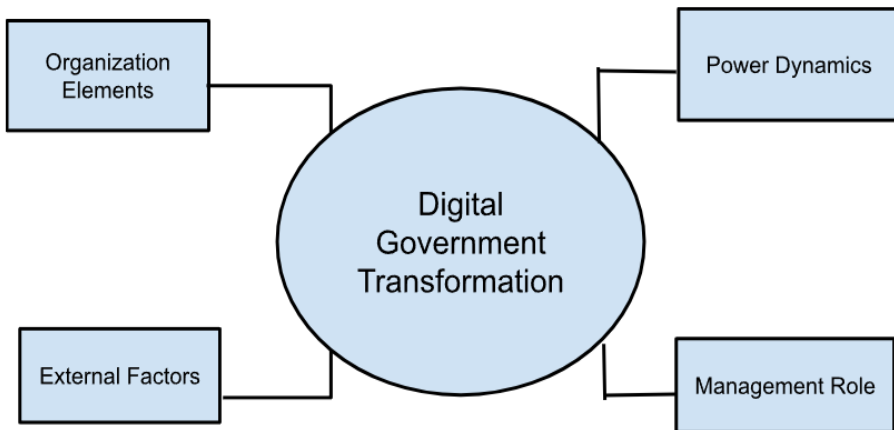


Figure 3: Proposed Framework for Digital Transformation in Government;
 Source: The Authors

12. STUDY IMPLICATIONS

The increasing evolution and ubiquity of digital innovations have stimulated extensive changes in societal structures, which contribute to creating a digital transformation with wide-ranging implications for already established societal infrastructures and organizations. This societal transformation process specifically applies to the public sector and thus the creation of the Digital Government (DG), which is assumed to become a core feature of the transformation of innovation from the perspective of eGovernment. The implementation of the proposed DGT framework is projected as a human-based task for governments as political entities or special institutional systems representing distinct societal structures to change through responsive public services attached to internal transformation due to technological advancement.

Digital Government Transformation (DGT) of traditional bureaucratic systems seeks to bring about system transformation on a country-scale level to improve the use of data and technology between government and constituents. The

transformation of government practices is a very old debate that goes back to the beginning of sociology in the 19th century. Bringing a new perspective to the debate, this framework seeks to align itself with efforts that, from multiple theoretical and empirical backgrounds, aim to explain the dynamics of government management at the current moment by incorporating tools and concepts related to digital transformation, digital government, open government, managerialism, and new public management, contextualizing these phenomena within the changes in the socio-economic context in which public services are provided.

The proposed framework offers important implications for managerial practice to help managers understand a series of important characteristics related to the practical implications of digital government transformation, highlighting that they also need to possess distinctive roles and competencies to manage not only digitalization but also the human and organizational transformations that must necessarily be undertaken to maximize the benefits. To better manage the digital government transformation, the conducted analysis suggests that it is useful to maintain a multifaceted point of view. People in charge of deeply supporting institutional advancements towards digital governance, the policymakers who address organizational and people's shifts, as well as the decision makers fostering improvements in ICT destinations, are all necessary in public contexts. Transformation management capacities require result- and context-orientation as well as the adoption of a strategic view. The presented framework to design real possibilities for administrative innovation and develops some useful advice for policymakers.

13. CONCLUSION

It is defended that public administrations must advance towards transformations that are capable of modernizing the state and promoting new forms of digital proximity of citizens and business movements, aiming at reducing costs susceptible to the promotion of better public policies for the country. The strategic modernizing importance of public administration has been increasingly addressed by many scholars, focusing on the democratization of politics and seeking to improve the efficiency, competence, efficacy, and effectiveness of governmental activities. The research proceeds considering that the digitalization that arises in public administration and transformations provide and generate

innovations in government that transform the public administration culture, the roles of stakeholders, mobilize agents, increase the operating capacity of citizens, generate changes and improvements in the regulatory arena of public policies and services, and lead to relations and new encounters in direct, concrete ways between citizens and government in the ongoing administrative process. Digital governance is all of these and new operational and strategic capacities, concrete capacities, new ways of doing things, and new organizational and ICT architectures.

A review of the literature suggests that there is a trend amongst governments to adopt digital solutions, primarily due to cost efficiencies and improved quality and speed of service delivery. In the case of developing countries, it is important for the benefits of digital government transformation to extend to all citizens and not just those in urban areas. There is also an important role for international development organizations, which could assist developing countries by helping to develop their ICT infrastructure and supporting the development of their human resource base while fostering international partnerships.

The study has highlighted the importance of digital government transformation DGT and the critical need for extensive qualitative data, particularly through interviews, to provide a richer understanding of the complexities and challenges inherent in digital transformation. The analysis of existing literature has identified gaps related to the lack of comprehensive frameworks that encapsulate all the building blocks of digital transformation. Additionally, the study emphasizes the significance of a strong organizational foundation, adaptation to external factors, understanding internal power dynamics, and effective leadership in driving successful digital transformation initiatives in government contexts.

One of the limitations of this study is the reliance on existing literature and theoretical frameworks, which may not capture the full complexity of digital government transformation in practice. The lack of empirical data from case studies or field research may limit the generalizability of the findings. Furthermore, the focus on academic perspectives may overlook practical challenges faced by government organizations in implementing digital transformation initiatives.

Furthermore, the application of the proposed conceptual digital government framework requires the comprehension of various cultural settings for it to function and remain sensitive to people of diverse cultural backgrounds. Comparative analysis studies in different national environments and distinct geographic regions are needed as the cultural factors play a crucial role in such elements as the adoption of digital governance, population engagement, and the outcomes achieved. For instance, while high individualism introduced in the country may be translated into human-oriented approach and user-friendly elements, communism may stress people's general utility and shared access to the resources. Through paying attention to these cultural factors, academics and policymakers can ascertain how the culture informs people's perception of e-governance and then proceed to fit into the culture for increased acceptance and use. That is why comparative studies are crucial for searching the best practices and possible problems, leading to giving a further direction to the worldwide discussion of an effective use of digital technologies with respect to the cultural differences.

14. RECOMMENDATIONS FOR FUTURE RESEARCH

The projected framework can be validated through feedback from experts and stakeholders to ensure its robustness and applicability across different contexts. Semi-structured interviews with open-ended questions can be developed to allow participants to express their experiences and insights freely. These questions will cover topics such as challenges faced, technological infrastructure, organizational changes, policy and regulatory impacts, user engagement, data management, and socio-cultural considerations.

Interviews can be conducted face-to-face, over the phone, or via video conferencing, depending on the availability and preferences of the participants. A purposive sampling strategy will ensure a diverse representation of stakeholders from different government sectors and regions.

Quantitative data on government digital platforms (e.g., website analytics, social media engagement metrics) can be collected to triangulate with qualitative findings, as recommended by Dwivedi et al. (2020). This approach allows for a robust triangulation of data, enhancing the validity and reliability of the findings (Creswell and Plano Clark, 2018).

Future research in the field of digital government transformation should focus on conducting in-depth case studies and field research to gain insights from real-world implementation experiences. Additionally, there is a need for more empirical studies that explore the impact of digital government platforms, such as official websites and social media, on the effectiveness of government initiatives. Researchers should also aim to develop comprehensive frameworks that encompass all critical elements of digital transformation and consider the interplay of internal and external factors. Moreover, there is a call for studies that integrate both qualitative and quantitative research methods to provide a more holistic understanding of digital transformation processes in government settings.

REFERENCES

- Abdallah, Y. O., Shehab, E., & Al-Ashaab, A., (2022). Developing a digital transformation process in the manufacturing sector: Egyptian case study. *Inf Syst E-Bus Management*. DOI:10.1007/s10257-022-00558-3
- Abdel-Basset, M., Chang, V., Mahdy, M., Mirjalili, S., Ming, W., Nabeeh, N. A., and Wang, M. (2021). The role of ICT and dating supply chain management: Towards greening the environment and boosting the circular economy. *Journal of Cleaner Production*, 294, 126253.
- Abdel-Basset, M., Mohamed, R., & Chang, V. (2021). State-of-the-art Internet of Things in protected agriculture. *Computers, Environment and Urban Systems*, 85, 101567.
- Accenture (2017). Accenture Technology Vision 2017. Available at <https://www.accenture.com/us-en/insight-disruptive-technology-trends-2017>.
- Accenture (2018). Accenture Technology Vision 2018, Available at https://www.accenture.com/t20180227T215953Zw/us-en/_acnmedia/Accenture/next-gen-7/tech-vision-2018/pdf/Accenture-TechVision-2018-Tech-Trends-Report.pdf (Accessed July 7 2019).
- Agasisti, T., Barra, C., & Zotti, R. (2020). Evaluating the efficiency of Italian public higher education institutions in the presence of (unobserved) heterogeneity. *Socio-Economic Planning Sciences*, 71, 100789.
- Amit, R., & Zott, C. (2001). Value creation in e-business. *Strategic Management Journal*, 22(6–7), 493–520.
- Ansari, S., Garud, R., & Kumaraswamy, A. (2016). The disruptor's dilemma: TiVo and the US television ecosystem. *Strategic Management Journal*, 37(9), 1829–1853.
- Ashaye, O. R., & Irani, Z. (2019). Digital transformation: Harnessing digital technologies for the next generation of services. *Journal of Services Marketing*, 33(4), 429-437.
- Ashaye, O., & Irani, Z. (2019). Digital transformation in governments: A quest for insight to balance risks and benefits. *International Journal of Information Management*, 47, 185-206.

- Barrutia, J. M., & Echebarria, C. (2021). Digital transformation and sustainability: How do digital ecosystems enhance value co-creation? *Journal of Business Research*, 122, 376-385.
- Beckers, S. F. M., van Doorn, J., & Verhoef, P. C. (2018). Good, better, engaged? The effect of company-initiated customer engagement behavior on shareholder value. *Journal of the Academy of Marketing Science*, 46(3), 366-383.
- Beer, M., & Eisenstat, R. (2000). The Silent Killers of Strategy Implementation and Learning. *Sloan Management Review*, 41, pp. 29-40. Available at: <https://app.mapfre.com/documentacion/publico/i18n/consulta/registro.cmd?id=53089>
- Berman, S. J., & Bell, R. (2011). Digital transformation: Creating new business models where digital meets physical. IBM Institute for Business Value.
- Björck, F. (2004). eGovernment studies: Past, present and future. *International Journal of Public Sector Management*, 17(4), 318-333.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3 (2), 77-101.
- Broekhuizen, T. L. J., Bakker, T., & Postma, T. J. (2018). Implementing new business models: What challenges lie ahead? *Business Horizons*, 61(4), 555-566.
- Business Insider (2017a). 5 companies are carrying the SandP 500, available at <http://www.businessinsider.com/5-companies-are-carrying-the-sp-500-2017-5?international=true&dr=US&IR=T> (Accessed July 2019).
- Business Insider (2017b). Lyft tripled its rides in 2016, available at <https://www.businessinsider.de/lyft-tripled-its-rides-in-2016-2017-1> (Accessed July 2019).
- Christensen, C. M., & Overdorf, M. (2000). Meeting the challenge of disruptive change. *Harvard Business Review*, 78(2), 66-77.
- Christensen, C. M., Bartman, T., & Van Bever, D. (2016). The hard truth about business model innovation. *Sloan Management Review*, 58(1), 30-40.

- Cordella, A., & Paletti, A. (2019). Digital government transformation: An assessment of municipal e-services in Italian regions. *Information Polity*, 24(3), 243-258.
- Cordella, A., & Paletti, A. (2019). Government information waves: Lessons from the UK private finance initiative. *Journal of Public Administration Research and Theory*, 29(1), 167-182.
- Correani, A., De Massis, A., Frattini, F., Petruzzelli, A.M., Natalicchio, A., Implementing a digital strategy: Learning from the experience of three digital transformation projects. *California Management Review*, 62(4) (2020), 37-56.
- Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and Conducting Mixed Methods Research* (3rd ed.). Sage Publications.
- Cui, A. S., & Wu, F. (2016). Utilizing customer knowledge in innovation: Antecedents and impact of customer involvement on new product outcomes. *Journal of Academy of Marketing Science*, 44(4), 516–538.
- Davenport, TH, Westerman, G., (March 2018). Why So Many High Profile Digital Transformations Fail. *Harvard Business Review*, 2 (6).
- Dougherty, D., & Dunne, D. (2012). Digital science and knowledge boundaries in complex innovation. *Organization Science*, 23(5), 1467–1484.
- Dragu, C., & Lupu, D. M. (2021). Accountability as a tool for empowering civil servants in new public management. *Public Administration*, 99(1), 49-64.
- Dremel, C., Wulf, J., Herterich, M. M., Waizmann, J. C., & Brenner, W. (2017). How AUDI AG established big data analytics in its digital transformation. *MIS Quarterly Executive*, 16(2), 81–100.
- Dwivedi, Y. K., Hughes, D. L., Ismagilova, E., et al. (2020). Artificial Intelligence (AI): Multidisciplinary Perspectives on Emerging Challenges, Opportunities, and Agenda for Research, Practice and Policy. *International Journal of Information Management*, 57, 101994.
- Eggers, J. P., & Park, K. F. (2018). Incumbent adaptation to technological change: The past, present, and future of research on heterogeneous incumbent response. *Academy of Management Annals*, 12(1), 357–389.

- Eisenmann, T. R., Parker, G., & Van Alstyne, M. W. (2006). Strategies for two sided markets. *Harvard Business Review*, 84, 92–101.
- Eom, S. J., & Lee, H. (2022). The Co-evolution of Technology and Government: A Study of Digital Government Transformation. *Government Information Quarterly*, 39(1), 101613.
- Eom, S. J., & Lee, J. K. (2022). Digital government transformation using the nudge theory. *Government Information Quarterly*, 101711.
- European Commission. (2020). Digital Single Market. Available at <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020PC0825>
- Fatorachian, Hand, & Kazemi, H (2018). A critical investigation of Industry 4.0 in manufacturing: Theoretical operationalization framework. *Production Planning and Control*, 29(8). ISSN0953-7287 DOI: <https://doi.org/10.1080/09537287.2018.1424960>
- Feiock, R. C., & Novak, J. (2010). Institutional governance, policy tools, and public outcomes: A study of land use decisions in Florida, USA. *Journal of Public Administration Research and Theory*, 20(3), 575-595.
- Feiock, R. C., Moon, M. J., & Park, H. J. (2010). Is the world "flat" or "spiky"? Rethinking the governance implications of globalization for economic development. *Public Administration Review*, 70(1), 96-109.
- Fernandez, S., & Rainey, H. G. (2006). Managing successful organizational change in the public sector. *Public Administration Review*, 66(2), 168-176.
- Fischer, A., Rozenberg, S., & Sanchez, C. (2021). The adoption of coproduction initiatives in times of austerity: A cross-national perspective. *Public Management Review*, 23(5), 751-772.
- Foss, N. J., & Saebi, T. (2017). Fifteen years of research on business model innovation: How far have we come, and where should we go? *Journal of Management*, 43(1), 200–227.
- Gabryelczyk, R. (2020). Has the digital transformation influenced the business models of companies operating in the financial sector? *Journal of Business Research*, 117, 253-259.

- Gebba, Tarek Roshdy, & Zakaria, Mohamed Ramzy, (2015). Research prospects for digital government transformation in Egypt. In: *El-Shahat A., Hassanien A. (eds), Data Mining and Knowledge Discovery Technology. ICICT 2014. Communications in Computer and Information Science*, vol. 467. Springer, Berlin, Heidelberg.
- Gensler, S., Neslin, S. A., & Verhoef, P. C. (2017). The showrooming phenomenon: It's more than just about price. *Journal of Interactive Marketing*, 38(2), 29–43.
- Gil-Garcia, J. R., & Flores-Zúniga, M. A. (2020). Digital government and public management research: Finding the crossroads. *Public Management Review*, 22(5), 633-652.
- Gil-Garcia, J. R., & Flores-Zúniga, Y. (2020). E-government success factors: Mapping practical tools to the theoretical foundations. *International Journal of Public Administration*, 1-13.
- Gölzer, P., & Fritzsche, A. (2017). Data-driven operations management: Organizational implications of the digital transformation in industrial practice. *Production Planning and Control*, 28(16), 1332–1343.
- Gomber, P., Kauffman, R. J., Parker, C., & Weber, B. W. (2018). On the Fintech Revolution: Interpreting the Forces of Innovation, Disruption, and Transformation in the Financial Sector. *Journal of Management Information Systems*, 35(1), 220-265.
- Grönroos, C., & Voima, P. (2013). Critical service logic: Making sense of value creation and co-creation. *Journal of the Academy of Marketing Science*, 41(2), 133–150.
- Hassaballah, A. (2021). Digital Government and the Change Management Field Study. *JCES*, Volume 12, Issue 1, Pages 552-567. Available at DOI:10.21608/jces.2021.168645
- Hess, T., Matt, C. & Benlian, A. (2019). The digital transformation of business models: A framework for IoT projects. *Information Systems Frontiers*, 21(2), 333-349.

- Iansiti, M., & Lakhani, K. R. (2014). Digital ubiquity: How connections, sensors, and data are revolutionizing business. *Harvard Business Review*, 92(11), 90–99.
- ITU Publications, (2023). Egypt's Digital Transformation and Collaborative Regulation. International Telecommunication Union, Development Sector. Available at <https://www.itu.int/pub/D-PREF-THEM.30-01-2023>
- Kamel, S., (2021). The role of digital transformation in development in Egypt. IBIMA Publishing *Journal of Internet and e-Business Studies*. <https://ibimapublishing.com/articles/JIEBS/2021/911090/> 2021 (2021), Article ID 911090, 10, ISSN: 2169-0391 DOI: 10.5171/2021.911090
- Kamel, Sherif, (2021). The Role of Business Model Innovation for Digital Just Government Transformation. *Public Management Review* 23, no. 4: 515–539.
- Kane, G. C., Palmer, D., Philips, A. N., Kiron, D., & Buckley, N. (2015). Strategy, not technology, drives digital transformation. *MIT Sloan Management Review and Deloitte University Press*, 14, 1–25.
- Kannan, P. K., & Li, H. A. (2017). Digital marketing: A framework, review and research agenda. *International Journal of Research in Marketing*, 34(1), 22–45.
- Katsikeas, C. S., Morgan, N. A., Leonidou, L. C., & Hult, G. T. M. (2016). Assessing performance outcomes in marketing. *Journal of Marketing*, 80(2), 1–20.
- Koch, T., & Windsperger, J. (2017). Seeing through the network: Competitive advantage in the digital economy. *Journal of Organization Design*, 6(1), 6.
- Lamberton, C., & Stephen, A. T. (2016). A thematic exploration of digital, social media, and mobile marketing: Research evolution from 2000 to 2015 and an agenda for future inquiry. *Journal of Marketing*, 80(6), 146–172.
- Lanzolla, G., & Anderson, J., (May 2008). Digital Transformation: a review, synthesis and opportunities for future research. *Business Strategy Review*, 19(2), DOI:10.1111/j.1467-8616.2008.00539.x

- Lee, O. K. D., Sambamurthy, V., Kim, K. H., & Wei, K. K. (2015). How does IT ambidexterity impact organizational agility? *Information Systems Research*, 26(2), 398–417.
- Lemon, K. N., & Verhoef, P. C. (2016). Understanding customer experience throughout the customer journey. *Journal of Marketing*, 80(6), 69–96.
- Leonhardt, D., Haffke, I., Kranz, J., & Benlian, A. (2017). Reinventing the IT function: the role of IT agility and IT ambidexterity in supporting digital business transformation. In *ECIS Proceedings*, Guimarães, Portugal, June 5-10, 2017, (968–984).
- Li, F., Nucciarelli, A., Roden, S., & Graham, G. (2016). How smart cities transform operations models: A new research agenda for operations management in the digital economy. *Production Planning and Control*, 27(6), 514–528.
- Li, L., Su, F., Zhang, W., and Mao, J. Y. (2018). Digital transformation by SME entrepreneurs: A capability perspective. *Information Systems Journal*, 28(6), 1129–1157.
- Liao, Y., Deschamps, F., Loures, E., & Ramos, L. F. P. (2017). Past, present and future of Industry 4.0—A systematic literature review and research agenda proposal. *International Journal of Production Research*, 55(12), 3609-3629.
- Libert, B., Beck, M., & Wind, J. (2016). The network imperative: How to survive and grow in the age of digital business models. *Harvard: Business Review Press*.
- Littman, E., Pardo, T. A., & Gil-Garcia, J. R. (2021). Moving Beyond Political Slogans: The Realities of Digital Government Transformation. *Public Administration Review*, 81(4), 635-648.
- Littman, M., Sang, T., & Lund, D. (2021). Sustainable management of public infrastructure assets: A methodological approach. *Journal of Management and Engineering*, 153-161.
- Liu, D. Y., Chen, S. W., & Chou, T. C. (2011). Resource fit in digital transformation – Lessons learned from the CBC bank global e-banking project. *Management Decision*, 49(10), 1728–1742.

- Loebbecke, C., & Picot, A. (2015). Reflections on societal and business model transformation arising from digitization and big data analytics: A research agenda. *Journal of Strategic Information Systems*, 24(3), 149–157.
- Lu, Y., & Ramamurthy, K. R. (2011). Understanding the link between information technology capability and organizational agility: An empirical examination. *MIS Quarterly*, 35(4), 931–954.
- Majchrzak, A., Markus, M. Lynne, & Wareham, J. (June 2016). Designing for Digital Transformation: Lessons for Information Systems Research from the Study of ICT and Societal Challenges, *MIS Quarterly*, June 2016, 40(2), 267-278
- Manda, J. A. (2019). Digital strategies in government: Tools for managing complexity and delivering value. *Public Administration Review*, 79(6), 939–950.
- Manda, J. A. B. (2022). Toward an integrated government information architecture: Designing relational spaces for value. *Government Information Quarterly*, 101682.
- Manda, J., & Backhouse, J. (2019). Strengthening government delivery for sustainable development: A framework and research agenda. *Sustainable Development*, 27(1), 37-44.
- Manda, M. T., & Backhouse, J. (2019). Digital identity ecosystems: A success story of digital transformation in Rwanda. *The Electronic Journal of Information Systems in Developing Countries*, 85(1), e12053.
- Matt, C., Hess, T., & Benlian, A. (2015). Digital transformation strategies. *Business and Information Systems Engineering*, 57(5), 339–343.
- McGrath, R. G. (2010). Business models: A discovery driven approach. *Long Range Planning*, 43(2–3), 247–261.
- Mergel, I., Edelmann, N., & Haug, N. (2019). Defining digital transformation: Results from expert interviews. *Government Information Quarterly*, 36(4), 101385.

- Mergel, I., Zhao, X., & Trianni, A. (2019). Digital transformation in the public sector: At the intersection of the bureaucratic and the digital. *Public Administration Review*, 79(2), 118-128.
- Moser-Plautz, E., et al. (2023). External Factors Influencing Digital Government Transformation: A Systematic Review. *Journal of Digital Government Research*, 15(2), 75-90.
- Moser-Plautz, V., & Schmidhuber, L. (2023). Digital transformation in government: building an analytical framework from a political paradigm perspective. *Public Management Review*, 1-27.
- Nambisan, S., Lyytinen, K., Majchrzak, A., & Song, M. (2017). Digital innovation management: Reinventing innovation management research in a digital world. *MIS Quarterly*, 41(1), 223-238.
- Nograšek, J., & Vintar, M. (2014). Monitoring the development of e-government dynamics: A holistic approach. *Journal of Organizational Computing and Electronic Commerce*, 24(3), 265-289.
- Omar, A., Chang, V., & Zhang, M. (2020). Islamic ESG governance: Committing the stakeholders. *International Journal of Policy Administration and Institutions*.
- Osterwalder, A., & Pigneur, Y. (2010). *Business model generation: A handbook for visionaries, game changers, and challengers (1st ed.)*. Hoboken, NJ: John Wiley and Sons.
- Pagani, M., & Pardo, C. (2017). The impact of digital technology on relationships in a business network. *Industrial Marketing Management*, 67, 185-192.
- Paré, G., Trudel, M., Jaana, M., & Kitsiou, S. (2015). Synthesizing information systems knowledge: A typology of literature reviews. *Information and Management*, 52(2), 183-199.
- Parviainen, P., Tihinen, M., Kääriäinen, J., & Teppola, S. (2017). Tackling the digitalization challenge: How to benefit from digitalization in practice. *International Journal of Information Systems and Project Management*, 5(1), 63-77.

- Pigni, F., Piccoli, G., Watson, R., (2016). Digital data streams: creating value from the real-time flow of Big Data, *California Management Review*, 58, 5-25, 10.1525/cm.2016.58.3.5
- Prahalad, C. K., & Ramaswamy, V. (2000). Co-opting customer competence. *Harvard Business Review*, 78(1), 79-90.
- Puschmann, T. (2017). Fintech, mobile financial services, and the re-shaping of banking. In: I. Lehner, N. Otto, F. Schirmer and C. Weinhardt (Eds.), *23rd Americas Conference on Information Systems*.
- Ramaswamy, V., & Ozcan, K. (2016). Brand value co-creation in a digitalized world: An integrative framework and research implications. *International Journal of Research in Marketing*, 33(1), 93-106.
- Recode (2018). You can watch Netflix on any screen you want, but you're probably watching it on a TV, available on <<http://www.recode.net/2018/3/7/17094610/netflix-70-percent-tv-viewing-statistics>> (Accessed July 2019).
- Sambamurthy, V., Bharadwaj, A., & Grover, V. (2003). Shaping agility through digital options: Reconceptualizing the role of information technology in contemporary firms. *MIS Quarterly*, 27(2), 237-263.
- Schallmo, D., Williams, C., & Boardman, L. (2017). Digital Transformation of business models — Best practice, enablers, and roadmap. *International Journal of Innovation Management*, 21(8), 1740014.
- Scott, G. (2014). The role of the CIO in e-government: Dynamic capability perspective. *Journal of Technology Management and Innovation*, 9(4), 162-172.
- Silva, L. D., & Backhouse, J. (2007). An empirical assessment of the relationship between e-business, IT and firm performance. *Journal of Business Strategy*, 28(5), 43-66.
- Statista (2019). Retail e-commerce sales worldwide from 2014 to 2021 (in billion U.S. dollars), available on <https://www.statista.com/statistics/379046/worldwide-retail-e-commerce-sales> (Accessed January 18 2019).

- Statista. Number of monthly active Facebook users worldwide as of 1st quarter 2018 (in millions), available on <https://www.statista.com/statistics/264810/number-of-monthly-active-facebook-users-worldwide> (Accessed July 7 2019).
- Tallon, P. P., & Pinsonneault, A. (2011). Competing perspectives on the link between strategic information technology alignment and organizational agility: Insights from a mediation model. *MIS Quarterly*, 35(2), 463–486.
- Tan, C. W., & Pan, S. L. (2003). Managing e-transformation in the public sector: An e-government study of the inland revenue authority of Singapore (IRAS). *European Journal of Information Systems*, 12(4), 269–281.
- Tangi, L., Benedetti, M., Gastaldi, L., & Noci, G. (2021). Barriers to Digital Transformation in Public Organizations: Investigating the Cultural and Organizational Implications. *Journal of Business Research*, 123, 557–568.
- Tangi, R., Perić, M., & Lalic, B. (2021). Digital government transformation: Cultural, organizational and technological barriers to e-government in transition economies. *Government Information Quarterly*, 38(1), 101471.
- Tarafdar, M., & Davison, R. (2018). Research in information systems: Intra-disciplinary and inter-disciplinary approaches. *Journal of the Association for Information Systems*, 19(6), 523–551.
- Tassabehji, R., Hackne, R., & Popovič, A., (2016). Emergent digital era governance: Enacting the role of the ‘institutional entrepreneur’ in transformational change. *Government Information Quarterly*, 33(2), 223–236. <https://doi.org/10.1016/j.giq.2016.04.003>
- Tate, W., Mauro, C. Di, Carnovale, S., Knight, L., (2022). Transitions, opportunities, and challenges – Change and continuity, *Journal of Purchase Supply Management*.
- Teece, D. J. (2010). Business models, business strategy and innovation. *Long Range Planning*, 43(2–3), 172–194.
- United Nations Conference on Trade and Development (UNCTAD). (2021). Digital Economy Report 2021. Available at https://unctad.org/system/files/official-document/der2021_en.pdf

- Venkatraman, V. (2017). *The Digital Matrix: New Rules for Business Transformation Through Technology*. Vancouver, Canada: Greystone Books.
- Verhoef, L. A. A., & Mena. (2021). Digital transformation: A new agenda for business and society. *Journal of Business Research*, Elsevier, 122(C), 889-901
- Verhoef, P. C., & Bijmolt, T. H. A. (2019). Marketing perspectives on digital business models: A framework and overview of the special issue. *International Journal of Research in Marketing*, 36(2), <https://doi.org/10.1016/j.ijresmar.2019.08.001>.
- Verhoef, P. C., Kannan, P. K., and Inman, J. (2015). From multi-channel retailing to omni-channel retailing: Introduction to the special issue on multi-channel retailing. *Journal of Retailing*, 91(2), 174-181.
- Verhoef, P. C., Kooge, E., & Walk, N. (2016). *Creating value with big data analytics – Making smarter marketing decisions*. Routledge.
- Verhoef, P. C., Stephen, A. T., Kannan, P. K., Luo, X., Abhishek, V., Andrews, M., ... Zhang, Y. (2017). Consumer connectivity in a complex technology-enabled, and mobile-oriented world with smart products. *Journal of Interactive Marketing*, 40, 1-8.
- Vial, G. (2019). Understanding Digital Transformation: A Review and a Research Agenda. *The Journal of Strategic Information Systems*, 28, 118-144. Available at the following: <https://doi.org/10.1016/j.jsis.2019.01.003>
- Westerman, G., Bonnet, D., & McAfee, A. (2014). *Leading Digital: Turning Technology into Business Transformation*. Harvard Business Review Press.
- Wölmert, N., & Papies, D. (2016). On-demand streaming services and music industry revenues – Insights from Spotify's market entry. *International Journal of Research in Marketing*, 33(2), 314-327.
- World Bank Group, (2020). Egypt - Government of Egypt Digitization and e-Transformation Project. The World Bank.
- Yildiz, M., (2007). E-government research: Reviewing the literature, limitations, and ways forward, *Government Information Quarterly*, 24, 646-665.

- Yuan, Y., Liu, D., & Zhang, J. (2023). Cross-Cultural Comparative Studies on Digital Government Transformation: Insights and Future Research Directions. *Government Information Quarterly*, 40(2), 102158.
- Yuan, Y., Wang, P., Yao, L., & Li, J. (2023). Cross-Cultural Comparative Studies in Government Digital Transformation Initiatives: Opportunities and Challenges. In *Proceedings of the International Conference on E-Government and Digital Society (EGOVDS)*.

تصميم إطار للتحول الرقمي لصانعي السياسات

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ملخص البحث باللغة العربية

في عصر التقدم التكنولوجي السريع، أصبح التحول الرقمي أمراً ضرورياً للهيئات الحكومية وصناع السياسات لتعزيز الكفاءة والشفافية وإشراك المواطنين. ومع ذلك، فإن تعقيد دمج التكنولوجيا الرقمية في القطاع العام يفرض تحديات كبيرة. تقترح هذه الورقة البحثية إطاراً سياقياً مصمماً لتوجيه صناع السياسات من خلال تعقيدات التحول الرقمي. تم تطوير الإطار من خلال نهج متعدد التخصصات، يجمع بين رؤية تكنولوجيا المعلومات، والإدارة العامة، وإدارة التغيير التنظيمي.

يتمحور الإطار المقترح حول أربع ركائز أساسية: العناصر التنظيمية، وديناميكيات السلطة، ودور الإدارة، والعوامل الخارجية. وتتم مناقشة كل ركيزة من أجل التنفيذ الفعال. ويتم التأكيد على أهمية بناء بنية تحتية رقمية قوية وأمنة كأساس للتحول، إلى جانب تعزيز محو الأمية الرقمية بين صناع السياسات والجمهور على حد سواء لضمان المشاركة الشاملة.

علاوة على ذلك، توضح الورقة الحاجة إلى سياسات مرنة وآليات تنظيمية قادرة على التكيف مع التقدم التكنولوجي، وتشجيع الابتكار، ومعالجة التحديات الناشئة مثل خصوصية البيانات والأمن السيبراني. وأخيراً، تتم الدعوة إلى التحول نحو الخدمات التي تركز على المواطنين، وذلك باستخدام المنصات الرقمية لتقديم الخدمات العامة التي يمكن الوصول إليها والشخصية والاستجابة لاحتياجات المواطنين.

ومن خلال هذا الإطار، تهدف الورقة البحثية إلى تزويد صناع السياسات بخريطة طريق استراتيجية للتنقل في التحول الرقمي، وضمان بقاء المؤسسات الحكومية فعالة وخاضعة للمساءلة وذات صلة بالعصر الرقمي. والهدف النهائي هو إنشاء قطاع عام لا يتحول عن طريق التكنولوجيا فحسب، بل يتحول أيضاً في قدرته على خدمة الصالح العام.

الكلمات الدالة: التحول الرقمي، الحكومة، التكنولوجيا، الإدارة.

Suggested Citation according to APA Style

Azab, N., Abd Elghany, M., Elharakany, R., Elsherif, M. (2024). Developing a Framework for Digital Government Transformation for Policymakers. *Journal of Alexandria University for Administrative Sciences, Alexandria University*, 61(5), 285-338.

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