Management Strategies and Engineering Sciences 2023; 5(4):127-135

Examination of the Digital Transformation Model of State-Owned Enterprises in Iraq

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Received: 2023-11-21 **Reviewed:** 2023-12-12 **Revised:** 2023-12-15 **Accepted:** 2023-12-22 **Published:** 2023-12-31

Abstract

The aim of the present research is to assess the digital transformation model for organizations in state-owned enterprises (case study: Iraq). The research is applied in terms of its objective and descriptive-correlational in terms of its method. The statistical population of the study includes senior and middle managers of state-owned companies in Iraq, totaling 238 individuals. Based on Cochran's formula, the sample size was determined to be 147. The sample was selected randomly, and the research instrument was a questionnaire. Data analysis was conducted using structural equation modeling (SEM) in PLS software. The results indicate that the research dimensions, including management and strategic factors, organizational factors, process factors, job factors, and security and privacy factors (of information), are considered the main components of digital transformation in state-owned enterprises in Iraq. These dimensions have a significant relationship with the research components (t_value > 1.96). According to the GOF formula, the overall model fit was 63%, which indicates a strong fit.

Keywords: *digital transformation, state-owned enterprises, leadership, agility, strategy.*

How to cite this article:

Naser, A. A., Aghasi, S., Amanah, A. A., & Davoodi, S. M. R. (2023). Examination of the Digital Transformation Model of State-Owned Enterprises in Iraq. Management Strategies and Engineering Sciences, 5(4), 127-135.

1. Introduction

The current business environment and operations are undergoing rapid changes due to digital transformation technologies. According to Verina (2018), Jack Welch stated, "When the rate of change inside an institution is slower than the rate of change outside that institution, its end is near" [1]. With the integration of the internet, blockchain, big data, artificial intelligence, and related technologies, the dynamics of changing customer demand are evident, and the lack of such technologies leads to disruptions in business operations. As a result, both private and public sector organizations are seriously exploring the opportunities that emerging digital transformation technologies offer to enhance organizational agility and the necessary flexibility to adapt to changing environments and meet the demands of government and private organizations with their clients (Ferris et al., 2020). However, organizations still face numerous barriers in implementing digital transformation, such as a lack of managerial skills, data accessibility, resource shortages, technological capability gaps, and environmental uncertainty related to public management. Despite these challenges, the implementation of digital transformation technologies in both public and private organizations offers numerous benefits, including better transparency and accountability, improved data access, support for innovation, responsive supply chains, enhanced public services, support for environmental projects, operational benefits, and encouragement of participation [2].

McGrath and McManus (2020) reported that today many business leaders are planning large-scale investments in radical digital transformation with high hopes for organizational improvement [3]. This has led to expensive digital transformation failures, resulting in management

exits, employee layoffs, and the abandonment of digital efforts, which can lead to undesirable consequences [4]. The primary cause of this is the increasing disconnect between rhetoric and reality, along with the ongoing strategy-execution gap. Across the industry, numerous studies are available that can help organizations pursue digital transformation and innovation in their processes to create substantial benefits. However, in order for organizations to succeed and survive in today's volatile market environment, they must address the challenges posed by digital transformation, innovation, commitment, new skill sets, and other rapidly emerging technologies [5].

However, many organizations fail in digital transformation because they begin with technological changes without creating comprehensive plans and cohesive digital strategies (DSs) [6, 7]. Leaders must ensure that their organizations develop the digital mindsets and agility required to respond to disruptions caused by digital technologies. Consequently, the goal of this study is to combine several internal factors that can influence digital transformation in an organization to understand their interactions and contributions to organizational agility [8].

Institutional environments are crucial in shaping organizational structures and actions. Researchers argue that decisions are not solely driven by logical objectives but are guided by social and cultural factors and concerns for legitimacy [9]. Digital transformation can be viewed through the lens of institutional pressure, where the decision to implement digital transformation may not stem from internal motivations [10]. Institutions are likely to be influenced by external isomorphic pressures from competitors and customers, prompting alignment with digital transformation. Mimetic, coercive, and normative forces can play a role in influencing institutions to adopt digital transformation. Regardless of the pressure, organizational change is considered a prerequisite, and if not properly aligned, it can become a bottleneck for digital transformation. Organizations must shift their traditional processes, structures, and management to more agile processes and management practices [11].

From the perspective of new institutional theory, an organization's move toward new institutional change requires a high degree of organizational capacity, including the skills and resources within the organization and their alignment or mobilization with one another. Mobilization, in this sense, is an act of leadership. New institutional theory also posits that organizations must improve their legitimacy when proposing any changes by adopting organizational practices and seeking leaders with "desired" characteristics/performances to improve and protect their legitimacy. Meanwhile, agile companies must nurture five agile human characteristics: (1) creating a shared purpose, (2) embedding core values, (3) enriching work, (4) promoting personal growth, and (5) providing proportional returns. With these human characteristics and appropriate leadership, companies can adapt to changes by making necessary adjustments in their organizational structure [12]. Leadership for improving organizational agility is crucial through leaders' ability to change business positions and organizations' readiness to reverse unsuccessful strategic decisions. However, existing literature has significantly failed to determine how this relationship works or the level of interdependence between these variables [13].

Organizational agility is a reflection of continuous improvement, ongoing transformation, communication, team and individual maturity, and flexibility. An agile organization is demonstrated by teams working together, motivated, talented, self-disciplined, well-organized, and showing significant improvisation skills [14]. This requires appropriate leadership to distribute power, authority, and responsibilities among members, thus fostering motivation and trust within the team. Therefore, organizational leadership plays a crucial role in committing the organization to improve its organizational agility. New institutional theory views leadership skills as a set of activities needed to manage organizational changes [14]. These skills include being charismatic (visionary, energizing, and empowering), instrumental (structuring, controlling, and rewarding), and institutional (ensuring that changes persist). Such leaders are linked to transformational leadership in the literature [15, 16]. For example, leaders guide the values, attitudes, and feelings of their followers. These leaders can improve organizational agility through their ability to build appropriate relationships with subordinates and encourage them to think beyond their personal needs and act effectively in complex and high-risk situations. Transformational leaders prepare themselves and their employees to take appropriate actions when confronted with challenges and potential opportunities. Indeed, in agile organizations, leadership continuously adjusts action and development paths [17]

The literature review covers a range of studies on digital transformation and its various aspects. Mangalraj et al. (2023) emphasize the role of information technology (IT) in enabling organizations to respond to market uncertainties, asserting that IT capabilities can enhance organizational

agility [18]. Gong et al. (2023) highlight organizational agility as essential for digital transformation, proposing it as a key mechanism for engaging an organization's resources in the transformation process [19]. Zhang et al. (2023) find that organizational agility significantly impacts digital transformation, with dynamic capabilities serving as important predictors [20]. Ly (2023) investigates the mediation role of organizational agility between transformational leadership and digital transformation, stressing its importance in public sector organizations [7]. Philipp et al. (2023) identify key leadership competencies for managing digital transformation, including adaptability, data-driven decision-making, and change acceptance [21]. Scuotto et al. (2023) focus on the role of strategic partnerships in mitigating the negative effects of digital disruption on innovation [8]. Hanandeh et al. (2023) develop a model to explain the interrelationships between digital transformation, digital leadership, and entrepreneurial motivation, emphasizing their effects on business decision-making and performance [22]. Gilly et al. (2023) highlight the importance of leadership skills such as collaboration and strategic thinking in driving digital transformation [23]. Finally, Ghorbani-Esfahlan et al. (2021) investigate the impact of organizational mindfulness on the ability to process information and market agility, which are critical for digital transformation success [23]. These studies collectively underscore the multifaceted nature of digital transformation, emphasizing the integration of leadership, agility, self-efficacy, and organizational culture.

This study aims to fill the gap in previous studies by using leadership style, strategy, and agility. In other words, it seeks to understand how agility, leadership, and organizational strategy contribute to the use of digital technologies and how agility, leadership, and strategy can aid in digital transformation, especially when many public sector organizations urgently need to implement digital transformation for survival. Organizations that focus on internal capabilities, leadership, relationships, and alignment of digital transformation with business strategy are more likely to succeed in digital transformation, as this will enhance their agility to respond to environmental disruptions. Ultimately, this study expands the existing literature on digital transformation and organizational agility through organizational strategy in the context of private sector organizations. By examining various internal factors affecting the implementation of digital transformation in public sector organizations, this study aims to fill this gap and provide a model for organizational digital transformation based on leadership.

Therefore, the following question is raised in this study:

What is the validity of the digital transformation model in state-owned enterprises in Iraq?

2. Methodology

Given that the objective of this research is to assess the digital transformation model for public organizations (with a case study of Iraq), the research method is applied in terms of purpose, and descriptive-correlational in terms of approach. For conducting the research, Structural Equation Modeling (SEM) using Smart PLS was employed. The statistical population in the quantitative section consists of senior and middle managers of public organizations in Iraq, totaling 238 individuals. Using a random sampling method and Cochran's formula, a sufficiently large sample size was selected randomly. According to Cochran's formula, the sample size was determined to be 147 participants. The research instrument is a standardized questionnaire developed by Amir et al. (2024). The validity of the questionnaire was verified based on feedback from a group of management professors. To assess the reliability of the questionnaire, Cronbach’s alpha was used, and all dimensions demonstrated a Cronbach's alpha greater than 0.7, indicating reliability.

3. Findings and Results

The demographic breakdown of the sample in this study is as follows: 68.71% (101) were male, and 29.31% (46) were female, with a total of 147 participants. In terms of education, 26.53% (39) had a bachelor's degree, 57.14% (84) held a master's degree, and 16.33% (24) had a doctoral degree. Regarding age, 25.85% (38) were between 25-35 years old, 28.57% (42) were in the 35-45 age range, 26.53% (39) were between 45 and 50, and 19.05% (28) were over 50 years old. In terms of work experience, 22.45% (33) had 5 years or less, 27.89% (41) had between 6-10 years, 29.93% (44) had 11-15 years, and 19.73% (29) had more than 15 years of experience. The total sample comprised 147 individuals.

The dimensions and components of the research are presented in Table 1.

Table 1. Dimensions and Components of the Research

Dimensions	Components
Management and Strategic Factors	Digital strategy formulation in the organization
	Appropriate organization and resource distribution
	Organizational leadership's will and commitment
	Creation of agile and specialized teams
	Performance evaluation and monitoring in digital transformation
Organizational Factors	Development of digital innovation and creativity
	Development of organizational digital flexibility
	Promotion of digital values and principles
	Ability to understand and adapt to digital transformations
Process Factors	Job standardization and automation
	Appropriate data aggregation, storage, and analysis
	Proper management of digital changes in the organization
	Process optimization
Job Factors	Development of digital training and readiness for employees
	Creation of educational and career growth opportunities in the digital domain
	Provision of open-web facilities for sharing knowledge and experiences
	Encouraging employees to present innovative and creative ideas
Information Security and Privacy Factors	Creation of policies and guidelines regarding information security and privacy
	Evaluation and management of security risks in the organization
	Implementation of physical measures to protect equipment, hardware, and digital resources
	Adoption of necessary measures to preserve individual privacy and maintain confidentiality
	Control access to information based on job requirements

After assessing the goodness-of-fit for measurement models, the structural model, and the overall model, based on the data analysis algorithm in PLS, the researcher can examine and test the relationships between variables.

In this section, the standardized path coefficients related to hypotheses and t-values are reviewed. To confirm or reject hypotheses, the t-value should be greater than 1.96 or less than -1.96. Values between these two figures indicate no significant difference from the calculated regression weights at the 95% confidence level.

Figures below show the factor loadings and t-values corresponding to the relationships between variables.

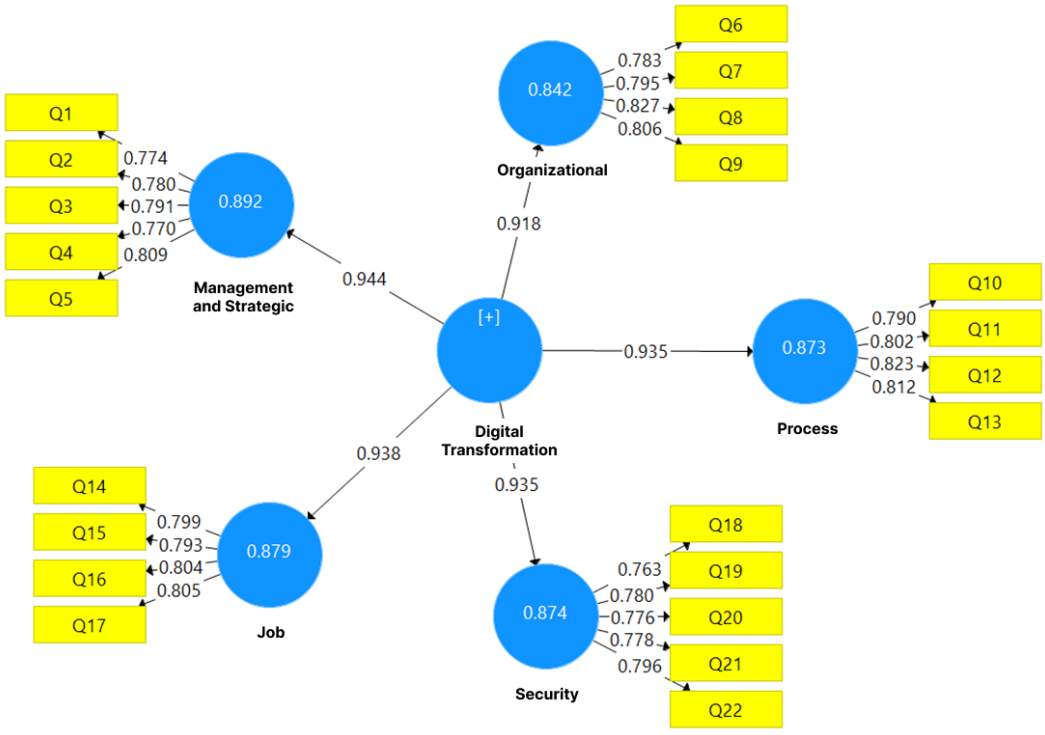

Figure 1. Research Model with Standardized Path Coefficients

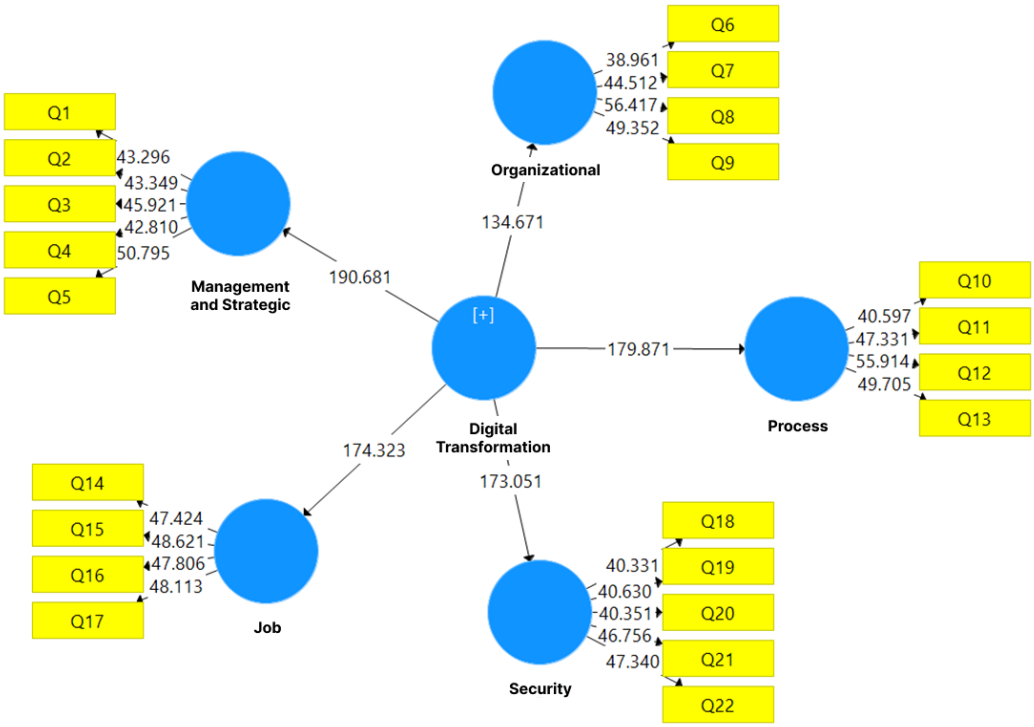

Figure 2. Research Model with t-values for Relationships Between Variables

Table 2 shows the reliability values for the constructs of the research.

Table 2. Reliability Values

Construct	Cronbach's Alpha	Composite Reliability
Security	0.838	0.885
Digital Transformation	0.961	0.964
Organizational	0.816	0.879
Job	0.813	0.877
Process	0.821	0.882
Management and Strategic	0.844	0.889

As indicated in Table 2, Cronbach's alpha and composite reliability are greater than 0.7, demonstrating the reliability of the research data.

Fornell and Larcker (1981) introduced the Average Variance Extracted (AVE) criterion to measure convergent validity and stated that the critical value for AVE is 0.5. An AVE value greater than 0.5 indicates acceptable convergent validity. Table 3 shows the AVE values for the research variables, all of which are greater than 0.5.

Table 3. Convergent Validity

Construct	Composite Reliability	Average Variance Extracted (AVE)
Security	0.885	0.606
Digital Transformation	0.964	0.550
Organizational	0.879	0.645
Job	0.877	0.640
Process	0.882	0.651
Management and Strategic	0.889	0.616

It can be observed that the AVE values are always greater than 0.5, and the composite reliability is also greater than 0.7 in all cases, which confirms convergent validity.

To evaluate the overall model fit, which considers both the measurement and structural models, the GoF (Goodness of Fit) criterion is used. Table 4 presents the average shared values and average R-Square values, with a GoF value of 0.63 indicating a strong model fit.

Table 4. Average Shared Values and R-Square Values

Construct	R-Square	Communality	avg-communality	avg-R
Digital Transformation	-	0.435	0.872	0.456
Security	0.874	0.412		
Organizational	0.842	0.326		
Job	0.879	0.519		
Process	0.873	0.479		
Management and Strategic	0.892	0.563		

Based on the results, the summary of the results is presented in Table 5.

Table 5. Summary of Relationships Between Dimensions and Components

Relationship	Factor Loading	t-value	Status
Digital Transformation → Security	0.935	1.73	Confirmed
Digital Transformation → Organizational	0.918	1.34	Confirmed
Digital Transformation → Job	0.938	1.74	Confirmed
Digital Transformation → Process	0.935	1.79	Confirmed
Digital Transformation → Management & Strategic	0.944	1.90	Confirmed

According to the results:

- The relationship between digital transformation and security shows a t-value of 1.73 (t-value > 1.96), confirming the significant relationship with a factor loading of 0.935.
- The relationship between digital transformation and organizational factors shows a t-value of 1.34 (t-value > 1.96), confirming the significant relationship with a factor loading of 0.918.
- The relationship between digital transformation and job factors shows a t-value of 1.74 (t-value > 1.96), confirming the significant relationship with a factor loading of 0.938.
- The relationship between digital transformation and process factors shows a t-value of 1.79 (t-value > 1.96), confirming the significant relationship with a factor loading of 0.935.
- The relationship between digital transformation and management & strategic factors shows a t-value of 1.90 (t-value > 1.96), confirming the significant relationship with a factor loading of 0.944.

Since all t-values are greater than 1.96, all relationships are confirmed as significant.

4. Discussion and Conclusion

This study aimed to evaluate the digital transformation model for public companies (case study: Iraq). A significant relationship was found with security factors at 0.173 (p = 0.051). Thus, the relationship is significant. In explaining this report, it can be stated that in the category of security and information privacy factors, all variables, including the establishment of security and privacy policies and guidelines within the organization, assessment and management of security risks within the organization, establishment of physical measures to protect equipment, hardware, and digital resources, implementation of measures to maintain individuals' privacy and confidentiality within the organization, and controlling access to information based on job requirements, have the greatest impact on the provision of the digital transformation model for public companies. According to a Deloitte report, the challenges and obstacles of digital transformation vary at different levels of maturity, with security concerns and risks as well as multiple organizational priorities emerging as challenges at the third level. In the current information technology-based environment, privacy threats are greater, and individuals

have relatively less control over their data. Individuals' privacy concerns and consumer privacy beliefs significantly affect their buying behavior [24]. Additionally, it is likely that increased awareness of data privacy laws may lead to an increase in the intention to seek legal compensation for damages caused by privacy violations. Furthermore, a company's misuse of personal customer information can lead to the perception of privacy violations and a "lack of trust" among customers. The growing demand from customers for details about collected data, its applications, and potential harms has forced companies to recognize the need to ensure consumer privacy, earn consumer trust, and establish goodwill. The findings of this study align with the research by Phuong et al. (2024) titled "Customers' Perception of Privacy in the Retail Industry During Digital Transformation Adoption." They found that privacy perception is influenced by privacy concerns, the retailer's advantage over the consumer, privacy intrusion experiences, and retailer credibility. The connection between customer profit and privacy perception, and between technological hedonism and privacy perception, is not influenced by the role of store trust monitors [25].

Regarding digital transformation and organizational factors, a significant relationship of 0.134 ($p = 0.671$) was found. Therefore, the relationship is significant. In explaining this report, it can be stated that digital transformation can have both direct and indirect impacts on organizational factors, including organizational structure, organizational culture, work processes, organizational strategies, and internal and external communications. For instance, digital transformation may require changes in organizational structure to adapt to the new challenges and opportunities created. Additionally, digital transformation may necessitate cultural shifts within the organization to enable members to benefit from and work efficiently with new technologies. Therefore, digital transformation and organizational factors mutually influence one another, and managers must consider this relationship when developing suitable programs for managing digital transformation and aligning it with organizational factors. The use of digital tools not only allows government offices to change how they perform tasks, communicate, and deliver services but also has the potential to create broader effects, such as changing organizational structure or involving citizens and other stakeholders in the joint development of public services [23]. The findings of this study align with the research by Ghorbani et al. (2021) titled "Organizational Awareness of Digital Transformation as a Prerequisite for Information Processing Capability to Achieve Market Agility." Ghorbani et al. (2021) found that digital technology-enabled external relations management, strategic alignment of business digital technologies, and management of digital technology infrastructures positively influence market agility. Digital technology-enabled internal relations management positively influences digital technology infrastructure management. Additionally, organizational awareness of digital transformation positively influences digital technology-enabled external relations management, strategic alignment of business digital technologies, and digital technology-enabled internal relations management [22].

Regarding digital transformation and occupational factors, a significant relationship of 0.174 ($p = 0.323$) was found. Therefore, the relationship is significant. In explaining this report, it can be said that with technological advancements and the transition to online environments, occupational factors are also impacted. Some relationships between digital transformation and occupational factors include: increased demand for digital skills: digital transformation leads to an increased need for information and communication technology (ICT) skills that employees must master to perform their duties. Changes in job types: digital transformation may result in changes in the nature and form of jobs, such that some manual tasks are digitally performed, leading to changes in job requirements and required skills. Increased flexibility: digital transformation can enhance workplace flexibility, enabling employees to work remotely and adapt more easily to changing work environments. Increased collaboration and communication: digital transformation can facilitate communication and collaboration among employees but may also introduce new challenges that require appropriate solutions. Overall, digital transformation and occupational factors have a direct and indirect reciprocal impact on each other, and understanding these relationships can help improve working conditions and employees' professional development. The findings of this study align with the research by Gilly et al. (2023) titled "Leadership Competencies for Digital Transformation: Exploratory Content Analysis of Job Advertisements." Gilly et al. (2023) found that technical skills and deep expertise in information technologies play only a secondary role in job profiles. Like previous processes of strategic change, digital transformation experts must primarily possess skills in collaboration, strategic thinking, leadership, customer orientation, and communication [26].

Regarding digital transformation and process factors, a significant relationship of 0.179 (p = 0.871) was found. Therefore, the relationship is significant. In explaining this report, it can be stated that digital transformation in the services industry refers to a process aimed at improving an entity through significant changes in its features via a combination of information technologies, computing, communications, and connectivity [9]. Service organizations engaged in digital transformation integrate digital technologies into all their business areas and change their business management methods. For example, the use of artificial intelligence and robotic technologies (such as chatbots and robots) fundamentally changes service delivery processes and customer relations with service providers. Technologies such as the Internet of Things (IoT) and machine learning algorithms allow service organizations to gain a deeper understanding of their customers and markets, enabling them to deliver personalized and integrated customer experiences. The findings of this research are consistent with Shirazi et al. (2021) titled "Providing a Roadmap for Implementing Organizational Culture Required for Digital Transformation with an Ontological Approach." The study aims to provide a roadmap for implementing the necessary organizational culture for digital transformation. The results indicate that the roadmap for implementing organizational culture for digital transformation includes three layers: infrastructure, cultural processes, and objectives. The infrastructure layer includes: development of infrastructure resources, development of informational resources, development of human and managerial resources, and organizational structure; the processes layer includes three main areas: creating a digital environment, organizational alignment, and development and evaluation; and the objectives layer includes: digital thinking, technology orientation, stakeholder orientation, risk-taking and open innovation, digital agility, transparency, and accountability [9].

Regarding digital transformation and managerial and strategic factors, a significant relationship of 0.190 (p = 0.681) was found. Therefore, the relationship is significant. In explaining this report, it can be stated that digital transformation, as a process encouraging organizations to use information technology in all their activities to improve performance and increase efficiency, is directly related to managerial and strategic factors. Managerial and strategic factors can facilitate and accelerate digital transformation or act as barriers to its implementation. One of the managerial approaches in digital transformation is the alignment of the organization's digital strategy with its overall business strategy, ensuring that digital transformation efforts contribute directly to the organization's long-term goals. Strategic management plays a pivotal role in identifying and capitalizing on emerging technologies that drive innovation and enhance competitiveness. Moreover, the effective management of resources, both human and technological, is crucial for successfully implementing digital transformation.

For instance, strategic leadership is key to fostering a culture of innovation and adapting to the dynamic digital landscape. Furthermore, a strong management team can facilitate the integration of digital technologies, ensuring that the transformation aligns with the organization's goals and customer needs. These management and strategic factors are instrumental in creating an environment that supports digital transformation and enables organizations to adapt to changing market conditions and technological advancements.

In conclusion, the study provides valuable insights into the multifaceted relationship between digital transformation and various organizational factors. It underscores the importance of security, organizational culture, structure, leadership, and technological adaptation in driving successful digital transformation efforts. By considering these factors, public sector organizations, particularly in Iraq, can better navigate the complexities of digital transformation and harness its potential to improve service delivery and organizational performance.

Authors' Contributions

Authors equally contributed to this article.

Acknowledgments

Authors thank all participants who participate in this study.

Declaration of Interest

The authors report no conflict of interest.

Funding

According to the authors, this article has no financial support.

Ethical Considerations

All procedures performed in this study were under the ethical standards.

References

[1] S. Viaene, "Orchestrating organisational agility," *Ivey Business Journal*, 2018. [Online]. Available: https://iveybusinessjournal.com/orchestrating-organizational-agility/.

[2] F. L. Oliva, M. H. G. Couto, R. F. Santos, and S. Bresciani, "The integration between knowledge management and dynamic capabilities in agile organizations," *Management Decision*, vol. 57, no. 8, pp. 1960-1979, 2019, doi: 10.1108/MD-06-2018-0670.

[3] R. McGrath and R. McManus, "Discovery-driven planning," *Harvard Business Review*, 2020. [Online]. Available: https://hbr.org/1995/07/discovery-driven-planning.

[4] B. K. AlNuaimi, S. K. Singh, S. Ren, P. Budhwar, and D. Vorobyev, "Mastering digital transformation: The nexus between leadership, agility, and digital strategy," *Journal of Business Research*, vol. 145, pp. 636-648, 2022, doi: 10.1016/j.jbusres.2022.03.038.

[5] M. Del Giudice, P. Soto-Acosta, E. Carayannis, and V. Scuotto, "Emerging perspectives on business process management (BPM): IT-based processes and ambidextrous organizations," 2018.

[6] F. Li, "Leading digital transformation: Three emerging approaches for managing the transit," 2020, doi: 10.1108/IJOPM-04-2020-0202.

[7] B. Ly, "The Interplay of Digital Transformational Leadership, Organizational Agility, and Digital Transformation," *Journal of the Knowledge Economy*, pp. 1-20, 2023, doi: 10.1007/s13132-023-01377-8.

[8] V. Scuotto, D. Magni, R. Palladino, and M. Nicotra, "Triggering disruptive technology absorptive capacity by CIOs. Explorative research on a micro-foundation lens," *Technological Forecasting and Social Change*, vol. 174, 2022, doi: 10.1016/j.techfore.2021.121234.

[9] G. Vial, "Understanding digital transformation: A review and a research agenda," *The Journal of Strategic Information Systems*, vol. 28, no. 2, pp. 118-144, 2019, doi: 10.1016/j.jsis.2019.01.003.

[10] S. Gupta, S. Modgil, A. Gunasekaran, and S. Bag, "Dynamic capabilities and institutional theories for Industry 0/4 and digital supply chain," *Supply Chain Forum: An International Journal*, vol. 21, no. 3, pp. 139-157, 2020, doi: 10.1080/16258312.2020.1757369.

[11] D. Teece, M. Peteraf, and S. Leih, "Dynamic capabilities and organizational agility: Risk, uncertainty, and strategy in the innovation economy," *California Management Review*, vol. 58, no. 4, pp. 13-35, 2016, doi: 10.1525/cmr.2016.58.4.13.

[12] A. S. A. Ahmed Khamis, A. Joseph, M. K. Asif, O. Y. Hock, and H. Mohammad Imtiaz, "Influence on internal control through digitalization of assets: A study on Ministry of Interior, UAE," *International Journal of Academic Research in Accounting, Finance and Management Sciences*, vol. 10, no. 1, pp. 13-24, 2020, doi: 10.6007/IJARAFMS/v10-i1/6989.

[13] M. A. de Oliveira, L. V. O. Dalla Valentina, and O. Possamai, "Forecasting project performance considering the influence of leadership style on organizational agility," *International Journal of Productivity and Performance Management*, vol. 61, no. 6, pp. 653-671, 2012, doi: 10.1108/17410401211249201.

[14] K. Schwertner, "Digital transformation of business," *Trakia Journal of Sciences*, vol. 15, no. 1, pp. 388-393, 2017, doi: 10.15547/tjs.2017.s.01.065.

[15] D. Babu and B. P. Kushwaha, "Does Transformational Leadership Influence Employees' Innovativeness and Mediate the Role of Organisational Culture? Empirical Evidence," *International Research Journal of Multidisciplinary Scope*, vol. 5, no. 1, pp. 428-440, 2024, doi: 10.47857/irjms.2024.v05i01.0244.

[16] R. Bauwens, M. Audenaert, and A. Decramer, "Performance Management Systems, Innovative Work Behavior and the Role of Transformational Leadership: An Experimental Approach," *Journal of Organizational Effectiveness: People and Performance*, vol. 11, no. 1, pp. 178-195, 2024, doi: 10.1108/JOEPP-03-2022-0066.

[17] Y. B. Hermanto, V. A. Srimulyani, and D. J. Pitoyo, "The mediating role of quality of work life and organizational commitment in the link between transformational leadership and organizational citizenship behavior," *Heliyon*, vol. 10, no. 6, 2024, doi: 10.1016/j.heliyon.2024.e27664.

[18] G. Mangalaraj, S. Nerur, and R. Dwivedi, "Digital transformation for agility and resilience: an exploratory study," *Journal of Computer Information Systems*, vol. 63, no. 1, pp. 11-23, 2023, doi: 10.1080/08874417.2021.2015726.

[19] C. Gong and V. Ribiere, "Understanding the role of organizational agility in the context of digital transformation: an integrative literature review," *VINE Journal of Information and Knowledge Management Systems*, 2023, doi: 10.1108/VJIKMS-09-2022-0312.

[20] H. Zhang, H. Ding, and J. Xiao, "How Organizational Agility Promotes Digital Transformation: An Empirical Study," *Sustainability*, vol. 15, no. 14, p. 11304, 2023, doi: 10.3390/su151411304.

[21] J. Philip, K. Gilli, and M. Knappstein, "Identifying key leadership competencies for digital transformation: evidence from a cross-sectoral Delphi study of global managers," *Leadership & Organization Development Journal*, 2023, doi: 10.1108/LODJ-02-2022-0063.

[22] K. Gilli, M. Nippa, and M. Knappstein, "Leadership competencies for digital transformation: An exploratory content analysis of job advertisements," *German Journal of Human Resource Management*, vol. 37, no. 1, pp. 50-75, 2023, doi: 10.1177/23970022221087252.

[23] V. Ghorbani-Esfahlan, "Organizational Mindfulness Toward Digital Transformation as a Prerequisite for Information Processing Capability to Achieve Market Agility," *New Research in Management and Accounting*, vol. 77, no. 7, 2021.

[24] E. W. Ayaburi and D. N. Treku, "Effect of penitence on social media trust and privacy concerns: The case of Facebook," *International Journal of Information Management*, vol. 50, no. 2, pp. 171-181, 2020, doi: 10.1016/j.ijinfomgt.2019.05.014.

[25] H. N. H. Phuong, H. T. Tin, P. T. T. Huynh, and N. L. N. Quynh, "The customers' perception of privacy in the retail industry when adopting digital transformation," *HO CHI MINH CITY OPEN UNIVERSITY JOURNAL OF SCIENCE-ECONOMICS AND BUSINESS ADMINISTRATION*, vol. 14, no. 2, pp. 140-153, 2024, doi: 10.46223/HCMCOUJS.econ.en.14.2.2609.2024.

[26] M. Shirazi, H. Yazdani, and H. Zarei Matin, "Providing a Roadmap for Implementing the Organizational Culture Needed for Digital Transformation Using the Meta-Synthesis Approach," 2021.