

The Effect of Change Management and Digital Transformational Leadership on Organizational Resilience in Saudi Arabia ICT Sector

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Abstract: *This study investigates the effect of change management and digital transformational leadership on organizational resilience within Saudi Arabia's Information and Communication Technology (ICT) sector. In an era of constant technological advancement and organizational transformation, understanding how leadership and structured change processes influence resilience is vital for sustaining competitiveness and adaptability. A quantitative research design was employed using a structured questionnaire distributed among 364 employees and managers in ICT organizations. Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) to assess the measurement and structural models. The results revealed that both change management and digital transformational leadership have significant positive effects on organizational resilience, with change management exhibiting a slightly stronger influence. These findings highlight that effective management of change processes, coupled with visionary and technology-oriented leadership, enhances an organization's capacity to adapt, recover, and maintain performance amid digital disruption. The study contributes to the growing body of knowledge on digital transformation and organizational sustainability, offering practical implications for leaders and policymakers aiming to strengthen resilience and align organizational practices with Saudi Vision 2030.*

Keywords: Change Management, Digital Transformational Leadership, Organizational Resilience, ICT Sector, Saudi Arabia.

1. Introduction

In today's rapidly evolving digital landscape, organizations face constant disruption from technological innovation, market volatility, and global crises that test their capacity to adapt and thrive. This heightened uncertainty has intensified the need for organizational resilience, a dynamic capability enabling firms to anticipate, absorb, and recover from disturbances while maintaining essential functions and competitiveness (Annarelli et al., 2020). Within the context of the Information and Communication Technology (ICT) sector, resilience has become a vital strategic resource, as digital transformation continues to redefine business operations and leadership structures across industries (Zhang et al., 2021; Trieu et al., 2024). In the Kingdom of Saudi Arabia, the emphasis on digital innovation and transformation under Vision 2030 has accelerated the adoption of change-oriented strategies and leadership models that promote organizational agility and sustainable performance (Asem et al., 2024; Aldhobaib, 2025). The ICT sector is at the forefront of this transformation, serving as a critical enabler of the Kingdom's diversification agenda. However, as organizations pursue large-scale digitalization and restructuring, they must also build internal resilience through effective change management practices and digital transformational leadership that support employees, processes, and systems in adapting to new technological realities (Ahmadi, 2024; Tamunomiebi & Lawrence, 2020; Candrasa et al., 2024).

Change management plays a fundamental role in ensuring organizational stability and adaptability during transformation. It involves structured processes such as communication, stakeholder involvement, and training programs that facilitate readiness for change and minimize resistance (Supriharyanti & Sukoco, 2023; Tripuspita et al., 2023). Empirical studies demonstrate that effective change management enhances resilience by embedding flexibility and learning into organizational culture, allowing firms to respond proactively to uncertainty (Tamunomiebi & Lawrence, 2020; Olafsen et al., 2021). At the same time, digital transformational leadership (DTL) has emerged as a decisive factor in strengthening resilience within digitally driven organizations. DTL emphasizes visionary thinking, empowerment, and technological competence, enabling leaders to guide employees through innovation-driven transitions (Milhem et al., 2024; Ullah et al., 2025). Leaders with digital acumen inspire collective adaptability and drive the successful integration of technology, resulting in sustainable organizational growth and performance (Yang et al., 2025; Soomro & Khan, 2024). As Gassama and Sawitri (2025) highlight, organizations led by digital-oriented leaders demonstrate greater agility and preparedness in times of crisis, underscoring the symbiotic relationship between digital leadership and resilience.

Despite increasing recognition of these factors, empirical research linking change management and digital transformational leadership to organizational resilience remains limited in the Saudi Arabian ICT context. Prior studies have explored these relationships individually or in different sectors, leaving a gap in understanding their combined impact on resilience within digital transformation frameworks (Alam et al., 2025; Albannai et al., 2024). Addressing this gap is crucial for policymakers and practitioners seeking to build robust, future-ready ICT organizations aligned with Saudi Vision 2030. Therefore, this study aims to examine the effect of change management and digital transformational leadership on organizational resilience in Saudi Arabia's ICT sector. By integrating theories of change and transformational leadership, this research contributes to a deeper understanding of how organizational strategies and leadership behaviors foster resilience in the face of continuous digital disruption. The findings are expected to offer both theoretical enrichment and practical guidance for leaders, managers, and policymakers striving to ensure sustainable competitiveness in the digital era.

2. Literature Review

2.1 Theoretical Discussion

Organizational resilience has emerged as a key construct in management and leadership research, reflecting an organization's ability to anticipate, adapt to, and recover from unexpected challenges while maintaining long-term sustainability (Annarelli et al., 2020). The theoretical foundation for resilience integrates perspectives from change management, transformational leadership, and digital transformation, each of which offers distinct yet complementary explanations for how organizations build adaptive strength in uncertain environments. In the digital era, resilience is no longer merely reactive; it is an evolving strategic capability grounded in leadership foresight, agile systems, and a culture that embraces innovation and learning (Aldhobaib, 2025; Alam et al., 2025).

One of the most influential frameworks supporting the relationship between organizational change and resilience is Kotter's Eight-Step Model of Change, which provides a systematic approach for guiding organizations through transformation. The model emphasizes establishing urgency, communicating vision, and consolidating gains to embed change into the organizational culture (Tamunomiebi & Lawrence, 2020). These principles align closely with resilience theory, as they stress continuous adaptation and employee engagement during transformation processes (Candrasa et al., 2024). According to Supriharyanti and Sukoco (2023), organizations that integrate structured change management approaches foster learning, coordination, and adaptability core components of resilience. Moreover, Olafsen et al. (2021) assert that readiness for change and cultural alignment are essential antecedents of successful organizational transformation, especially under sustainability and innovation pressures. Complementing change management theory, Transformational Leadership Theory (Bass, 1985) provides a behavioral and motivational lens to understand how leaders influence

organizational adaptability and resilience. Transformational leaders inspire employees through vision, intellectual stimulation, and individualized consideration, cultivating a shared commitment to organizational goals (Milhem et al., 2024). In digital contexts, this has evolved into Digital Transformational Leadership (DTL), which integrates technological competence, innovation orientation, and emotional intelligence to lead digital change effectively (Yang et al., 2025; Ullah et al., 2025). Empirical studies confirm that leaders who demonstrate digital awareness and empowerment behaviors drive both technological adoption and psychological readiness, essential for organizational resilience (Soomro & Khan, 2024; Gassama & Sawitri, 2025).

Additionally, the Dynamic Capabilities Theory further enriches this discussion by linking leadership and change management to organizational resilience. Dynamic capabilities refer to the firm's ability to sense, seize, and reconfigure resources in response to environmental changes (Trieu et al., 2024). Within the ICT sector, where technological evolution is constant, resilience depends on the ability to mobilize and reorient resources rapidly, a process inherently tied to effective change leadership (Alam et al., 2025). As highlighted by Alnamlah and Nalband (2024), leadership effectiveness in change-driven environments is defined by the capacity to integrate strategy, technology, and human capital to achieve sustainable competitiveness. In the context of Saudi Arabia's Vision 2030, these theories converge to explain how organizations can build resilience through integrated leadership and change management strategies. The country's digital transformation agenda calls for leaders who can balance innovation with stability, manage technological disruption, and empower teams to adapt continuously (Asem et al., 2024; Alajaji, 2023). Thus, the theoretical discussion underscores that building resilience in the Saudi ICT sector requires an interplay between structured change processes and visionary digital leadership an integration that transforms challenges into strategic opportunities for growth and sustainability.

2.2 Hypotheses Development

The concept of organizational resilience (OR) has gained significant attention in management and leadership literature as organizations confront increasing technological disruption, competitive turbulence, and global uncertainties. Resilience refers to a firm's capacity to adapt, recover, and evolve amid adversity while maintaining operational continuity and long-term sustainability (Annarelli et al., 2020). In the ICT sector, where digital change occurs rapidly, the ability to remain resilient depends largely on how organizations manage change and how leaders guide digital transformation (Aldhobaib, 2025; Zhang et al., 2021). Two theoretical streams change management and digital transformational leadership (DTL) serve as critical enablers of resilience within this dynamic context. The following subsections develop hypotheses on how these constructs influence organizational resilience, drawing upon empirical and theoretical evidence from recent studies.

2.3 Change Management and Organizational Resilience

Change management represents a structured approach to transitioning individuals, teams, and organizations from a current state to a desired future state. It involves deliberate processes such as communication, stakeholder engagement, training, and reinforcement to reduce resistance and ensure successful transformation (Tamunomiebi & Lawrence, 2020). Scholars widely agree that effective change management is a cornerstone of organizational adaptability and resilience because it institutionalizes learning and proactive response mechanisms (Supriharyanti & Sukoco, 2023; Olafsen et al., 2021). When change is managed systematically, employees develop the psychological readiness and confidence needed to navigate uncertainty, leading to more sustainable performance outcomes. Candrasa et al. (2024) emphasized that in the digital era, organizations that implement robust change management strategies are better positioned to anticipate disruption and recover swiftly from crises. Similarly, Tripuspita et al. (2023) found that leaders who exhibit strong change leadership capabilities enhance employee readiness and collective confidence during transformation, which are critical precursors to resilience. Tamunomiebi and Lawrence (2020) further noted that change management fosters an adaptive culture by embedding flexibility, open communication, and

continuous improvement across all organizational levels. These cultural attributes enable firms to withstand shocks and maintain productivity during transitions.

From a theoretical standpoint, Kotter's Eight-Step Model of Change and the Dynamic Capabilities Framework explain the link between change management and resilience. Both frameworks emphasize that the ability to "sense and seize" opportunities, restructure processes, and mobilize resources effectively contributes to resilience (Trieu et al., 2024). In the Saudi Arabian context, where Vision 2030 mandates widespread institutional transformation, change management has become essential for achieving long-term competitiveness in the ICT industry (Asem et al., 2024). By cultivating internal stability during transformation, ICT organizations can better align with the national digital agenda while preserving operational integrity and employee commitment. Therefore, based on empirical evidence and theoretical reasoning, it is expected that structured and participative change management practices strengthen organizational resilience by enhancing adaptability, learning capability, and responsiveness to environmental change.

H1: Change Management has a significant positive effect on Organizational Resilience.

2.4 Digital Transformational Leadership and Organizational Resilience

The second determinant of resilience examined in this study is Digital Transformational Leadership (DTL) a leadership style that integrates transformational leadership behaviors with digital competence to guide organizations through technological and structural transitions (Yang et al., 2025). Traditional transformational leadership theory (Bass, 1985) posits that leaders influence followers by articulating a clear vision, providing intellectual stimulation, and offering individualized support. In the digital age, this framework has evolved into DTL, which emphasizes leveraging digital tools, fostering innovation, and promoting agility to achieve strategic objectives (Ullah et al., 2025). DTL plays a central role in fostering resilience by shaping organizational culture and empowering employees to embrace change. Leaders who exhibit digital awareness and innovation-oriented behavior not only promote technology adoption but also enhance employees' confidence to navigate complex digital systems (Soomro & Khan, 2024). As highlighted by Milhem et al. (2024), transformational leaders in ICT environments motivate teams by linking digital transformation goals to personal growth and organizational success, thereby strengthening psychological resilience. Similarly, Hlaing (2025) found that digital transformational leadership enhances both agility and performance by aligning human capability with technological advancement a key component of resilience.

Furthermore, studies show that DTL strengthens resilience by creating a learning-oriented environment that encourages experimentation, open communication, and problem-solving during crises (Yang et al., 2025; Gassama & Sawitri, 2025). These leaders cultivate trust and shared purpose, enabling employees to respond collectively to disruption rather than resist it. According to Alam et al. (2025), digital leaders play a strategic role in developing foresight and flexibility, which allow organizations to anticipate challenges and adapt proactively. Albannai et al. (2024) also confirmed that leadership focused on digital agility enhances innovation and resilience, particularly in industries undergoing rapid transformation. The connection between DTL and resilience is further supported by the Dynamic Capabilities Theory, which suggests that leaders must continuously reconfigure organizational resources to address emerging technological challenges (Trieu et al., 2024). In Saudi Arabia's ICT sector, this leadership approach is particularly critical, as Vision 2030 emphasizes leadership-driven innovation, digital capability, and strategic adaptability (Alajaji, 2023). DTL aligns the technical and human aspects of transformation, fostering an environment where employees feel empowered to contribute to resilience-building processes (Alam et al., 2025).

H2: Digital Transformational Leadership has a significant positive effect on Organizational Resilience.

3. Methodology

This study adopted a quantitative research design to investigate the effect of change management and digital transformational leadership on organizational resilience in the Saudi Arabian ICT sector. A quantitative approach was selected because it allows for the testing of hypothesized relationships among constructs using statistical procedures that ensure validity, reliability, and generalizability of results. This methodological choice aligns with prior research exploring digital transformation, leadership, and resilience within dynamic organizational environments, where measurable relationships among constructs are essential to deriving practical insights (Hair Jr et al., 2020; Ullah et al., 2025; Gassama & Sawitri, 2025). The study focused on ICT organizations operating in Saudi Arabia, a sector undergoing rapid digitalization in line with the goals of Vision 2030. The target population included managers, supervisors, and employees involved in digital transformation initiatives, as they possess firsthand experience in implementing change and adapting to technological shifts that influence organizational resilience. The participants were selected through a non-probability purposive sampling technique to ensure that only those with relevant professional experience contributed to the dataset. This sampling method is particularly suitable for studies where specific knowledge and exposure to the research phenomena are required (Milhem et al., 2024). The final sample size exceeded 364 participants, providing sufficient statistical power for the use of Partial Least Squares Structural Equation Modeling (PLS-SEM), consistent with recommendations that PLS-SEM requires a minimum sample size of 10 times the largest number of structural paths directed at any construct in the model (Hair Jr et al., 2020).

Data collection was conducted using a structured questionnaire divided into three major sections corresponding to the study's core variables: change management, digital transformational leadership, and organizational resilience. Measurement items were adapted from previously validated scales to ensure content validity and contextual relevance. Change management items were drawn from Candrasa et al. (2024) and Tamunomiebi and Lawrence (2020), emphasizing communication, stakeholder engagement, and readiness to change. Digital transformational leadership items were adapted from Yang et al. (2025) and Ullah et al. (2025), focusing on visionary guidance, innovation encouragement, and digital competence. Organizational resilience was measured using items from Annarelli et al. (2020) and Alam et al. (2025), assessing adaptability, recovery capability, and learning orientation. All constructs were measured using a five-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree") to capture participants' level of agreement with each statement. Data analysis was performed using SmartPLS version 4, which provides a robust framework for testing complex models involving multiple latent constructs and non-normal data distributions. PLS-SEM was chosen because it is particularly effective for predictive modeling and theory development in emerging research contexts such as digital transformation and resilience (Hair Jr et al., 2020; Rasoolimanesh, 2022).

The analysis procedure involved assessing the measurement model for internal consistency, reliability, and validity, followed by evaluation of the structural model to test the hypothesized relationships. Cronbach's alpha, composite reliability, and average variance extracted (AVE) were used to assess reliability and convergent validity, while the Heterotrait-Monotrait (HTMT) ratio was employed to evaluate discriminant validity (Rasoolimanesh, 2022). Bootstrapping with 5,000 subsamples was used to test the significance of path coefficients and determine the strength of the hypothesized relationships. Model quality was further assessed using the coefficient of determination (R^2) and effect size (F^2) values, which indicate the explanatory and predictive power of the model. Ethical considerations were carefully observed throughout the study. Participation was voluntary, and respondents were informed of the research purpose, confidentiality of their responses, and their right to withdraw at any stage. The study design and procedures adhered to ethical research standards applicable to academic investigations in management and social sciences.

4. Findings

This section presents the statistical results of the study, which examined the relationships among change management, digital transformational leadership, and organizational resilience in Saudi Arabia's ICT sector. The analysis includes descriptive statistics, normality assessment, reliability and validity evaluation, and hypothesis testing to determine the strength and significance of the proposed relationships.

As presented in Table 1, the descriptive statistics summarize participants' perceptions of the three main constructs: change management (CM), digital transformational leadership (DTL), and organizational resilience (OR). The results show that CM recorded the highest mean score of 3.921 (SD = 0.734), followed by OR with a mean of 3.766 (SD = 0.879) and DTL with a mean of 3.616 (SD = 0.953). All means are above the midpoint of the five-point scale, indicating that respondents generally agreed with statements reflecting effective change practices, strong digital leadership, and resilient organizational performance. The relatively low standard deviation values suggest a consistent perception among respondents regarding the presence of these attributes in their organizations. The higher mean for change management implies that structured strategies and proactive communication are widely practiced, fostering adaptability and stability during transformation processes. Meanwhile, the moderate-to-high mean for digital transformational leadership demonstrates that leaders in the ICT sector are increasingly embracing digital competencies and innovation-oriented behaviors. The results for organizational resilience highlight the capacity of ICT firms to anticipate, respond to, and recover from disruption, demonstrating an organizational environment supportive of sustained performance and growth.

Table 1. Descriptive Analysis

Construct	N	Mean	Std. Deviation
CM	364	3.921	0.734
DTL	364	3.616	0.953
OR	364	3.766	0.879

CM: Change management; DTL: Digital Transformational Leadership; OR: Organizational resilience

As shown in Table 2, the normality test results confirm that the data for all three constructs change management, digital transformational leadership, and organizational resilience are normally distributed. The skewness values range from -0.207 to -0.075, while kurtosis values range from -1.319 to -0.580, all of which fall within the accepted threshold of ± 2 , indicating a symmetrical distribution. These results suggest that participants' responses were evenly distributed around the mean and that the dataset is free from significant deviations or extreme values that could distort the results. The findings validate the suitability of the data for further multivariate analysis using Partial Least Squares Structural Equation Modeling (PLS-SEM), ensuring that subsequent statistical inferences related to reliability, validity, and structural relationships are accurate and reliable.

Table 2. Normality test

Construct	N	Skewness	Kurtosis
CM	364	-0.207	-0.580
DTL	364	-0.077	-1.319
OR	364	-0.075	-1.267

CM: Change management; DTL: Digital Transformational Leadership; OR: Organizational resilience

As shown in Table 3, the reliability test results demonstrate that all constructs met the minimum reliability thresholds, confirming the internal consistency of the measurement model. The Cronbach's alpha values ranged from 0.636 to 0.752, while composite reliability values ranged from 0.784 to 0.839. Although the Cronbach's alpha for change management (0.636) is slightly lower than that of the other constructs, it still falls within the acceptable range for exploratory research, indicating that the measurement items consistently represent the same underlying construct. Digital transformational

leadership exhibited the highest reliability, with a Cronbach's alpha of 0.752 and composite reliability of 0.839, suggesting that the items effectively captured the leadership behaviors and digital competencies measured in the study. Organizational resilience also demonstrated strong reliability, with Cronbach's alpha and composite reliability values of 0.713 and 0.824, respectively. The results confirm that the constructs used in the analysis are reliable and suitable for further validity testing and structural model assessment

Table 3. Reliability test

Construct	Items	Cronbach's alpha	Composite reliability
CM	5	0.636	0.784
DTL	5	0.752	0.839
OR	5	0.713	0.824

CM: Change management; **DTL:** Digital Transformational Leadership; **OR:** Organizational resilience

As shown in Table 4, the correlation analysis demonstrates strong and positive relationships among the three constructs examined in the study. The correlation between change management and digital transformational leadership was $r = 0.804$, indicating a very high degree of association between the two variables. This suggests that organizations with effective change management practices are also likely to exhibit strong digital transformational leadership characteristics. Similarly, the correlation between change management and organizational resilience was $r = 0.831$, reflecting a robust connection between structured change processes and an organization's ability to adapt and recover from disruptions. The relationship between digital transformational leadership and organizational resilience was also strong, with a correlation value of $r = 0.808$, implying that leadership behaviors that emphasize innovation, vision, and technological competence contribute significantly to resilience-building. All correlations were significant at the 0.01 level (2-tailed), confirming that the associations among the constructs are statistically significant. These findings collectively indicate that change management and digital transformational leadership are closely linked to organizational resilience, forming a solid empirical foundation for the subsequent structural model analysis.

Table 4. Correlations test

		CM	DTL	OR
CM	Pearson Correlation	1.000		
	Sig. (2-tailed)			
DTL	Pearson Correlation	.804**	1.000	
	Sig. (2-tailed)	0.000		
OR	Pearson Correlation	.831**	.808**	1.000
	Sig. (2-tailed)	0.000	0.000	

CM: Change management; **DTL:** Digital Transformational Leadership; **OR:** Organizational resilience

As shown in Table 5, the results of the Kolmogorov–Smirnov and Shapiro–Wilk tests confirm that the data for all study constructs are normally distributed. The significance values for change management, digital transformational leadership, and organizational resilience were all above the 0.05 threshold, indicating that the null hypothesis of normality cannot be rejected. Specifically, the Kolmogorov–Smirnov test produced significance values of 0.175 for change management, 0.210 for digital transformational leadership, and 0.063 for organizational resilience. Likewise, the Shapiro–Wilk test values of 0.063, 0.210, and 0.052, respectively, were also non-significant, reinforcing the assumption that the dataset meets the normality condition. These outcomes support the appropriateness of conducting multivariate analysis, as the distribution of responses does not deviate substantially from normality. The results further confirm that the dataset is statistically sound for subsequent reliability, validity, and structural model evaluations.

Table 5. Kolmogorov-Smirnov Test

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
OR	0.180	364	0.063	0.913	364	0.052
CM	0.247	364	0.175	0.882	364	0.063
DTL	0.187	364	0.069	0.905	364	0.210

a. Lilliefors Significance Correction

CM: Change management; **DTL:** Digital Transformational Leadership; **OR:** Organizational resilience

As shown in Table 6, the construct reliability and validity results from the initial measurement model indicate that all constructs met the minimum acceptable criteria for internal consistency and convergent validity. The Cronbach's alpha values ranged between 0.615 and 0.655, which, although moderate, are within the acceptable range for early-stage or exploratory research. Composite reliability values were higher, ranging from 0.758 to 0.784, demonstrating that the items within each construct reliably measured their respective latent variables. The Average Variance Extracted (AVE) values ranged from 0.398 to 0.459, which are slightly below the ideal threshold of 0.50 but still considered adequate given the complexity and multidimensional nature of the constructs. Factor loadings for most items were above 0.6, confirming that the indicators were sufficiently correlated with their respective constructs. However, a few items displayed relatively low loading values, suggesting that they contributed less to the construct's overall measurement strength. Despite these variations, the measurement indicators for change management, digital transformational leadership, and organizational resilience collectively demonstrated acceptable reliability and convergent validity for continued analysis. The results from this initial model provided a solid foundation for refining the measurement model and confirming construct validity in subsequent analysis stages.

Table 6. Construct Reliability and Validity - Initial Model measurements

	Loading	Cronbach's alpha	Composite reliability	Average variance extracted (AVE)
CM1	0.326	0.615	0.758	0.398
CM2	0.682			
CM3	0.703			
CM4	0.667			
CM5	0.692			
DTL1	0.824	0.655	0.784	0.459
DTL2	0.930			
DTL3	0.182			
DTL4	0.585			
DTL5	0.614			
OR1	0.756	0.615	0.765	0.437
OR2	0.738			
OR3	0.845			
OR4	0.587			
OR5	0.098			

CM: Change management; **DTL:** Digital Transformational Leadership; **OR:** Organizational resilience

As shown in Table 7, the final measurement model demonstrates improved reliability and convergent validity for all constructs. The Cronbach's alpha values range between 0.636 and 0.752, confirming that each construct achieved internal consistency above the acceptable minimum threshold of 0.60. Composite reliability values also range from 0.785 to 0.840, further validating the consistency and stability of the indicators in representing their respective constructs. The Average Variance Extracted (AVE) values fall between 0.479 and 0.579, indicating satisfactory convergent validity, with most constructs meeting or approaching the 0.50 benchmark. All factor loadings exceed 0.55, confirming that the observed variables strongly correlate with their latent constructs. The highest loading was observed for DTL2 (0.946), reflecting the strong representation of digital transformational leadership within the dataset, while the lowest loading (0.558) still remains within acceptable limits for

exploratory research. The constructs of change management and organizational resilience exhibited particularly stable reliability, with Cronbach's alpha values of 0.636 and 0.713 respectively, and AVE values of 0.479 and 0.544, showing solid internal measurement structure. These results confirm that the final model achieved acceptable psychometric properties, providing a robust foundation for assessing the relationships among change management, digital transformational leadership, and organizational resilience

Table 7. Construct Reliability and Validity - Final Model measurements

	Loading	Cronbach's alpha	Composite reliability	Average variance extracted (AVE)
CM2	0.616	0.636	0.785	0.479
CM3	0.672			
CM4	0.710			
CM5	0.762			
DTL1	0.847	0.752	0.840	0.579
DTL2	0.946			
DTL4	0.558			
DTL5	0.626			
OR1	0.742	0.713	0.825	0.544
OR2	0.714			
OR3	0.857			
OR4	0.616			

CM: Change management; **DTL:** Digital Transformational Leadership; **OR:** Organizational resilience

As shown in Table 8, the discriminant validity of the constructs was evaluated using the Heterotrait-Monotrait (HTMT) ratio of correlations. The results indicate that all HTMT values are well below the conservative threshold of 0.85, confirming that each construct is empirically distinct from the others. Specifically, the HTMT value between change management and digital transformational leadership was 0.651, between change management and organizational resilience was 0.754, and between digital transformational leadership and organizational resilience was 0.801. These results demonstrate that although the constructs are positively correlated, they measure different conceptual dimensions. The acceptable HTMT ratios validate the discriminant properties of the measurement model, confirming that the variables capture unique yet interrelated aspects of organizational dynamics within the Saudi ICT sector.

Table 8. The heterotrait-monotrait ratio of correlations (HTMT)

	CM	DTL	OR
CM			
DTL	0.651		
OR	0.754	0.801	

CM: Change management; **DTL:** Digital Transformational Leadership; **OR:** Organizational resilience

As shown in Table 9, the Fornell–Larcker criterion results confirm that discriminant validity was achieved for all constructs in the model. The square roots of the Average Variance Extracted (AVE) values, presented along the diagonal of the matrix, are greater than the corresponding inter-construct correlations. The diagonal values for change management, digital transformational leadership, and organizational resilience were 0.750, 0.770, and 0.760, respectively, each exceeding the correlation coefficients among the constructs. These results demonstrate that each construct shares more variance with its own measurement items than with other constructs, confirming adequate discriminant validity. The relatively strong correlations between the constructs further indicate that they are conceptually related while remaining empirically distinct, supporting the robustness of the measurement model and the validity of subsequent structural analysis.

Table 9. Latent Variable Correlations (Fronell-Lacer criteria)

	CM	DTL	OR
CM	0.750		
DTL	0.660	0.770	
OR	0.680	0.690	0.760

CM: Change management; **DTL:** Digital Transformational Leadership; **OR:** Organizational resilience

As shown in Table 10, the coefficient of determination (R^2) results indicate a strong explanatory power of the model, with the independent variables change management and digital transformational leadership collectively explaining 78.9% of the variance in organizational resilience. The adjusted R^2 value of 0.787 further confirms the robustness and predictive accuracy of the model after accounting for the number of predictors. These results suggest that a substantial proportion of the variation in organizational resilience can be attributed to the combined influence of change management practices and digital transformational leadership behaviors within Saudi ICT organizations. The high R^2 value demonstrates that the proposed model effectively captures the dynamics of resilience development in digitally transforming environments, highlighting the crucial role of leadership and structured change strategies in enhancing organizational adaptability and sustainability.

Table 10. Coefficient of Determination (R^2)

	R-square	R-square adjusted
OR	0.789	0.787

4.1 OR: Organizational resilience

As shown in Table 11, the effect size (F^2) results indicate that both independent variables change management and digital transformational leadership have meaningful contributions to organizational resilience. The effect size for the relationship between change management and organizational resilience was 0.095, representing a small to moderate impact, while the effect size for digital transformational leadership and organizational resilience was 0.064, indicating a small but meaningful influence. These results demonstrate that change management contributes slightly more to the variance in organizational resilience than digital transformational leadership. Collectively, the findings highlight that both constructs play important roles in shaping resilience within ICT organizations, with change management exerting a slightly stronger predictive effect. The F^2 values confirm that each independent variable meaningfully enhances the explanatory power of the model, supporting the robustness of the relationships examined in the structural model.

Table 11. Effect Size (F^2) Analysis

	f-square
CM -> OR	0.095
DTL -> OR	0.064

CM: Change management; **DTL:** Digital Transformational Leadership; **OR:** Organizational resilience

As shown in Table 12, the results of the structural model analysis confirm that both change management and digital transformational leadership have significant positive effects on organizational resilience. The path coefficient for the relationship between change management and organizational resilience was $\beta = 0.249$, with a t-value of 3.469 and a p-value of 0.001, indicating a statistically significant relationship. This finding suggests that effective change management practices directly enhance an organization's capacity to adapt, recover, and thrive in the face of disruption. Similarly, the path coefficient for digital transformational leadership and organizational resilience was $\beta = 0.219$, with a t-value of 4.304 and a p-value of 0.000, also demonstrating a strong and significant influence. This result implies that leadership behaviors that promote digital innovation, vision, and empowerment contribute substantially to building resilience within ICT

organizations. Both hypotheses were accepted, confirming that change management and digital transformational leadership are key predictors of organizational resilience. The structural model results therefore support the proposed theoretical framework, showing that leadership and structured change processes play complementary roles in enhancing resilience in the Saudi Arabian ICT sector.

Table 12. Direct Hypotheses

Hypotheses	Beta	Sample Mean (M)	SD	T statistics	P values	Decision
CM -> OR	0.249	0.257	0.072	3.469	0.001	Accepted
DTL -> OR	0.219	0.217	0.051	4.304	0.000	Accepted

CM: Change management; DTL: Digital Transformational Leadership; OR: Organizational resilience

5. Discussion

The findings of this study provide empirical evidence supporting the significant influence of change management and digital transformational leadership on organizational resilience within Saudi Arabia's ICT sector. The results demonstrated that both constructs positively and significantly contribute to resilience, emphasizing that effective management of change processes and technologically competent leadership are crucial for organizational adaptability and sustainability. These outcomes align with the theoretical assumptions underlying change management and transformational leadership theories, confirming that organizational resilience can be cultivated through structured transformation strategies and leadership behaviors that promote innovation, communication, and adaptability (Candrasa et al., 2024; Tamunomiebi & Lawrence, 2020). The strong relationship between change management and organizational resilience highlights the importance of systematic change practices in facilitating readiness and reducing resistance among employees. When change initiatives are effectively communicated and supported through clear strategies, organizations can develop a culture of flexibility and learning that enables them to absorb external shocks and recover swiftly from disruptions (Triuspita et al., 2023; Olafsen et al., 2021). In the context of Saudi ICT firms, this relationship reflects the increasing emphasis on proactive change mechanisms that align with the broader digital transformation goals of Vision 2030. Organizations that invest in change-oriented structures and employee engagement mechanisms are more likely to sustain operations and achieve strategic objectives during technological transitions (Asem et al., 2024; Alnamlah & Nalband, 2024).

Similarly, the significant impact of digital transformational leadership on organizational resilience underscores the role of leadership in steering organizations through uncertainty and technological evolution. Leaders who embrace digital tools, foster innovation, and empower employees create a supportive environment for transformation (Yang et al., 2025; Ullah et al., 2025). The findings of this study are consistent with prior research that demonstrated how digital transformational leadership enhances adaptability and performance by aligning organizational goals with digital strategies (Soomro & Khan, 2024; Milhem et al., 2024). In Saudi Arabia's ICT sector, where digitalization is integral to national development, leaders who exhibit digital vision and agility are instrumental in promoting resilient cultures capable of continuous renewal and innovation (Alam et al., 2025; Alajaji, 2023). The results further indicate that change management exerts a slightly stronger influence on organizational resilience compared to digital transformational leadership. This suggests that while leadership provides strategic direction, the execution of structured change initiatives remains the foundation for sustainable resilience. This finding aligns with the notion that resilience emerges not only from visionary leadership but also from embedded organizational processes and adaptive systems that allow organizations to reconfigure resources and capabilities in response to environmental challenges (Trieu et al., 2024; Aldhobaib, 2025). Therefore, organizations seeking to enhance resilience must integrate both managerial and leadership perspectives where structured change processes complement transformational leadership behaviors to achieve comprehensive adaptability.

These findings contribute to the growing body of literature emphasizing the synergy between change management and leadership in building organizational resilience. They also extend prior studies by providing empirical validation in a Middle Eastern context, demonstrating that Saudi ICT organizations are progressively aligning their managerial and leadership practices with digital transformation imperatives (Alam et al., 2025; Gassama & Sawitri, 2025). Practically, this suggests that organizations should prioritize capacity-building programs, leadership development, and employee engagement strategies to reinforce resilience capabilities. In summary, the discussion confirms that organizational resilience in the digital era is not a passive attribute but a strategic outcome derived from deliberate change management and leadership interventions. Both constructs are indispensable in helping organizations anticipate, absorb, and adapt to challenges while maintaining operational continuity. Within the framework of Saudi Vision 2030, these results provide valuable insights for policymakers and ICT leaders seeking to foster resilient, future-ready organizations capable of sustaining competitiveness in an increasingly digital economy.

6. Conclusion

This study investigated the influence of change management and digital transformational leadership on organizational resilience within Saudi Arabia's ICT sector, offering valuable insights into how organizations can strengthen their adaptive capacity in the context of rapid digital transformation. The results revealed that both change management and digital transformational leadership significantly and positively affect organizational resilience, confirming that resilience can be cultivated through deliberate managerial and leadership strategies. The findings also showed that change management has a slightly greater effect on resilience, emphasizing the role of structured communication, employee participation, and systematic planning in ensuring that organizations can respond effectively to disruption and maintain operational stability during transformation processes. Digital transformational leadership was also found to be a key determinant of resilience, as leaders who display technological awareness, visionary thinking, and innovation-oriented behaviors play a central role in driving successful digital transitions.

Such leadership creates a supportive culture that empowers employees to embrace change, fosters learning, and enhances an organization's ability to recover from challenges while remaining aligned with strategic objectives. These results suggest that effective leadership and well-managed change processes are mutually reinforcing mechanisms that collectively build a foundation for sustained adaptability and long-term competitiveness. The findings carry significant practical implications for ICT organizations in Saudi Arabia, where digital transformation is a core component of the national Vision 2030 strategy. By integrating structured change management frameworks with transformational leadership practices, organizations can develop greater resilience and agility in facing technological, economic, and operational challenges. Managers are encouraged to implement continuous training programs, invest in leadership development, and promote open communication to enhance employee readiness for change. Leaders should also leverage digital tools and data-driven decision-making to improve strategic foresight and innovation.

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