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Analysing the Impact of Leadership strategies, Digital culture, and Digital Competencies on the Success of Digital Transformation Initiatives in Egypt's Public Sector: A Case Study of Technological Centers

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Abstract

This This study investigates the critical success factors (CSFs) influencing digital transformation (DT) in Egypt's public sector (PS), with a particular focus on leadership strategies (LS), digital culture (DC), and human digital competencies and skills (DCS). By examining these factors and their interrelationships within technological centers (TCs) affiliated with local government units (LGUs), the research aims to identify essential elements impacting the success of digital transformation initiatives (DTIs) in the socio-economic and public administration context of Egypt. A mixed-method approach was adopted, with quantitative data collected through a structured self-administered questionnaire targeting employees in TCs. The findings reveal significant positive impacts of the examined factors on the success of DTIs. LS emerged as a essential determinant, with robust vision-oriented leadership correlating with improved DT outcomes in PS organizations. DC was identified as another pivotal factor; the greater the acceptance of change and innovation within the organizational culture, the more effectively DT initiatives were implemented. Finally, DCS were shown to have a significant positive influence on DT success, as higher levels of employee competence and digital proficiency were associated with more effective transformation outcomes. These results underscore the importance of fostering strong leadership, cultivating a supportive digital culture, and enhancing employee digital competencies to achieve successful digital transformation in Egypt's public sector. This study provides valuable insights for policymakers and practitioners seeking to navigate the challenges of digital transformation in comparable socio-economic environments.

Keywords: Digital Transformation, Public Sector, Egypt, Leadership, Digital Culture, Digital Competencies and Skills, Success Factors, geographical Analysis, Organizational Change

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1. Introduction

The effective implementation of DTIs in the PS represents an essential challenge that several governments face today. As Egypt navigates its DT journey, identifying and understanding CSFs become vital to ensure that such initiatives deliver its intended outcomes and contribute to national development goals. According to (Castro & Lopes, 2022), understanding these success factors not only facilitates smoother implementation but also enhances the sustainability and the positive impact of DTIs. In the context of Egypt's PS, the government's emphasis on DT as part of its Sustainable Development Strategy (SDS): Egypt Vision 2030 underscores the importance of aligning digital strategies with broader economic and social objectives (Kamel, 2021a). This alignment is crucial for addressing the unique challenges posed by the PS environment, which often includes complex regulatory frameworks, diverse stakeholder expectations, and significant demands for transparency and accountability (Kamel, 2021a); 2021b).

According to Weerasinghe and his colleagues (2023), SDT requires a multifaceted approach, integrating technological, organizational, and environmental dimensions. Strong leadership has been emphasized as a top three factor to SDT (Abu Mansour, 2022). Leaders not only need to champion digital initiatives but also foster a culture that embraces change and innovation (Lee, et al., 2018). Furthermore, the engagement of employees and their alignment with the digital vision are crucial for overcoming resistance to change, which is a common barrier in the PS (Elgohary & Abdel-Aziz, 2023).

Moreover, the technology infrastructure must not only support current needs but also be adaptable to future advancements. This foresight is necessary to ensure that DT efforts are not rendered obsolete by rapidly evolving technologies (Zaied, Ali, & El-Ghareeb, 2017). Therefore, identifying success factors to guarantee effective implementation of DTIs is needed. To address these needs, this research employs success factors identified and confirmed from the literature, adopting a mixed-methods approach.

A quantitative method involves using a questionnaire with employees at TC in the context of Egypt to gather data on the application of DTSFs. This approach allows for an inclusive exploration of how theoretical success factors are applied in practice and optimized to meet specific challenges and opportunities within the local government context of the EPS (Gebba & Zakaria, 20115); (Zaied, Ali, & El-Ghareeb, 2017).

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2. Literature Reviews

2.1 Digitization, Digitalization, and Digital Transformation

The terms digitization, digitalization, and digital transformation are repeatedly used interchangeably (Xanthopoulou & Plimakis, 2021), yet they represent dissimilar processes that have exclusively evolved over time. Although digitization and digitalization primarily involve technology, digital transformation is fundamentally about the customer. The processes of organizational change and the incorporation of a digital culture should be initiated and supported by executives (Gillin, 2016; Schwertner, 2017; Hemerling et al., 2018). Understanding these differences is crucial for comprehending the scope and impact of technology in contemporary society.

Digitization refers to the process of converting analog information into digital form. Historically, digitization began with the advent of computers and the need to store data in a more efficient, less space-consuming manner. The transformation of text, images, and sound into binary code marks the core of this process (Manyika & Lund, 2016). This foundational step paved the way for more advanced digital technologies by providing the raw data necessary for further manipulation and processing.

Digitalization, on the other hand, extends beyond mere data conversion to involve the use of digital technologies to change business models and afford new revenue and value-producing opportunities. The concept of digitalization gained momentum in the late 20th century as businesses started integrating digital tools into their operations, thereby enhancing efficiency and customer experiences (Parviainen et al., 2017). This phase involves implementing digital tools to improve existing processes rather than merely digitizing information.

Digital Transformation represents the most comprehensive evolution among the three terms. It signifies an essential change in how organizations operate and deliver value to customers, driven by digital technology. This transformation is not just about adopting new technologies but about a cultural shift within organizations to continuously challenge the current situation, experiment, and adapt (Westerman, Bonnet, & McAfee, 2014). Digital transformation comprises rethinking business models, organizational structures, and customer interactions to align with the capabilities and opportunities presented by digital technologies.

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The historical context and definitions of these terms highlight their distinct yet interconnected nature. While digitization is the conversion of analog to digital, digitalization involves leveraging these digital tools to improve processes, and digital transformation is about holistic changes to business models and strategies. Each stage builds on the previous one, creating a continuum of technological and organizational advancement that defines the modern digital landscape. Figure (1) shows the three pillars of digital progress: Digitization, Digitalization, and Digital Transformation.

2.1.1 A Synthesis of DT Definitions and The Critical Success Factors

The synthesis of DT definitions and critical success factors provides a comprehensive understanding of the multifaceted nature of DT and its implementation. This section aims to integrate various scholarly perspectives on DT, highlighting the pivotal elements that contribute to successful digital transformations.

i-SCOOP (2024) describes DT not merely as technological disruption but as a holistic process that emphasizes value creation, people, and the capacity for rapid adaptation using smart technologies. This definition suggests that successful DT requires an organization to develop capabilities that support dynamic changes and ongoing optimization, integrating technology at all organizational levels (i-SCOOP, 2023; i-SCOOP.eu, 2016).

Berman (2012) and Lozić & Fotova (2024) highlight the need for DT to reconfigure business models to better meet customer needs and create new monetization methods, respectively. These perspectives imply that critical success factors should include customer-centric strategies and innovative business models that leverage digital tools for enhanced competitiveness and efficiency (Tang, 2021; Mitki et al., 2019).

Correspondingly (Mergel, Edelmann, & Haug, 2019); Ribiere (2021) focus on the user-centric aspect of DT, which involves redesigning services to enhance user experience and engage customers more effectively. These definitions imply that DT success heavily relies on understanding customer behaviours and preferences, integrating digital customer access, and enhancing customer interactions and engagement through digital platforms.

2.2 Digital Transformation Critical Success Factors.

Calvert (2021) highlighted the importance of integrating technological advancements with strategic dimensions to form a comprehensive DT framework. The framework emphasizes managerial engagement and leadership, along with a multi-dimensional

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readiness construct that includes digital technology and digital strategy. This approach ensures that both technological capabilities and strategic planning are aligned to support transformation initiatives effectively.

Alongside, Legner et al. (2017) proposed a framework that prioritizes strategic alignment and senior management support. This framework includes organizational attitude toward change, operationalization by senior managers, skills assessment, and workforce development. The use of technology and innovation is also critical, as it underpins the strategic goals of DT. This holistic approach ensures that all organizational levels are engaged and aligned with the transformation objectives.

Similarly, (Schumacher, Erol, & Sihn, 2016); (Gurumurthy & Schatsky, 2019) provided insights into frameworks that integrate digital strategy with leadership. These frameworks cover various dimensions such as products, customer interactions, internal operations, technological infrastructure, strategic planning, and governance structures. Leadership qualities and initiatives are emphasized as critical components, ensuring that the transformation is guided by a clear vision and strong governance.

Focusing on the customer, (Gurumurthy & Schatsky, 2019) also underscore the importance of customer-centric approaches. Their framework includes developing products, interacting with and satisfying customers, and creating a unified customer experience across various digital platforms. Ensuring consistent and high-quality customer interactions is vital for the public sector to enhance citizen satisfaction and engagement.

Kırmızı & Kocaoglu (2022) presented a framework that focuses on flexible, secure infrastructure and data mastery. Their framework includes adaptable IT infrastructure, data analytics for decision-making, digitally savvy talent networks, ecosystem engagement, intelligent workflows, unified customer experience, and adaptable business models. This comprehensive approach ensures that all technological and strategic aspects are covered, supporting a robust DT process.

2.3 DT Critical success factor in the Public Sector

The public sector faces unique challenges in digital transformation, such as complex regulatory environments, diverse stakeholder needs, and the necessity for transparency and accountability. This section will explore the critical success factors specific to the public

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sector, drawing from both global and local perspectives, and examining how these factors can be leveraged to achieve successful digital transformation.

DT within the public sector involves leveraging digital technologies to improve public services, enhance transparency, and increase efficiency. Unlike the private sector, this transformation often encounters greater complexity and slower progress due to challenges such as lengthy funding processes, restrictive procurement requirements, and the need for substantial upskilling of staff (Gartner, 2023). Despite these hurdles, the potential benefits are substantial, including improved state service delivery, reduced corruption, and more open and inclusive governance (Sar, 2022).

Critical to the success of DT in the PS are strong leadership and a clear strategic vision. These elements ensure that initiatives are prioritized and aligned with organizational goals (Gurumurthy & Schatsky, 2019); (Thordsen, Murawski, & Bick, 2020). Furthermore, fostering digital culture that embraces change and innovation is essential for achieving digital maturity in public institutions (Kaplan & Norton, 2017); (Jussupova, Bokayev, & Zhussip, 2019). Effective utilization of digital tools and platforms also plays a crucial role in reaching DT goals (Basl & Republic, 2018); (Thordsen, Murawski, & Bick, 2020). Additionally, reengineering processes to accommodate digital advancements and improve operational efficiency is vital within public organizations (Weldon, 2013).

Moreover, focusing on customer needs and satisfaction can significantly enhance public service delivery (Kaplan & Norton, 2017); (Gurumurthy & Schatsky, 2019). Continuous innovation is equally important for maintaining a competitive advantage and meeting the evolving needs of the public (Thordsen, Murawski, & Bick, 2020). Effective governance, which ensures accountability, transparency, and alignment with strategic objectives, is another critical component for the public sector (Jussupova, Bokayev, & Zhussip, 2019); (Basl & Republic, 2018). Finally, leveraging external expertise and resources is essential for SDT in PS entities (Gurumurthy & Schatsky, 2019); (Kaplan & Norton, 2017).

2.3.1 Digital Transformation in Egypt's Public Sector

To address these gaps, it is essential to explore the specific context of digital transformation in Egypt's public sector, particularly focusing on TCs affiliated with the LGUs. These centers, commonly referred to as "Model Service Centers for Citizens" or

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"Single Window" systems, are pivotal in implementing digital transformation initiatives aimed at streamlining and digitalizing public services offered to citizens.

The establishment of these centers began as part of Egypt's broader efforts to modernize public administration. The "Single Window" model was adopted to provide a centralized point of access for various government services, reducing the need for citizens to visit multiple offices. This model aligns with global practices aimed at enhancing public service efficiency by integrating multiple services into a single location (World Bank, 2017).

Since the 2010s, the Egyptian government, led by the Ministry of Planning and Economic Development and the Ministry of Communication and Information Technology, has intensified its efforts to modernize public administration through digital transformation. These technology centers are designed to provide integrated services, minimize bureaucratic hurdles, and increase the efficiency and transparency of service delivery (Ministry of Planning and Economic Development, 2020).

Despite progress, challenges such as resistance to change, limited digital skills, and the need for continuous updates to digital infrastructure persist. Addressing these challenges is critical for sustaining digital transformation in Egypt's public sector. Future plans involve further integration of services, enhanced training for staff, and an increased focus on citizen feedback to improve service quality (OECD, 2021); (UNDP Egypt, 2022).

This focused exploration of Egypt's local government technology centers provides the necessary context for developing a more integrated and tailored digital transformation framework that addresses the unique challenges identified in the literature. TCs operate at the intersection of government policies and citizen interaction, making them ideal for exploring how DT strategies clarify the concrete outcomes. The daily tasks of TC staff, such as managing digital systems, addressing citizen needs, and troubleshooting operative issues, make them rich sources of authentic information on the enablers and barriers to SDT. This hands-on experience allows for a grounded, field-based analysis that connects theory with real-world application, ultimately contributing to actionable recommendations for policy and practice.

3. Research Methodology

This chapter presents the research methodology designed to explore the impact of leadership strategies, organizational structure agility, and organizational capability on the

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success of digital transformation initiatives in Egypt's local government, particularly within the technology centers for citizen services. The methodology framework employed in this study ensures a structured approach to understanding the complex dynamics of digital transformation within the public sector.

The research adopts Saunders' research onion model (2013) as a guiding framework, which systematically breaks down the methodological choices into six layers: research philosophy, research approach, research strategy, methodological choices, time horizon, and techniques and procedures. This model provides a comprehensive pathway, moving from the philosophical foundations of the study to the detailed, practical steps involved in data collection and analysis (Saunders et al., 2023).

The methodology chapter is organized to reflect each layer of the research onion, allowing for a thorough examination of the decisions that underpin the research design. It begins by outlining the research philosophy that aligns with the study's objectives, followed by the chosen research approach and strategy that best suit the exploration of digital transformation success factors. The chapter further details the population of interest, which includes various stakeholders from technology centers across different governorates in Egypt and describes the sampling techniques used to ensure representative data collection.

Additionally, this chapter covers the data collection methods, including the use of quantitative questionnaires and semi-structured interviews, and discusses the instruments' validity and reliability. The ethical considerations guiding the research are highlighted to ensure compliance with academic standards and respect for participants. Finally, the chapter outlines the data analysis procedures, providing insight into how the collected data will be interpreted to address the research questions and objectives.

3.1 Research Approach

This layer concerns the logical reasoning approach, which can be deductive for testing theory or inductive for building theory(Azungah, 2018). This study uses a Deductive Approach, starting with existing theories about leadership, organizational agility, and digital transformation, and testing these theories through empirical data gathered from the public sector in Egypt.

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3.2 Research Strategy

This layer outlines the strategies used to conduct the research, including various methods such as surveys, case studies, experiments, and ethnography(Saunders et al., 2023). It outlines the research strategies employed to achieve a comprehensive understanding of the factors influencing digital transformation within Egypt's local government Technology Centers. The study adopts a quantitative Approach, integrating quantitative strategy to capture the multifaceted nature of digital transformation.

The primary strategy involves quantitative surveys administered to employees across technology centers in various governorates. This method provides a structured and systematic approach to assess the impact of LS, DC, and DCS, as critical factors on the success of DTIs. The use of standardized questionnaires allows for rigorous statistical analysis, facilitating the quantification of relationships and the testing of hypotheses to identify key drivers and barriers (Kabir, 1994).

To complement the survey data, semi-structured interviews are conducted with key leaders and experts of DT in the PS. These interviews provide deeper insights into the contextual factors influencing digital transformation, exploring specific challenges, leadership behaviours, and implementation nuances that are not easily captured through quantitative methods.

By integrating quantitative data, the mixed-methods strategy provides a holistic view of DT dynamics in Egypt's public sector. This approach offers a broad statistical overview and enriches the findings with detailed, and context-specific insights, enhancing the overall understanding of the complex interactions between leadership strategies, digital culture, and digital competencies and skills in the local government setting.

3.3 Time Horizon

This layer defines the time frame of the study, either cross-sectional (snapshot at a single point in time) or longitudinal (observing changes over time). The research adopts a Cross-Sectional Time Horizon, collecting data at a single point in time to assess the current state of digital transformation initiatives across Egypt's Technology Centers.

3.4 Techniques & Procedures

The deepest layer covers the specific methods used for data collection, sampling, and analysis. Data collection of this study involves questionnaires for quantitative analysis

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(Barroga et al., 2023). The data analysis procedures include statistical analysis for survey data and thematic analysis for interview data.

3.5 Target Population

The target population for this research includes employees who are involved in LGUs across Egypt, specifically within TCs that implement DTIs. These centers, integral to citizen service delivery, represent a practical case for studying DTI success because of their critical role in digitizing public services across Egypt's 27 governorates. According the annual training plan 2022 of Sakkara Training Center of the MoLD the total population consists of approximately 5,989 employees all over the different branches in Egypt's 27 governorates (MoLD, personal communication, 2022),

This population was chosen because it covers various roles directly linked to the implementation, management, and evaluation of DTIs, providing inclusive insights into operational challenges and successes. Key groups include decision-makers, managers, supervisors, and front-line employees, all of whom contribute to the functioning of TCs and interact with the digital systems and processes that define SDT.

By targeting this group, the research can assess DTI effectiveness in a practical, real-world setting where the consequences of DT directly impact citizen experiences and public service efficiency. This focus enables a deeper understanding of the factors influencing DTI success and the specific needs of Egypt's LGUs to improve their DT journey.

3.6 Statistical tools

The study uses rigorous quantitative research method with the use of several statistic instruments and strategies to analyse the data and compare hypotheses. IBM SPSS Statistics version 26 and SmartPLS version 3 are chosen as the primary methodological analytical tools for this research, each of which has a different but interconnected analytical function. The first stage of analysis utilizes descriptive statistics by means of SPSS 26 to acquire a prima vista view of the data framework as well as the character of the sample. These include measures of central tendency such as mean, median and mode while dispersion is the standard deviation and variance; distribution characteristics are skewness and kurtosis. Such descriptive analyses allow in creating the first impression of the various aspects of the dataset under analysis to detect a range of artifacts which could distort subsequent analysis (Fedele, 2021).

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Correlation analysis is then conducted to examine the strength and direction of relationships between the study variables. The findings of this analysis serve as a preliminary step to better understand the relationships between constructs and confirm initial assumptions of theoretical foundation of the study. The regression coefficients obtained from the SPSS 26 output represent the first level of estimates of the effects posited in the research model (Seeram, 2019). The study then moves to a more complex evaluation approach, by employing Structural Equation Modelling (SEM) aided by SmartPLS version 3. The current research is well suited for the SEM analysis because this method addresses the issues of measurement error during the estimation of relationships between multiple dependent and independent variables. The assessment of the measurement model precedes the SEM analysis, followed by the assessment of the structural model (Naveed, Alam, & Tairan, 2020).

CFA is performed as a major step in the validation of the proposed measurement model. The analysis also supports the theoretical relationship of factor loadings to the prespecified constructs in that, it gives assurance that the measures used reflect the intended constructs. In the CFA process, measurements for factor loading, construct reliability, convergent validity, and discriminant validity are tested, so the soundness of the measurement scales is determined (Feng, et al., 2017).

Path coefficients analysis determines the key assessment of the structural model and gives the possibility of estimating the strength and statistical significance of hypothesized relationships between the given constructs. These coefficients measure the endogenous and exogenous relations between variables where the research hypotheses will be examined. In the current analysis, bootstrapping procedures are used to check the significance of the path coefficients as well as to obtain the confidence intervals (Sarstedt, 2021).

Front lockers technique is used to ascertain the validity of the hypothesized structural relations in the proposed model. It is advantageous in comprehending how one variable interacts with others to cause a change besides identifying the process by which various variables are changed by others (Darren, Yong, Quah, & Woo, 2023). Confirmatory fit assessment is performed to determine to what extent the fit of the theoretical model to the empirical data is acceptable. The Standardised Root Mean Square Residual (SRMR), the Normed Fit Index (NFI), and model predictive relevance (Q^2) values are considered. These

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indices offer additional information about aspects of model fit not captured by other indices, thus provide a balanced assessment of the model fit for the underlying data relations (Chin, Cheah, Liu, Ting, Lim, & Cham, 2020).

Using this general quantitative approach, this study wants to ensure both variability and accuracy, as well as methodologically sound techniques to test the research hypotheses. Descriptive statistics, correlation analysis, and other methods of advanced SEM help to address the research questions and build sound conclusions.

3.7 Conceptual Framework

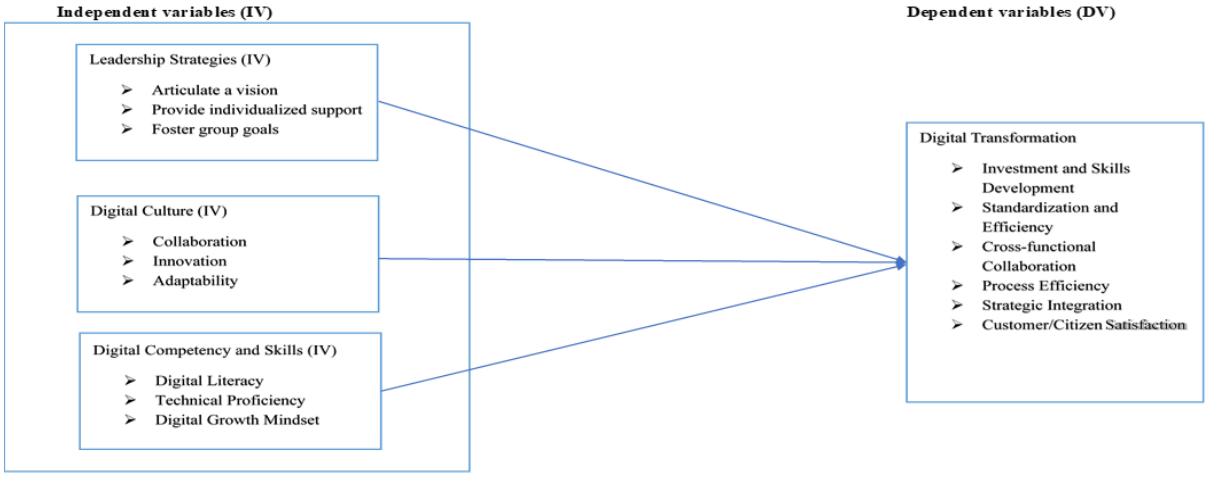

Figure 3. Research Framework

Source: Developed by the researcher

3.8 Hypotheses Development

H1: Leadership strategy has a significant positive impact on the success of digital transformation initiatives in the Egyptian public sector

H1.1*: The articulation of a clear vision by leaders positively influences employee engagement and alignment with digital transformation goals.*

H1.2*: Leaders' individualized support and behaviours significantly enhance employees' acceptance and commitment to digital transformation initiatives.*

H1.3*: Leaders' ability to foster collaboration and teamwork among employees positively impacts the successful implementation of digital transformation initiatives.*

H2: A supportive digital culture positively influences the success of digital transformation initiatives in the Egypt public sector.

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H2.1*: Openness to innovation and proactive attitudes toward digital tools and technologies positively affect employees' willingness to adopt and effectively implement digital transformation initiatives.*

H2.2*: Employees' adaptability and readiness to embrace change positively influence their engagement with digital transformation initiatives.*

H2.3*: Collaborative behaviours among employees enhance the effectiveness and success of digital transformation initiatives.*

H3: Digital competencies and skills have a significant positive impact on the successful implementation of digital transformation initiatives in the Egyptian public sector.

H3.1*: Higher levels of digital literacy among employees lead to more effective use and adoption of digital tools and technologies during digital transformation initiatives.*

H3.2*: Technical proficiency in advanced digital tools positively impacts the successful implementation of digital transformation initiatives.*

H3.3*: A growth mindset and continuous learning improve employees' ability to adapt to new* digital processes and tools**.**

4. Results

4.1 Data Management

The data cleaning is a basic step in the process of analysing data. This is explainable by the fact that if there are any issues in the dataset, this would reflect in producing unreliable results. Observing the dataset, there was no issues as

1. There was no repetitions or multicollinearity between the statements
2. There was no contradiction between the statements such that the reliability nd validity was above threshold for each of the variables
3. To code each of the answers, those who strongly disagree was coded "1" while those who strongly agree were coded "5".

4.2 Confirmatory Factor Analysis

Table 4. Reliability and Validity analysis of the variables in phenomenon

Variable	Items	Loadings	VIF	Cronbach's Alpha	Composite Reliability	Average Variance

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						Extracted
Digital Culture	DC1	0.738	2.509	0.94	0.947	0.53
	DC10	0.736	2.399			
	DC11	0.711	2.153			
	DC12	0.739	2.916			
	DC13	0.83	4.007			
	DC14	0.618	1.598			
	DC15	0.633	1.782			
	DC16	0.75	2.388			
	DC2	0.779	2.701			
	DC3	0.806	3.076			
	DC4	0.785	2.801			
	DC5	0.711	2.445			
	DC6	0.697	2.31			
	DC7	0.724	2.381			
	DC8	0.603	1.684			
	DC9	0.742	2.581			
Digital Competency and Skill	DCS1	0.77	1.949	0.867	0.901	0.603
	DCS2	0.848	3.158			
	DCS3	0.827	2.68			
	DCS4	0.706	1.646			
	DCS5	0.753	2.046			
	DCS6	0.747	1.9			
Digital Transformation	DT1	0.79	2.108	0.883	0.909	0.589
	DT2	0.763	1.994			
	DT3	0.773	1.999			
	DT4	0.709	1.698			
	DT5	0.801	2.328			
	DT6	0.804	2.236			

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	DT7	0.727	1.839			
Leadership Strategy	LS1	0.864	2.866	0.912	0.931	0.693
	LS2	0.871	2.964			
	LS3	0.876	3.002			
	LS4	0.791	3.042			
	LS5	0.778	3.066			
	LS6	0.808	2.234			

Source: Calculations based on 397 individuals working in different sectors of digital transformation in government using SmartPLS 3

Upon evaluating the dependability of the dimensions, it was noticed that all measures of Cronbach's alpha exceeded 0.7 (Cheung, Cooper-Thomas, Lau, & Wang, 2023), indicating a high level of internal consistency. In contrast, all dimensions demonstrated a composite reliability above 0.7 and an average variance extracted above 0.5 (Nasution, Fahmi, & Prayogi, 2020), confirming their validity. Given that the Variance Inflation Factors (VIFs) are below five, it can be inferred that multicollinearity does not pose a problem in the model (Nasution, Fahmi, & Prayogi, 2020). Furthermore, all item loadings surpassed 0.5, underscoring the significance of the statements (Cheung, Cooper-Thomas, Lau, & Wang, 2023).

Table 5. Hetero-Monotrait HTMT Discriminant Validity analysis

	Digital Competency and Skill	Digital Culture	Digital Transformation	Leadership Strategy
Digital Competency and Skill				
Digital Culture	0.851			
Digital Transformation	0.622	0.642		
Leadership Strategy	0.291	0.305	0.484	

Source: Calculations based on 397 individuals working in different sectors of digital transformation in government using SmartPLS 3

Discriminant validity is satisfied if HTMT values are below 0.9 (Rasoolimanesh, 2022). As HTMT values range from 0.291 to 0.851, the overall discriminant validity is still

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good. The constructs are empirically distinct. Thus, the constructs are appropriate for the model.

Table 6. Fornell-Larcker Criterion Discriminant Validity analysis

	Digital Competency and Skill	Digital Culture	Digital Transformation	Leadership Strategy
Digital Competency and Skill	0.777			
Digital Culture	0.769	0.728		
Digital Transformation	0.549	0.597	0.767	
Leadership Strategy	0.257	0.302	0.447	0.832

Source: Calculations based on 397 individuals working in different sectors of digital transformation in government using SmartPLS 3

For Digital skills, the square root of the AVE is 0.777, which is greater than its correlations with Digital Culture (0.769), Digital transformation (0.549) and Leadership strategy (0.257). This indicates good discriminant validity for this construct. For Digital culture, the square root of the AVE is 0.728, which is greater than its correlations with Digital transformation (0.597), Digital Skills (0.769) and Leadership strategy (0.302). This indicates good discriminant validity for this construct. For Digital Transformation, the square root of the AVE is 0.767, which is greater than its correlations with Digital Skills (0.549), Digital Culture (0.597) and Leadership strategy (0.447). This indicates good discriminant validity for this construct. Therefore, based on the Fornell-Larcker criterion, your model demonstrates good discriminant validity (Guenther, Guenther, Ringle, Zaefarian, & Cartwright, 2023). These results are consistent with the results of the HTMT. Thus, the discriminant validity is ensured.

Structural Equation Model Building

It is the most appropriate model to be used. The structural equation model is effectively used when the study involves latent factors that are measured by observed statements. Structural equation model allows for the simultaneous analysis of multiple relationships between these latent variables and their indicators, capturing complex relationships within the model. In addition, Structural equation model supports multigroup

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analysis, using Welch Statterthwaite test between sub-groups. This helps in enabling comparisons across different groups to examine if the relationships between latent variables hold consistently across these groups. The structural equation model using partial least square estimates require the absence of multicollinearity and existence of large sample size.

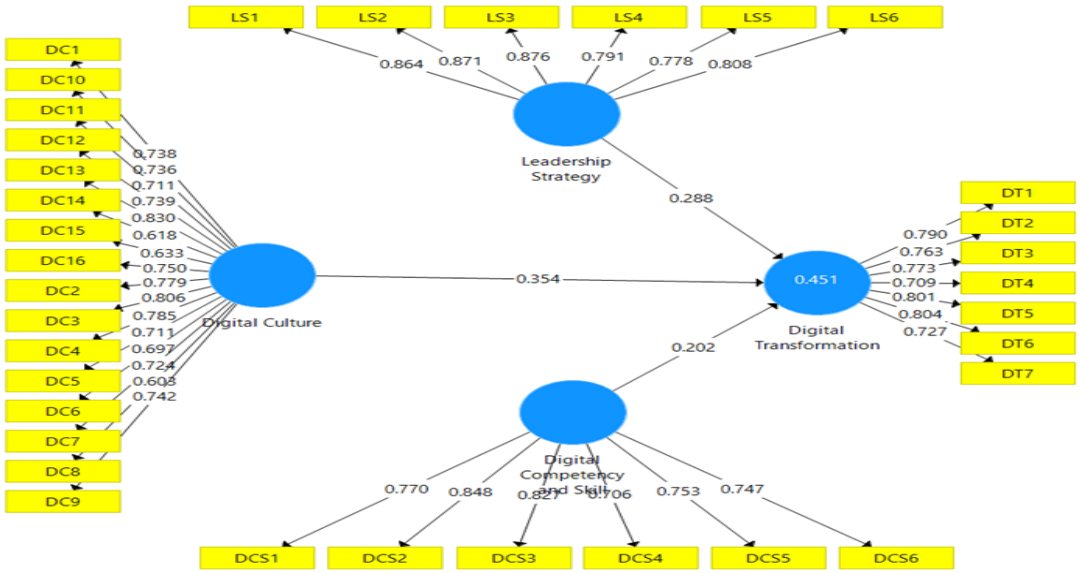

Figure 4. Structural Equation model of the phenomenon

Source: Calculations based on 397 individuals working in different sectors of digital transformation in government using SmartPLS 3

The model in the figure is showing the relationships between four latent variables: leadership strategy, digital culture, digital skills and digital transformation. Each of these latent variables is measured by several observed variables (indicators), represented as sub-elements in the graph each had loading higher than 0.6.

Table 8. Bootstrapping results of the path analysis in structural equation model

	Original Sample	Standard Deviation	T Statistics	P Values
Digital Competency and Skill -> Digital Transformation	0.202	0.119	1.698	0.09
Digital Culture -> Digital Transformation	0.354	0.103	3.442	0.001
Leadership Strategy -> Digital	0.288	0.057	5.039	0

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Transformation				

Source: Calculations based on 397 individuals working in different sectors of digital transformation in government using SmartPLS 3

Observing each hypothesis some insights can be obtained; the first hypothesis was that leadership strategy have positive significant impact on digital transformation. As the leadership strategy were clearer and guided towards the vision, this would result in better progress for the digital transformation for different organizations. (Sow & Aborbie, 2018) had consistent results as they also believed that leadership is a deterministic factor when it comes to the digital transformation.

The second hypothesis was that digital culture have positive significant impact on digital transformation. As the digital culture is more accepting to change, the better the digital transformation will be applied. It is considerably important to understand the digital culture as it was one of the most deterministic factors. The results were consistent with (El Rashied, 2022), the study mentions the impact of digital culture on how employees engage in ICT sector.

Regarding the third hypothesis, it stated that digital competency and skills have positive significant impact on digital transformation. As the employee had higher skills and more competent, the better the digital transformation would occur in the organization. This comes in line with (Andriole, 2018) who believed that advance computing skills like cloud computing, artificial intelligence, cyber security and block chains are required by digital transformation process. (Bouaziz, 2020) also conducted a literature review on the phenomenon. The conclusion was digital government competencies and skills are required for designing, implementing, managing, and using new digital tool.

Table 9. Model evaluation metrics of the structural equation model

	R Square	R Square Adjusted	SRMR	d_ULS	d_G	Chi-Square	NFI	Q2
Digital Transformation	0.451	0.444	0.075	3.499	1.286	1617.622	0.737	0.257

Source: Calculations based on 397 individuals working in different sectors of digital transformation in government using SmartPLS 3

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The R Square for Digital transformation is 0.451, indicating that 45.1% of the variability in Digital Transformation can be explained by the model. Q^2 is a measure of the model's predictive relevance. A Q^2 value greater than zero indicates the model has predictive relevance, while a value less than zero indicates it does not. The Q^2 value for Digital Transformation is 0.257, indicating the model has predictive relevance for this construct (Purwanto, 2021). SRMR is a goodness of fit measure. Values close to zero are generally considered good. The model has an SRMR of 0.075, which is considered good for the model (Cheung, Cooper-Thomas, Lau, & Wang, 2023). In addition, the Normed Fit Index was relatively higher than 0.7 thus, the model if good fit for data.

Robustness of the Model results

To test the results obtained from structural equation model, sometimes a robustness of the results should be conducted. Robustness is when another model can be used to confirm that we would obtain the same results as the first model. This would confirm that the variables have a significant impact on the digital transformation. Due to the ordinal nature of the Likert scale, the ordinal logistic regression model was proposed. Observing the test of parallel lines, the odds proportionate assumption is not rejected, thus, it is appropriate to use the ordinal logistic regression model.

Table 10. Ordinal Logistic regression model coefficients and model evaluation metrics

		Coefficient	Standard Error	Wald	P-value
Variables	**Digital Competency**	.681	.163	17.540	.000
	Leadership Strategy	.969	.337	8.280	.004
	Digital Culture	1.039	.288	13.023	.000
Model Evaluation Metrics	**Chi-Square**	88.936 (0.000)			
	Test of parallel lines	4.247 (0.644)			
	Cox and Snell	.311			
	Nagelkerke Rsquare	.362			

Source: Calculations based on 397 individuals working in different sectors of digital transformation in government using SPSS 26

As before, the results show that the three hypotheses are accepted. As leadership strategy, digital culture and digital competency all had positive significant impact on digital

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transformation at 99% confidence level. In addition, digital culture had the highest significant impact on the odds of improving digital transformation from a level to a higher one, followed by leadership strategy then digital competency and skills. The model was significant at 99% confidence level and was able to explain 36.2% of variation in digital transformation based on these independent variables.

4.3 multi-group analysis

Multi-group analysis is a statistical technique used to compare the effects of variables across different groups within a dataset. In research, it's particularly valuable for understanding whether relationships or effects observed in one group hold consistently across others. This approach is commonly used in structural equation modelling. In this study, it was believed there would be differences between gender, governorates and roles. This is due to the significant results of Welch Satterthwaite tests, where there was a significant difference between these groups. Further bootstrapping and path analysis were thus used to highlight these insights.

Multi-group analysis by gender

Table 11. Bootstrapping results of the structural equation model for different gender groups

Hypothesis	Measure	Female	Male
Digital Competency and Skill -> Digital Transformation	B	0.356	0.103
	Stdev	0.157	0.156
	T	2.274	0.659
	P-value	0.023	0.51
Digital Culture -> Digital Transformation	B	0.271	0.408
	Stdev	0.138	0.15
	T	1.959	2.73
	P-value	0.051	0.007
Leadership Strategy -> Digital Transformation	B	0.217	0.354
	Stdev	0.08	0.087
	T	2.719	4.084
	P-value	0.007	0

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Source: Calculations based on 397 individuals working in different sectors of digital transformation in government using SmartPLS 3

For females, all the three variables are believed to have a significant positive impact on digital transformation at 90% confidence level. The digital skills had the highest significant impact on digital transformation at 0.05 level of significance. Digital Culture had the second highest significant effect on digital transformation at 0.1 level of significance. At 0.01 level of significance, leadership strategy came last in terms of effect on digital transformation.

On the other hand, males witnessed only the effect of digital culture and leadership strategy on digital transformation at 99% confidence level. However, there was no significant evidence that skills and competency had an impact on digital transformation.

Multi-group analysis by governorates

Table 12. Bootstrapping results of the structural equation model for different governorates

Hypothesis	Measure	Frontier	Lower Egypt	Metropolitan	Upper Egypt
Digital Competency and Skill -> Digital Transformation	B	0.139	0.034	0.405	0.644
	Stdev	0.136	0.16	0.246	0.276
	T	1.025	0.21	1.65	2.331
	P-value	0.306	0.834	0.1	0.02
Digital Culture -> Digital Transformation	B	0.465	0.537	0.377	-0.033
	Stdev	0.136	0.143	0.207	0.271
	T	3.43	3.758	1.821	0.121
	P-value	0.001	0	0.069	0.904
Leadership Strategy -> Digital Transformation	B	0.471	0.241	0.172	0.234
	Stdev	0.101	0.075	0.179	0.155
	T	4.639	3.235	0.956	1.515
	P-value	0	0.001	0.339	0.13

Source: Calculations based on 397 individuals working in different sectors of digital transformation in government using SmartPLS 3

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Both frontier and Lower Egypt had witnessed the same effects of the factors on digital transformation. As digital culture and leadership strategies had positive significant impact on digital transformation at 99% confidence level. This shows that having culture that is open for the new tools and a leadership ready to integrate them, could have the deterministic effect needed to transform digitally any governmental organization.

For metropolitan areas like Cairo, Alexandria and Suez, the main concern was the culture only. For them, culture play as the sole factor responsible in affecting the digital transformation progress. This shows that, these governorates may have the leadership to integrate these tools and the know-how. However, if the culture of the organization or department is not willing to adapt to digitalization, all the progress would regress.

Lastly Upper Egypt, due to years of lack of knowledge of recent technologies, the real deterministic factor for them was the digital competency and skills. If the employee was skilled and knowledgeable, it would help improve greatly their digital transformation progress. However, digital culture and strategy by leadership had no significant impact on digital transformation at 0.05 level of significance.

Multi-group analysis by role

Table 13. Bootstrapping results of the structural equation model for different job roles

Hypothesis	Measure	Back office representative	Front desk employee	System Supervisor
Digital Competency and Skill -> Digital Transformation	B	0.069	0.424	0.407
	Stdev	0.2	0.256	0.161
	T	0.346	1.659	2.529
	P-value	0.73	0.098	0.012
Digital Culture -> Digital Transformation	B	0.558	0.059	0.241
	Stdev	0.162	0.202	0.128
	T	3.449	0.289	1.874
	P-value	0.001	0.772	0.062
Leadership Strategy -	B	0.37	0.478	0.331

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> Digital Transformation	Stdev	0.192	0.115	0.113
	T	1.932	4.142	2.932
	P-value	0.054	0	0.004
Hypothesis	Measure	Head of Technological Centres Monitoring Committee	Technological Centre Manager	Member of Technological Centres Monitoring Committee
Digital Competency and Skill -> Digital Transformation	B	0.043	0.443	-0.096
	Stdev	0.35	0.263	0.311
	T	0.123	1.681	0.308
	P-value	0.902	0.093	0.759
Digital Culture -> Digital Transformation	B	0.531	0.193	0.857
	Stdev	0.273	0.248	0.295
	T	1.942	0.778	2.908
	P-value	0.053	0.437	0.004
Leadership Strategy -> Digital Transformation	B	0.193	0.224	0.13
	Stdev	0.209	0.097	0.211
	T	0.924	2.306	0.617
	P-value	0.356	0.022	0.538

Source: Calculations based on 397 individuals working in different sectors of digital transformation in government using SmartPLS 3

For back office representatives, having an open digital culture is significantly associated with digital transformation. This highlights the importance of digital values, norms, and behaviours in driving transformation within these organizations. This make sense since back office representatives are engineers who have all the skills required to deal with digital transformation, however, if their culture is not open to the change, they would cease to embrace the progress. At 90% confidence level, leadership and how they have vision regarding digital transformation in an organization, would deeply affect the progress. If the leadership prioritize the digital transformation or not remain the question for these representatives in dealing with the new tools.

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For front desk employees, leadership strategy plays a key role in enabling digital transformation. This implies that a clear and supportive leadership approach is essential to guide and motivate front desk employees in adopting digital initiatives at 99% confidence level. At 90% confidence level, having the acquired skills to deal with these tools while serving the masses remain also a crucial factor for digital transformation. In case of incompetence of front desk employees, this will hinder the progress of digital transformation in different governmental sectors.

Both heads and members of technological centres monitoring committee believed that digital culture was the sole deterministic factor of the digital transformation progress. For them, the digital culture including their behaviour towards trying and integrating new tools in their daily work, is what mainly impacts the digital transformation and its adoption by different organizations. Upon comparison between both roles, members; digital transformation in their work is affected even more by digital culture then those of their heads. On the contrary, Technological Centre Manager believed that digital competency and leadership will be the ones with a positive significant impact on digital transformation at 90% confidence level.

For system supervisors, all the three variables are believed to have a significant positive impact on digital transformation at 90% confidence level. The digital skills had the highest significant impact on digital transformation at 0.1 level of significance. At 0.1 level of significance, leadership strategy came second in terms of effect on digital transformation. Digital Culture had the third highest significant effect on digital transformation at 0.1 level of significance.

Ranking the Measures using Assignment Problem

The assignment problem involves assigning individuals to tasks, projects, or groups in a way that maximizes a certain objective. In this study, the objective is to maximize their satisfaction, preference, or opinions. This type of optimization is especially useful when individuals have distinct preferences or competencies that impact the overall effectiveness or happiness within an assignment structure.

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Table 14. The development of assignment problem using Hungarian method

1st step: The contingency frequency table for the factors and ranks			
	1	2	3
Leadership	213	69	115
Culture	84	220	93
Skills	100	108	189
2nd step: Transform maximum assignment into minimization by subtracting the maximum which is 220			
	1	2	3
Leadership	7	151	105
Culture	136	0	127
Skills	120	112	31
3rd step: Subtract each row by the minimum value if any columns do not have zero			
	1	2	3
Leadership	7-7	151-7	105-7
Culture	136	0	127
Skills	120-31	112-31	31-31
4th step Those with zero values are the ranks which would maximize the representation of individuals			
	1	2	3
Leadership	0	144	98
Culture	136	0	127
Skills	89	81	0
5th step: Final result			

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Factors	Rank	Number of responses
Leadership	1	213
Culture	2	220
Skills	3	189

Source: Calculations based on 397 individuals working in different sectors of digital transformation in government using Tora

The final results show that observing individual's opinion in the sample, leadership skills is the highest deterministic factor, followed by digital culture and lastly by skills. The differences between the modelling results and assignment problem can be explained through the nature of the different analysis methods. While, assignment problem depends on ranks, modelling take into consideration the effect simultaneously.

4.3.1 Discussion

The discussion of the findings of this study illustrates the convergence and divergence between the standard literature on DT and the specific statistical insights derived from examining DT in Egypt's public sector. Specifically, the discussion focusses on the similarities and differences between the two. The research questions focus on leadership strategies, the digital culture, and the digital competencies and skills, and how these factors are intertwined in relation to the organisational achievement of DT initiatives. This research uses both descriptive and analytical research techniques. With reference to this discussion, these findings are related to the existing literature to examine the level of new knowledge contributed by the study as well as the additional support to existing knowledge concerning the main success factors in DT.

As highlighted in this research, DT goes beyond the management and adoption of contemporary technology; it requires fundamental transformations in leadership strategy, employee skills, and digital culture (Westerman et al., 2014; Caputo et al., 2021). This research is similar to some of the research studies that have been undertook before. The empirical results of this study support these views, a positive association of digital culture and leadership strategies with the factors it is positing as important for the successful delivery of digital transformation initiatives is evident in the EPS. The work, which

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compared leadership approaches with success rates of digital transformation projects, reveals that the leaders who champion and contextualise a good vision for digital improvement assist in achieving higher success levels for these projects. This is affirmed by the pathway coefficient of 0.288 for LS hence supporting previous empirical evidence showing how the leadership function essentially in the digital transformation (Weill & Woerner, 2018).

In the same manner, the statistical findings support the hypothesis that the digital culture significantly impacts the DT, with a significant and robust path coefficient of 0.354; In previous studies, it was also identified that creating an effective and flexible digital culture in organisations should remain a priority (Gong & Ribiere, 2021). A rich digital culture fosters an environment that is receptive to new ideas, reduces the amount of opposition that is encountered, and makes it easier to implement new digital tools successfully. Specifically, this research contextualises the value of a digital-friendly culture within the specific challenges that Egypt's PS faces, such as bureaucratic opposition and insufficient digital infrastructure. This research also provides support for the existing literature on the significance of a digital-friendly culture. As a result, the findings offer tangible evidence that digital culture is essential not only in the commercial sector but also in the institutions of the government institutions.

5. Conclusion

The purpose of this research is to investigate the key success factors that define successful DT strategy in the context of Egypt's public sector in the area of leadership and digital culture as well as digital competencies and skills. The findings presented in this study will give insights on the DT elements in their relation and effects on DT initiatives within the context of Egypt's local government units and its technological centers to provide a localized understanding of DT answering to the socio-political and organizational environment of Egypt. It also shows that digital culture and leadership have the greatest moderation upon DT success. Those executives who are advocates for digital change have a significant responsibility of supporting, nurturing and fostering the culture of digital in organizations, which enables organization to drive and adopt innovation and change. Familiarity with digital technologies was shown to be less effective in isolation suggesting

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that skills must be supported with leadership and culture to have a positive effect upon DT outcomes.

This research adds to the DT literature by supporting the concept of a strong consideration of not only leadership and digital culture as principal determinants of DT success. In the past, DT theories have primarily focused on technology, as well as skills only. This research underscores that, especially within developing countries' public sectors, the social and organizational components of DT can be more influential than isolated technological or skill-based factors. As such, theoretical models on DT should incorporate a broader focus on leadership and digital culture. Future frameworks on DT should move away from purely skills-centered or technology-driven models and incorporate a holistic perspective that includes digital culture, leadership strategies, and adaptability to change as core elements.

Consequently, this study calls for a broader integration of the leadership strategy and digital culture literature in the context of DT research. Although both characteristics have been acknowledged, little is known about their combined effect on the success of DT. This study's future theoretical work is to assess the relationships between the leadership support and digital culture on possible means exist in order to enhance the DT effectiveness.

On a practical level, the findings suggest that Egypt's public sector leaders should prioritize creating and nurturing a digital-friendly culture. Leadership training should focus on cultivating digital mindsets among managers and leaders, enabling them to drive DT initiatives actively and effectively. The study shows that leadership plays a crucial role in setting the tone for organizational openness to digital change. Leaders who understand the value of digital transformation, communicate its importance, and demonstrate a commitment to change will encourage employees to embrace digital culture and reduce resistance.

The study supports a lot of research evidence of the role of leadership strategies and digital culture in engendering DT. However, it also offers new findings that complement general data by exploring geographic and demographic differences of the EPS. For example, acceptation of the digital culture in the DT differs from one governorate to another for example Lower Egypt oppose to Metropolitan and Upper Egypt. Thus, the results raise the

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question of the necessity to have a more tailored approach to DT – that would consider the peculiarities of different expanses and use correspondingly adjusted measures.

References:

Andriole, S. (2018). Skills and Competencies for Digital Transformation. *IT Professional*, 20, 78-81. https://doi.org/10.1109/MITP.2018.2876926.

Basl, J., & Republic, C. (2018). Companies on the way to Industry 4.0 and their readiness. *Journal of Systems Integration*, 9(3), 25-30.

Bouaziz, F. (2020). Digital Government Competences for Digital Public Administration Transformation. 244-263. https://doi.org/10.4018/978-1-7998-2799-3.ch013.

Castro, C., & Lopes, C. (2022). Digital government and sustainable development. *Journal of the Knowledge Economy*, 13(2), 880-903. https://doi.org/10.1007/s13132-021-00749-2.

Cheung, G. W., Cooper-Thomas, H. D., Lau, R. S., & Wang, L. C. (2023). Reporting reliability, convergent and discriminant validity with structural equation modeling: A review and best-practice recommendations. *Asia Pacific Journal of Management*, 1-39.

Chin, W., Cheah, J. H., Liu, Y., Ting, H., Lim, X. J., & Cham, T. H. (2020). Demystifying the role of causal-predictive modeling using partial least squares structural equation modeling in information systems research. *Industrial Management & Data Systems*, 120(12), 2161-2209.

Darren, P., Yong, P. P., Quah, Y. Y., & Woo, Y. L. (2023). The intention to adopt parcel lockers as a last-mile delivery services in Malaysia. *(Doctoral dissertation, UTAR)*.

El Rashied, S. H. (2022). The Impact of Building Digital Culture on Employees' Engagement in the ICT Sector. *i-Manager's Journal on Management*, 17(1), 19.

Elgohary, E. M., & Abdel-Aziz, R. O. (2023). The effect of digital transformation on employment in Egypt: An applied study using ARDL model. *Electronic Journal of Information Systems in Developing Countries*, 89(1), e12240. https://doi.org/10.1002/isd2.122.

Fedele, D. (2021). The impact of leadership styles on employees organizational commitment in italian tourism companies. *(Doctoral dissertation, Vilniaus universitetas.)*.

International Journal of Accounting and Management Sciences
Vol.4 No.1, January 2025
Print ISSN: 2834-8923 Online ISSN: 2832-8175
DOI: https://doi.org/10.56830/IJNZ1133

Feng, A. L., Wesely, N. C., Hoehle, L. P., Phillips, K. M., Yamasaki, A., Campbell, A. P., et al. (2017). A validated model for the 22-item Sino-Nasal Outcome Test subdomain structure in chronic rhinosinusitis. *In International forum of allergy & rhinology*, Vol. 7, No. 12, pp. 1140-1148.

Gebba, T. R., & Zakaria, M. R. (20115). E-Government in Egypt: An analysis of practices and challenges. *International Journal of Business Research and Development*, 4(2), 11-25. https://doi.org/10.24102/ijbrd.v4i2.576.

Guenther, P., Guenther, M., Ringle, C. M., Zaefarian, G., & Cartwright, S. (2023). Improving PLS-SEM use for business marketing research. *Industrial Marketing Management*, 111, 127-142.

Gurumurthy, R., & Schatsky, D. (2019). Digital maturity model and digital pivots. *Deloitte Insights*.

Jussupova, G., Bokayev, B., & Zhussip, D. (2019). Digital government maturity as a technologically new e-government maturity model: Experience of Kazakhstan. *In ACM International Conference Proceeding Series*, (pp. 1-10). https://doi.org/10.1145/3340017.334.

Kamel, S. (2021a). The potential impact of digital transformation on Egypt. *Economic Research Forum Working Papers*, 1488, 1-75. https://erf.org.eg/app/uploads/2021/09/1632923373_105_521705_1489.pdf.

Kaplan, R. S., & Norton, D. P. (2017). Assessing your organization's digital transformation maturity. *MIS Quarterly*, 37(2), 1-15.

Lee, M. H., Yun, J. H., Pyka, A., Won, D. K., Kodama, F., Schiuma, G., et al. (2018). How to respond to the fourth industrial revolution, or the second information technology revolution? Dynamic new combinations between technology, market, and society through open innovation. *Journal of Open Innovation: Technology Market, and Complexity*, 4(3), 1-24. https://doi.org/10.3390/joitmc4030021.

Mergel, I., Edelmann, N., & Haug, N. (2019). Defining digital transformation: Results from expert interviews. *Government Information Quarterly*, 36(4), 101385. https://doi.org/10.1016/j.giq.2019.06.002.

Ministry of Planning and Economic Development. (2020). Digital Egypt Strategy 2030. *Cairo: Government of Egypt*.

International Journal of Accounting and Management Sciences
Vol.4 No.1, January 2025
Print ISSN: 2834-8923 Online ISSN: 2832-8175
DOI: https://doi.org/10.56830/IJNZ1133

Nasution, M. I., Fahmi, M., & Prayogi, M. A. (2020). The quality of small and medium enterprises performance using the structural equation model-part least square (SEM-PLS). *In Journal of Physics: Conference Series* , Vol. 1477, No. 5, p. 052052.

Naveed, Q. N., Alam, M. M., & Tairan, N. (2020). Structural equation modeling for mobile learning acceptance by university students: An empirical study. *Sustainability*, 12(20), 8618.

OECD. (2021). *Digital Transformation in the MENA Region: Governance, Skills and Accountability. Paris: OECD Publishing.* Paris: OECD Publishing.

Purwanto, A. (2021). Partial least squares structural equation modelling (PLS-SEM) analysis for social and management research: a literature review. *Journal of Industrial Engineering & Management Research*.

Rasoolimanesh, S. M. (2022). Discriminant validity assessment in PLS-SEM: A comprehensive composite-based approach. *Data Analysis Perspectives Journal*, 3(2), 1-8.

Sarstedt, M. R. (2021). *Partial least squares structural equation modeling.* In Handbook of market research (pp. 587-632). Cham: Springer International Publishing.

Schumacher, A., Erol, S., & Sihn, W. (2016). A maturity model for assessing Industry 4.0 readiness and maturity of manufacturing enterprises. *Procedia CIRP*, 52(1), 161-166.

Seeram, E. (2019). An overview of correlational research. *Radiologic technology*, 91(2), 176-179.

Sow, M., & Aborbie, S. (2018). Impact of leadership on digital transformation. . *Business and Economic Research*, 8(3), 139-148.

Thordsen, T., Murawski, M., & Bick, M. (2020). How to measure digitalization? A critical evaluation of digital maturity models. *Lecture Notes in Computer Science (Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, 12066 LNCS, 115-129. https://doi.org/10.1007/978-3-030-44999-5_30.

UNDP Egypt. (2022). *Public Sector Digital Transformation: Enhancing Service Delivery in Egypt.* Cairo: United Nations Development Programme.

Weill, P., & Woerner, S. (2018). Why companies need a new playbook to succeed in the digital age. *MIT Sloan Management Review*, 59(2), 14-20.

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Weldon, D. (2013). CEOs lack vision to lead digital transformation. *Fierce CIO*, Retrieved from https://www.fiercecio.com.

Westerman, G., Bonnet, D., & McAfee, A. (2014). Leading digital: Turning technology into business transformation. *Harvard Business Press*.

World Bank. (2017). *Citizen Service Center Trends: Opportunities and Challenges for Integrating Citizen Service Centers in Local Governance Reforms.* World Bank Group.

Zaied, A. H., Ali, A. H., & El-Ghareeb, H. A. (2017). E-government adoption in Egypt: Analysis, challenges and prospects. *International Journal of Engineering Trends and Technology*, 52(2), 70-79.