



The Effect of Digital Transformation on Organizational Resilience in the Telecommunication Industry in Egypt

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Dr. Nawal Alawad and Basem Abdelrazek

1. Introduction

Digital transformation (DT) has become a key force of competitive advantage in the modern business world, transforming industries and defining new values propositions and forcing organizations to reconsider their business models and operations (Kraus et al., 2022; Vial, 2019). The development of digital technologies, including cloud computing, artificial intelligence (AI), big data analytics, and the Internet of Things (IoT), has helped companies to become more efficient in their operations, increased their customer experience, and become innovative (He et al., 2023). The COVID-19 pandemic also cultivated the acceleration of the use of DT efforts globally, forcing organizations to implement digital solutions faster than ever before to guarantee business continuity and organizational responsiveness (Forliano et al., 2023).

In line with the international trend to digitalize, the idea of organizational resilience (OR) has been gaining momentum as a strategic capability that helps companies to survive, adapt, and recover in case of a disruption (Duchek, 2020). OR is also becoming regarded as a dynamic capability that incorporates anticipatory, adaptive, absorptive, and restorative capabilities that protect the performance of organizations in unstable settings (Chen et al., 2021). According to the research, DT may be an enabler of resilience to enhance situational awareness, vulnerability mitigation, and adapt to the changes of the environment in a short time (Kolkowska & Janssen, 2018; Sobczak, 2022). Nevertheless, the interdependence is not conflict-free: overreliance on the digital infrastructure can equally subject firms to cyber-related risks, data intrusion, and dependencies on the system (Srinivas & Liang, 2022).

The role of DT in the telecommunications industry is especially important because the industry has significant dependence on advanced technology in digital infrastructure, high service level expectations, and consistent innovation. Telecom operators globally have adopted DT to roll out new digital services,

automatize network operations and better customer engagement (Rha & Lee, 2022). However, the industry also has its own special issues, such as the fast changing technology, regulatory forces, and the shift in customer needs that demand strong resilience strategies (Buranapin et al., 2023). The telecom sector is the main focus of the digital economy and national development agenda of Egypt because of the telecom industry being the foundation of e-government services, fintech solutions, and digital inclusion plans (Kamel, 2021). The most recent governmental policy tactics like Digital Egypt shifted the pace with which DT initiatives have been undertaken within telecom companies, as investments in infrastructures, digitization platforms and customer experience schemes were made (MCIT, 2023).

The accelerated digitalizing landscape highlights why it is important to learn how DT initiatives affect the capacity of telecommunication companies to absorb shocks, continue with services and survive in a volatile market environment. It is on this context that the paper will examine the relationship between organizational resilience and digital transformation in the Egyptian telecommunications sector. This research aims to produce both theoretically informed and practically applicable knowledge by analyzing the effect of digital orientation and digital capabilities on the main dimensions of resilience: situational awareness, handling keystone vulnerabilities, and adaptive capacity. The following section examines the theoretical and empirical literature that supported the relationship between DT and OR as a foundation to support hypothesis development.

2.Literature Review

2.1Digital Transformation

Digital Transformation (DT) has been recognized as one of the most drastic paradigmatic changes in the twenty first century, which changed the way firms function, compete and create value essentially (Vial, 2019; Kraus et al., 2022). It is a strategic incorporation of digital technologies in every aspect of an organization, which leads to the transformational changes in processes, structures, and business models. Importantly, DT cannot be confined to the adoption of technology but needs regulations fundamentally restructuring the

organizational culture, mindset of the leadership, and the practices of stakeholder engagement. The conceptualization of DT as a multidimensional construct has been present at all times, and there is a dominant stream of research that has defined two central dimensions, which when combined, can be seen as its essence: Digital Orientation (**DO**) and Digital Capabilities (**DC**) (Nwankpa and Roumani, 2016; Khin and Ho, 2019).

Digital Orientation is the organizational strategy and cultural stance that the organization has towards using digitalization as a growth and competitiveness factor. It describes the intensity to which the top management defines a distinct digital vision, resources digital projects, and promotes the adoption of digital methods of operation amongst the organizational members. Companies that have high DO have operational foresight in scanning technological trends, willingness to experiment on disruptive solutions and dedication to instilling digital thinking in long-term strategy (Masoud and Basahel, 2023). This orientation will equip the required cognitive and cultural infrastructure that underpins DT so that the adoption of technology is not an ad hoc process.

Digital Capabilities, on the other hand, form the backbone of the operations of DT. They include the technological infrastructure of the organization (including cloud systems, data warehouses, and cybersecurity to implement), the human capital capabilities (digital literacy, data analytics, agile project management), and the ability to reconfigure the processes on the environment change basis (Chu et al., 2019; Westerman et al., 2014). DC therefore define how successfully an organization is able to transform its strategic purpose to tangible results by empowering information-driven decision-making, customer customization, process computerization, and predictive analytics. There is an indispensable synergy between DO and DC: whereas the former establishes the vision, the latter facilitates its actualization, and empirical studies indicate that organizations with high scores in these two dimensions outperform, innovate and become more resilient to a strategy (He et al., 2023; Plekhanov et al., 2022).

Recent research underlines that DT must be viewed as a process instead of a singular program, and organizations must be able to dynamically moderate exploration (adopting new technologies) and exploitation (optimizing existing capabilities) (Verhoeff et al., 2021). In the case of the telecommunications industry, the balance is even more sensitive, given that operators need to simultaneously invest in next-generation networks (5G/6G), digital platforms, and AI-based solutions to the problems of customers and ensure decent service delivery stability. This strain also renders DT as a competitive advantage and a possible weakness, and it is also essential to explore how it affects organizational resilience in this sector.

2.2 Organization Resilience

Organizational Resilience (OR) is a strategic capacity enabling companies to foresee, take in, and adjust to any disruptive activity and still be able to continue with core operations (Duchek, 2020). Instead of a response to crisis, which is one-time, OR is now being considered to be a process of developing an adaptive capacity on all levels of the organization in a consistent manner. This ability helps firms to be aware of imminent changes in the environment and react swiftly and reorganize resources to seize opportunities amidst adversity. Practically, resilient organizations can be defined as having strong risk management frameworks, empowered employees, and the capacity to make decisions in the face of uncertainty at the right time.

Moreover, empirical studies indicate that OR leads to long-run competitive advantage through decreasing downtime, preserving the stakeholder trust, and recovery speed following the shock (Ortiz-de-Mandojana and Bansal, 2016). OR is even more important in industries that are more closely related like the telecommunications industry where service continuation is a matter of mission. Large-scale economical and social outcomes are possible in case of network outages, cybersecurity attacks, and change in regulations, which is why resilience is not just a trait but a strategic requirement (Verreynne et al., 2023). This has increased prominence has attracted the attention of scholars and practitioners to demand further investigation on how organisations, especially in the developing markets, can enhance their resilience by undertaking specific interventions, such as digital transformation.

2.3 Linking Digital Transformation to Organizational Resilience

A comprehensive and expanding literature emphasizes the fact that digital transformation (DT) is not just a technological modification but a strategic facilitator of organizational resilience (OR). According to the arguments of scholars, organizations that adopt DT are better placed to sense, respond, and recover disruptions due to the ability to create the structures and routines required to be agile, adaptable, and able to learn continuously (Teece et al., 2016; He et al., 2023). Digital Orientation (DO) as the strategic aspect of DT enables companies to gain the foresight and leadership commitment that is needed to incorporate resilience in its organizational DNA. Strong DO organizations have a higher risk of taking a proactive approach to environmental scanning, investing in scenario planning, and integrating the risk assessment in decision-making. By viewing the future as a set of early-warning indicators, this proactive strategy helps telecom companies to reduce operational surprises and be in a better position to respond strategically to external shocks (Masoud & Basahel, 2023; Kraus et al., 2022).

Concurrently, Digital Capabilities (DC) are complementary since they actualize this strategic intent. Advanced DC offer the technological and human support needed to take insights into action by enabling organizations to utilize real-time data analysis, automate key operations, and organize responses across units and functions in a coordinated manner (Casalino et al., 2019). These features become the capabilities of telecom operators that allow the implementation of robust network monitoring systems, predictive maintenance software, and digital dashboard that increase the visibility in the operations and minimise downtime during crisis (Elgazzar et al., 2022). Integration is advantageous because organizations can not only survive the shock, but also reorganize resources, develop solutions, and take advantage of the opportunities that can emerge in turbulent environments due to the combination of DO and DC (Sobczak, 2022).

The integrative approach highlights the idea that DT is not an active antecedent of resilience but an active process by which resilience is built up and strengthened. The synergistic impact between DO and DC is a virtuous cycle; it is strategic orientation that defines the path that resilience-building should follow, and capabilities that can determine the successful implementation and the

institutionalization of the latter. Thus, the companies that are more highly endowed with DT are likely to show better resilience outcomes, i.e. quicker recovery, prolonged service continuity, and greater trust among the stakeholders. Hypotheses are made based on this theoretical basis and the following hypotheses are presented to test in an empirical manner the effect of DT on OR in the Egyptian telecom sector:

H1.1: Digital Orientation (DO) has a significant positive effect on Organizational Resilience (OR).

The hypothesis is based on the notion that an apparent digital vision, leadership commitment, and cultural preparedness can increase the capability of an organization to foresee disruptions and include resilience-building practices into strategic planning (He et al., 2023).

H1.2: Digital Capabilities (DC) have a significant positive effect on Organizational Resilience (OR).

This hypothesis relates to the idea that effective digital infrastructure, the capacity to conduct data analytics, and agile processes can help firms respond to a crisis in the shortest possible time, reduce their operational vulnerabilities, and evolve in accordance with changing market conditions (Casalino et al., 2019; Elgazzar et al., 2022).

H1: Digital Transformation (DT), through the combined effect of DO and DC, has a significant positive effect on Organizational Resilience (OR).

This general hypothesis indicates the anticipation that a positive fit of digital orientation and capabilities result in better resilience performance through an assurance that the strategic intent and the operational capacity operate together (Nwankpa and Roumani, 2016).

3. Research Problem

empirical studies conducted on its association with OR in developing-country settings. To date, the majority of studies have concentrated on the Western economies with developed digital ecosystems, which creates the gap of whether similar mechanisms can be applied to new markets with different institutional, regulatory, and technological contexts (Kamel, 2021). The telecommunications industry in Egypt has been established as a pillar of the so-called Digital Egypt

project with the aim of becoming the platform of the national digitalization agenda, such as e-government services, digital financial inclusion, and smart infrastructure development. Nevertheless, there is not a lot of information on whether and how DT endeavors in this sector lead to quantifiable gains in organizational resilience. The identified gap in knowledge is particularly acute in the light of the fact that the sector faces a high rate of technological change, cyber threats, and competitive market conditions that can jeopardize work and make stakeholders lose confidence in the company unless it is addressed efficiently. In order to fill this gap, the current study empirically investigates the impact of DT as operationalized using DO and DC on OR within the Egyptian telecom operators. By doing so, it will not only be able to contribute to theory by expanding the DT–OR relationship to an under-researched regional setting, but also practice by providing actionable advice to executives and policymakers interested in creating more digitally enabled, resilient organizations that can succeed in the face of volatility. According to the research problem, the research questions that will be used in this study will include the following:

RQ1: *To what extent does digital transformation (through its dimensions of digital orientation and digital capabilities) influence organizational resilience among telecom operators in Egypt?*

RQ2: *What are the mechanisms by which digital transformation initiatives enhance situational awareness, manage keystone vulnerabilities, and build adaptive capacity within telecom organizations?*

RQ3: *Which contextual factors (e.g., regulatory environment, market competition, technological readiness) moderate the relationship between digital transformation and organizational resilience in the Egyptian telecom industry?*

3.2 Research Aim

The primary aim of the study is to empirically investigate how digital transformation, which is operationalized based on its two fundamental aspects, namely, digital orientation and digital capabilities, impacts the organizational resilience in the telecommunications sector in Egypt. In particular, the paper aims to identify the way in which these aspects of digital transformation contribute to the three most important elements of organizational resilience situational awareness, keystone vulnerability management, and adaptive capacity. Through

the quantitative method, this study will help to reveal how digital transformation programs allow telecom organizations to foresee disruptions, absorb shocks, and re-distribute resources to remain performance-sustaining. The research also hopes to make both theoretical and practical contributions, namely, extending the digital transformation resilience relationship to the emerging markets and providing practical implications to telecom executives and policy-makers intending to develop data-driven strategies that can enhance resilience in the fast-paced digital economy.

4. Research Variables

This research aims to examine how digital transformation and organizational resilience relate in the telecom sector in Egypt. The study has two key variables, which are Digital Transformation (DT) as an independent and Organizational Resilience (OR) as a dependent variable.

- **Independent Variable: Digital Transformation (DT)**

Digital Transformation (DT) is one of the key concepts in this research which is viewed as an independent variable that affects organizational resilience. Digital transformation involves the implementation of internal and external assets, including information, computing, communication, and connectivity technologies, to transform the vision, strategy, structure, processes, capabilities and culture of an organization in reaction to the fast changing digital world. This paper is based on the research of Khin and Ho (2019), who conceptualize Digital transformation into 2 dimensions; Digital Orientation and Digital Capabilities. It is assessed with the help of 8 indicators (4 per dimension).

- **Dependent Variable: Organizational Resilience (OR)**

Organizational resilience is conceptualized based on McManus et al. (2008) definition which states it as a feature of the overall situation awareness of organizations, management of their key vulnerabilities and their ability to adapt to a complex, dynamic and interconnected environment. The paper at hand follows the model of McManus et al., who suggests that the organizational resilience has comprised of three major dimensions: Situational Awareness, Management of Keystone

Vulnerabilities, and Adaptive Capacity. This framework is also the right instrument in evaluating organizational resilience in the telecom industry in Egypt since McManus et al. (2008) selected 15 indicators (five per factor) to quantify resilience.

4.1 Proposed Conceptual Framework and Research Hypotheses

The presented study hypothesizes that Digital Transformation (DT) has a positive effect on Organizational Resilience (OR) in the telecom sector of Egypt. Based on the pilot study and its results, which can be compared to other studies regarding the telecom industry, the conceptual framework indicates the hypothesized linkage between Digital Transformation and Organizational Resilience. Figure 1 below illustrates the Digital Transformation as an independent variable and Organizational Resilience as a dependent variable that is further subdivided into three dimensions: Situational Awareness, Management of Keystone Vulnerabilities, and Adaptive Capacity.

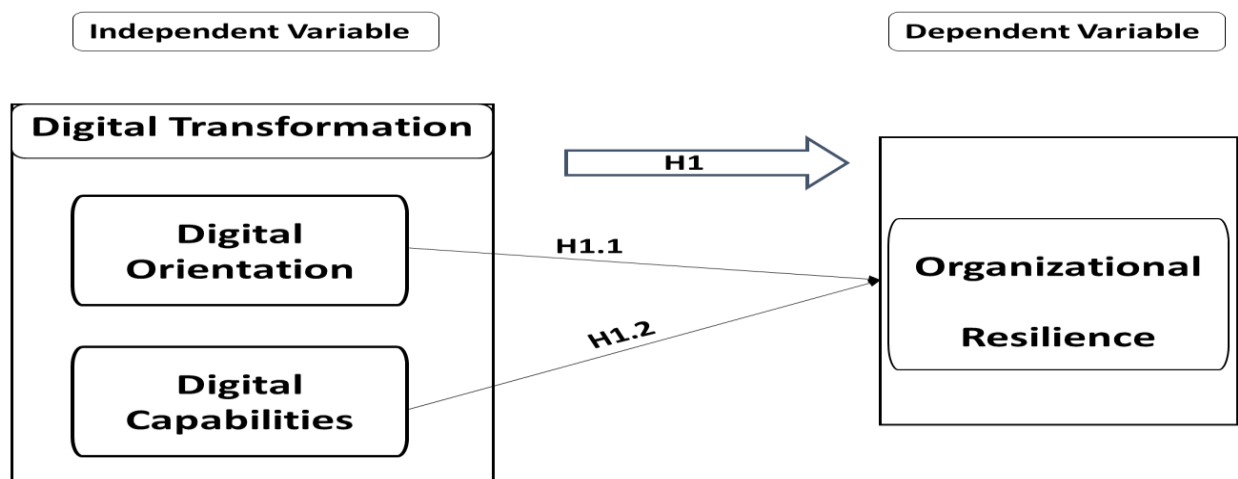


Fig-1: Conceptual Framework

4.2 Hypotheses

Hypothesis 1 (H1): There is a significant positive relationship between Digital Transformation (DT) and Organizational Resilience (OR) in the telecom industry in Egypt.

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- Hypothesis 1.1 (H1.1): There is a significant positive relationship between Managerial Capabilities (MC) and Organizational Resilience (OR) in the telecom industry in Egypt.
 - Hypothesis 1.2 (H1.2): There is a significant positive relationship between Operational Capabilities (MC) and Organizational Resilience (OR) in the telecom industry in Egypt.

5.Methodology

5.1Research Design

The present research choice is quantitative research to examine the relation between Digital Transformation (DT) and Organizational Resilience (OR) in the telecom sector of Egypt. The data collection involves a cross-sectional design, which means that information about the variables is gathered at one moment in time and this gives the picture of the state of the variables. The collection of data is done based on structured surveys that involve the use of a Likert scale to evaluate how the respondents perceive digital transformation initiatives and the resilience of their organizations. Primary data is gathered using questionnaires distributed to the high-level management employees in Telecom Egypt and subsidiaries. Secondary data will be obtained based on academic journals, telecommunication industry reports, and publications of international organizations in order to put the findings of the study in perspective.

5.2Research Population and Sample

The research will focus on the high-level management workers of the telecom sector in Egypt, i.e., workers that are acquainted with the concept of digital transformation and organizational resilience. The sample will be selected by convenience sampling method that will be augmented by snowball sampling technique in order to get a wide variety of participants. A sample population of 384 respondents is used to guarantee the statistical strength. The sampling methods are minimally biased by making attempts to make the sample of the sample representative of the general population including a diversity of managerial tiers and experience in the telecom industry.

5.3 Data Collection Procedure

The survey questionnaire was sent electronically via corporate communication networks to the workers in the sampled telecom companies. Confidentiality and anonymity were guaranteed to the participants, and informed consent was received before participation. The data were filtered to eliminate missing values and outliers and then the analysis was carried out.

5.4 Data Analysis Technique

The data were processed in SPSS v.28 and analyzed in accordance with the 2-step methodology. Initially, descriptive statistics and correlation analysis were done to view the characteristics of the samples and evaluate the original relations between variables (Table 3). Second, multiple regression was used to test the direct relationships of DO and DC with OR, and the effect of DT and OR, which was a combination of the hypotheses of the research (H1.1–H1.2 and H1). The multiple regression is suitable based on the goal of determining the concomitant effect of several predictors on one outcome variable (Field, 2021). All the regression assumptions, such as normality, linearity, and multicollinearity, were checked and revealed to be in reasonable levels ($VIF < 5$). This was tested at a 5 percent level of statistical significance ($p < 0.05$).

5.5 Ethical Considerations

In this study, ethical principles in social scientific research were observed. Respondents were not forced to participate and gave an informed consent before filling in the questionnaires. All the answers were anonymous, and the data were utilized on the academic basis only.

6. Research Findings

Respondents Descriptive Analysis

Table 1 shows the demographic structure of the sample population, which indicates gender, age, organization, and work position. The analysis indicates that there was a relatively equal gender representation whereby 54.8 were male subjects and 45.2 were female subjects. Most of the participants fall between the age categories of 36 to 45 years (28.3%), 26-35 years (18.3). Telecom Egypt was

the most represented in the organization (39.6%), then Vodafone Egypt (28.5%), Orange Egypt (16.9%), and Etisalat Misr (15%). Regarding the work positions, the largest proportion was middle management with 47.65 and functional was 28.25, and higher at 24.1.

Table 1: Descriptive analysis results for demographic variables

Personal Information	Variables	No	Percent
Gender	Male	198	54.8
	Female	163	45.2
Age	16-25	64	17.7
	26-35	66	18.3
	36-45	102	28.3
	46-55	81	22.4
	56 or older	48	13.3
Organization	Telecom Egypt	143	39.6
	Vodafone Egypt	103	28.5
	Orange Egypt	61	16.9
	Etisalat Misr	54	15.0
Work Position	Functional Mgmt	102	28.25
	Middle Mgmt	172	47.65
	Higher Mgmt	87	24.1

Digital Transformation and Organizational Resilience across Different Organizations

The outcome of the one-way ANOVA is given in Table 2. The results showed that both digital transformations were not significantly different within the four organizations, $F(3, 357) = 1.919$, $p = 0.126$, as well as organizational resilience, $F(3, 357) = 1.318$, $p = 0.268$. This indicates that the organizations considered as a whole portray similar rates of digital transformation and resilience. This conclusion was further confirmed by the post-hoc Tukey HSD test, which does not find any pairwise comparison between organizations statistically significant to either construct. Notably, these findings are positive to the aim of the study because the relative homogeneity of the organizations makes the internal validity

of investigating the influence of digital transformation on organizational resilience stronger, and the relationship that may be observed between the variables is not the result of the differences between companies but rather the effect of the overall industry-wide processes.

Table 2: One-way ANOVA of Digital Transformation and Organizational Resilience across different organizations

ANOVA					
Digital Transformation					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.163	3	1.054	1.919	0.126
Within Groups	196.080	357	0.549		
Total	199.242	360			
Organization Resilience					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	511.307	3	170.436	1.318	0.268
Within Groups	46175.313	357	129.343		
Total	46686.620	360			

Research Hypotheses Testing Results

Sub-Hypothesis 1.1 Results

H1.1: Digital Orientation (DO) and Organizational Resilience (OR) have a strong positive association in Egypt telecom industry. Table 3 shows the regression analysis on the effect of digital orientation on the resilience of the organization. The model is found to be statistically significant, $F(1, 359) = 554.888$, $p < 0.001$, with an $R = 0.779$ and $R^2 = 0.607$ which implies that the digital orientation is able to account close to 60.7 percent of the variance in organization resilience. The regression coefficient of digital orientation is positive and significantly important ($B = 11.134$, $t = 23.556$, $p < 0.001$), which implies that the higher the values of digital orientation, the more the organizational resilience.

Table 3: Test of Digital Orientation Effect on Organizational Resilience

Model	Unstandardized Coefficients		Standardized Coefficients	t	P value	R	R Squared	F	pvalue
	B	Std. Error	Beta						
(Constant)	14.316	1.940		7.379	0.000	0.779	0.607	554.888	.000
Digital Orientation	11.134	0.473	0.779	23.556	0.000				

It leads to the acceptance of H1.1: Digital Orientation (DO) and Organizational Resilience (OR) have a significant positive relationship in the telecom industry of Egypt.

Sub-Hypothesis 1.2 Results

H1.2: Digital Capabilities (DC) and Organizational Resilience (OR) have a significant positive relationship in the telecom industry in Egypt. Table 4 conducted the simple linear regression analysis to determine the impact of digital capabilities on the organizational resilience. The model is statistically significant, $F(1, 359) = 934.201$, $p < 0.001$ and its $R = 0.850$ and $R^2 = 0.722$, which proves that digital capabilities explain the variance of organizational resilience by about 72.2 percent. The regression coefficient is positive and has a high value ($B = 12.307$, $t = 30.565$, $p < 0.001$), which proves that the stronger digital capabilities have a strong relationship with the increased organizational resilience.

Table 4: Test of Digital Capabilities Effect on Organizational Resilience

Model	Unstandardized Coefficients		Standardized Coefficients	t	P value	R	R Squared	F	pvalue
	B	Std. Error	Beta						
(Constant)	12.062	1.573		7.669	0.000	0.850	0.722	934.201	.000
Digital Capabilities	12.307	0.403	0.850	30.565	0.000				

Table 4 results validate the fact that H1.2 is accepted as: There is a significant positive correlation between Digital Capabilities (DC) and Organizational Resilience (OR) in the telecom sector of Egypt.

Main Hypothesis H1: There is a significant positive relationship between Digital Transformation (DT) and Organizational Resilience (OR) in the telecom industry in Egypt.

Table 5 and the simple linear regression analysis examined the general impact of the digital transformation on the resilience of the organization. The statistical significance of the model is $F(1, 359) = 1083.107$, $p < 0.001$, $R = 0.867$, $R^2 = 0.751$, which means that the model accounts for the variance in organizational resilience to the extent of 75.1. The regression coefficient is positive and very significant ($B = 13.266$, $t = 32.911$, $p < 0.001$) to confirm the fact that the higher the degree of digital transformation the greater the organizational resilience.

Table 5: Test of Digital Transformation Effect on Organizational Resilience

Model	Unstandardized Coefficients		Standardized Coefficients	t	P value	R	R Squared	F	pvalue
	B	Std. Error	Beta						
(Constant)	7.062	1.611		4.384	0.000	0.867	0.751	1083.107	.000
Digital	13.266	0.403	0.867	32.911	0.000				

To further test H1 that states there is significant positive association between Digital Transformation (DT), there was a multiple regression analysis that examined the joint effects of the two fundamental variables of digital transformation that are Digital Orientation (DO) and Digital Capabilities (DC), in a reaction to organizational resilience. The model was found to be statistically significant, $F(2, 358) = 573.675$, $p = 0.001$, with an $R = 0.873$ and a $R^2 = 0.762$, which means that DO and DC combined explain close to 76.2 percent of the variation in the resiliency of an organization. Digital Orientation ($B = 4.433$, $t = 7.739$, $p < 0.001$) and Digital Capabilities ($B = 8.867$, $t = 15.276$, $p < 0.001$) were both positively and significantly significant predictors. These findings illustrate that the two dimensions play a significant role in strengthening the organizational resilience, although the Digital Capabilities dimension has a relative impact of a higher magnitude.

Table 6: Multiple Linear Regression of the Effect of Digital Transformation on Organizational Resilience

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	R	R Square	F	Sig.
	B	Std. Error	Beta						
(Constant)	7.376	1.579		4.672	0.010	.873	0.862	573.675	.000
Digital Orientation	4.433	0.573	0.310	7.739	0.000				
Digital Capabilities	8.867	0.580	0.612	15.276	0.000				

The simple and multiple linear regression have a strong backing to the H1: The Digital Transformation (DT) and Organizational Resilience (OR) have a significant positive relationship in the telecom sector in Egypt.

Research Discussion

The study results offer good support to the positive role of digital transformation in organizational resilience within the telecom industry in Egypt. The analyses were able to support both the sub-hypotheses and the main hypothesis. To be more precise, H1.1 was verified, because the findings presented a significant positive correlation between Digital Orientation (DO) and organizational resilience, and the former corresponds to about 60.7% of the latter. This implies that organizations that have a well-defined digital strategy, identified digital leadership, and active digital culture would be in a better position to foresee and act on uncertainties of the environment.

Likewise, the H1.2 hypothesis was accepted with the outcome being that there is a significant positive correlation between Digital Capabilities (DC) and organizational resilience with DC explaining about 72.2% of the variation in resilience. This highlights the significance of concrete digital assets, e.g., technology infrastructure, sophisticated data analytics, and AI functionality, in increasing the capacity of an organization to absorb, adapt, and recover

disruptions. The more significant relative impact was found on digital capabilities, which emphasizes the fact that the technical and operational capacity to introduce digital initiatives is especially important to resilience.

The general discussion on the primary hypothesis (H1) proved that the entire digital transformation is considerably and positively connected with organizational resilience. Simple linear regression showed that the digital transformation explains 75.1% of the variance in resilience and 76.2 percent of the variance was explained by the multiple linear regression model which includes both DO and DC. The significance of both predictors was very high and supported the idea that successful digital transformation should be based on a set of both strategic orientation and strong capabilities to achieve maximum resilience results. These data are consistent with previous studies and prove that companies that implement digital technologies are better placed to overcome the influence of disruptions, uncertainties, and complex market forces (Berman et al., 2012; Kane et al., 2015). These findings indicate that in the case of the Egyptian telecom industry, with intense competition, regulatory demands, and fast technological changes, digital transformation can help firms to revert processes, implement agile practices, and enhance adaptive capacity. Telecom companies can use digital orientation and capabilities to promote an innovative culture, make better decisions, enhance cooperation, and continuity during times of crisis.

Practically, the research paper points out that telecom organizations in Egypt need to focus on both the strategic and operational aspects of digital transformation. Whereas digital orientation outlines the vision and forms the organizational behavior, the digital capabilities entail the tools and infrastructure that is required to implement the vision properly.

The compounded effect is strengthened resilience that enables the firms to survive not only a disruption but also take advantage of new opportunities emerging in an unstable business environment. In general, the study establishes that digital change is a vital factor of organizational resilience. Both the positive relationships between the two digital orientation and the capabilities and resilience highlight the importance of an integrated approach to align the

leadership vision, culture, and technological resources. This way, the telecom companies in Egypt are able to improve on their adaptive, absorptive and restorative abilities and engage in long term performance in a more volatile uncertain environment. The outcome of the research is in is agreement with the current studies which supports the uniformity of research findings in different industries. The results of the present study are in line with the works by He et al. (2023), Codara (2023), Forliano et al. (2023), Robertson et al. (2022), Elgazzar (2022), Sobczak (2022), Zhang et al. (2021), and Casalino et al. (2019). All these studies point to the increased awareness of the beneficial role of organizational resilience in digital transformation. The fact that these studies serve as the support of the validity of the current study is not only decisive but also helps build a bigger picture of how digital technologies allow organizations to become more adaptable, innovative, and responsive to challenges in various industries.

Managerial Implications

Practically, the findings have various implications on telecom executives and policymakers. To begin with, the top management must strengthen its digital orientation by expressing a clear digital vision, investing in digital projects, and by instilling the culture of innovation and experimentation. Second, it is necessary to invest in digital capabilities, especially, IT infrastructure, data analytics tools, and employee upskilling programs. Through such investments, network monitoring can be improved, predictive maintenance can be allowed and quick reaction to market disruption can be accomplished. Lastly, policymakers can also contribute to resilience-building by offering incentives to digital innovation, secure strong cybersecurity policies, and encourage private-public agencies to advance the digital maturity of the sector.

Recommendations

According to the results of this research, which identified that both Digital Orientation (DO) and Digital Capabilities (DC) have a significant positive impact on Organizational Resilience (OR) in the Egyptian telecom sector, the following recommendations can be proposed:

- 1- **Empower Digital Orientation (DO):** Telecom firms need to establish an explicit digital vision and digital strategic orientation that integrates digital endeavors with long-term organizational objectives. This involves

engraining digital thinking in leadership behaviours, the creation of a culture of innovation and governance mechanism to track the digital progress. Good digital orientation makes sure that organizational processes, culture and decision making are always favourable towards improving resilience.

2- ***Build Operational Resilience*** (Develop Digital Capabilities (DC)) to Support the Development and Operation of the Business: Firms ought to invest in the technological infrastructure and operational capabilities such as state-of-art data analytics, cloud computing, and artificial intelligence tools. Establishing digital capabilities means that the organization is able to realize its strategic digital undertakings effectively, react to struggles, and continue with the services. Parallel to this, the employees must be advised in the ability to make the best use of these capabilities and allow the skill growth and computer literacy among the staff.

3- ***Combine DO and DC*** to Support Agile and Adaptive Practices: The synergistic impact of digital orientation and capabilities benefits the agility of organizations. Telecom companies are to promote cross-functional teamwork, knowledge exchange, and experimentation through the strategic vision (DO) and operational tools (DC), which helps predict risks, modify processes within a short timeframe and introduce new solutions.

4- ***Use Digital Insights*** to make Decisions and to be Situationally Aware: With digital capabilities organizations can enhance resilience through the collection, analysis and response of real time data. Combined with a high degree of digital orientation, it enables leaders to make informed and proactive decisions, detect possible threats in time, and capitalize on the arising opportunities.

With the help of digital orientation (strategic vision and culture) and digital capabilities (technological and operating resources) the telecom companies in Egypt can become more resilient in their organizations systematically to be ready to disruptions and to remain competitive in the fast-paced digital world.

Conclusion

In this research paper, the authors empirically investigated how digital transformation (DT) influences organizational resilience (OR) in the Egyptian telecommunications sector, where the concept of digital transformation has been operationalized in terms of its two dimensions, namely, digital orientation (DO) and digital capabilities (DC). The results proved the significance and positive impact of both DO and DC on OR, and that their interaction enhances the resilience. The implications of these findings on theory include that the DTOR nexus can be extended to a new field that has not been studied extensively, namely, that strategic intent (DO) and the operational capacity (DC) need to be aligned to create resilience in digital space. The practical value of the study is that it offers practical advice to telecom managers and policy makers on how to develop resilient organizations. The alignment of digital strategies with resilience goals can help organizations to not only survive disruptions but also use them as change opportunities and growth prospects.

Limitations and Future Research

This study has limitations even though it has contributed to it. The cross-sectional nature does not allow causation, and the use of self-reported data can also bring a common method bias. Longitudinal designs can be used in the future to represent the changing nature of resilience over time and how other factors such as organization size, complexity of regulations, or competition in the market might act as moderating variables. Contrasts between various industries or nations in the MENA region might also be more insightful into the contextual factors that drive the relationship between DT and OR.

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