

Linking E-Leadership To Digital Adoption In Smes: The Role Of Digital Orientation And Fear Of Failure

Nguyen Thi Vinh Tran^{1*}

¹Vietnam Aviation Academy, Vietnam

*Corresponding Author/Email: tranntv@vaa.edu.vn

Manuscript received: July 10, 2025 / Revised: August 10, 2025 / Accepted: August 30, 2025

ABSTRACT

In the context of increasing digital transformation, this study investigates the influence of e-leadership on digital technology adoption by examining the mediating role of digital orientation and the moderating effect of fear of failure. Drawing on the Technology–Organization–Environment (TOE) framework and Diffusion of Innovation (DOI) theory, a research model was developed and tested using data collected from 284 employees working in Vietnamese small and medium-sized enterprises (SMEs). Partial Least Squares Structural Equation Modeling (PLS-SEM) was employed to assess the hypothesized relationships. The results indicate that e-leadership positively influences digital technology adoption, both directly and indirectly through digital orientation. Moreover, fear of failure was found to negatively moderate the relationship between e-leadership and technology adoption, but not the relationship between digital orientation and technology adoption. These findings highlight the critical role of digital leadership and individual digital commitment in facilitating adoption, while also emphasizing the need to address psychological barriers. The study offers theoretical contributions by integrating the TOE and DOI frameworks and provides practical insights for organizations navigating digital transformation.

KEYWORDS: Technology–Organization–Environment (TOE) framework, Diffusion of Innovation (DOI) theory, E-leadership, Digital orientation, Fear of failure, Digital technology adoption.

1. Introduction

In the rapidly evolving digital age, organizations across all sectors face mounting pressure to adopt emerging technologies to maintain competitiveness and ensure long-term sustainability (Raza & Wang, 2023). The COVID-19 pandemic, followed by a sustained global shift toward digitalization, has accelerated this urgency, making digital technology adoption no longer optional but a strategic imperative (Lee & Trimi, 2021; Shao et al., 2023). However, successful digital transformation is not merely about implementing new technologies; it hinges significantly on organizational culture, leadership, and employees' readiness to embrace change (Sahu, 2023).

Among these factors, e-leadership, a leadership style that leverages digital tools to influence, motivate, and enable virtual teams, has emerged as a critical enabler of digital transformation (Alawamleh et al., 2025; Eslamdoust et al., 2024). Unlike traditional leadership, e-leadership addresses the unique challenges posed by dispersed workforces, technological uncertainty, and virtual communication (Bauwens & Cortellazzo, 2024; Chamakiotis et al., 2021). However, while the role of leadership in technology adoption is well-documented, the specific influence of e-leadership on digital technology adoption remains underexplored, especially within organizational contexts undergoing technological transition in developing countries such as Vietnam.

A growing body of literature emphasizes the role of

digital orientation conceptualized at either the individual level, as in Afrianty et al. (2022), or at the organizational level, as in Shen et al. (2022) as a mediating mechanism through which leadership can influence technology adoption. Nevertheless, there is a lack of empirical studies that explicitly examine digital orientation as a mediator in the relationship between e-leadership and digital technology adoption. This leaves a theoretical gap in understanding how and through what pathways e-leadership drives technological change.

Moreover, organizational change is often hindered by psychological and cultural barriers (Al-Abdallah et al., 2023). One such barrier is the fear of failure, which may cause resistance to innovation and technology use (Al-Abdallah et al., 2023; Nong et al., 2024). While fear of failure has been examined in entrepreneurial and individual decision-making contexts (Nong et al., 2024), its role as a moderating variable in adoption of digital technologies remains insufficiently addressed. Investigating how fear of failure weakens or strengthens the effects of leadership and digital orientation can provide more nuanced insights into the complexities of organizational change.

Therefore, this study seeks to fill these research gaps by examining the direct and indirect effects of e-leadership on digital technology adoption, the mediating role of digital orientation, and the moderating effect of fear of failure. By doing so, this research contributes to both theory and practice by advancing our understanding of leadership-driven digital transformation and identifying psychological factors that may

hinder or facilitate this process. The findings offer actionable insights for organizations seeking to foster a digital-ready culture and overcome hidden barriers to successful technology integration.

2. Literature Review

2.1. Theoretical Backgrounds

Understanding how organizations adopt digital technologies requires a multidimensional perspective that accounts for structural, strategic, and behavioral factors. To guide this research, two complementary theoretical lenses are employed: the Technology-Organization-Environment (TOE) framework and Diffusion of Innovation (DOI) theory. Together, these frameworks offer a holistic understanding of the drivers and barriers influencing digital technology adoption in organizations.

The Technology-Organization-Environment (TOE) framework, proposed by Tornatzky and Fleischer (1990), is a widely accepted model for examining technology adoption in organizations. It posits that technological, organizational, and environmental contexts collectively influence a firm's decision to adopt and implement new technologies. While the TOE framework is typically applied in its entirety, prior studies have validated the use of a partial TOE approach by focusing on one or two contexts-particularly when the research aims to explore internal or contextual influences in greater depth (Baker, 2012; Ifinedo, 2011; Oliveira & Martins, 2011). Aligned with this approach, the present study focuses on the organizational context, emphasizing how internal factors-namely e-leadership, digital orientation, and fear of failure-shape a readiness and capability to adopt digital technologies.

To deepen the understanding of how innovations are accepted and diffused within organizational settings, this study also draws on Diffusion of Innovation (DOI) theory by Rogers (2003). DOI theory explains the process through which new ideas and technologies spread across individuals and organizations. It highlights the importance of innovation characteristics, communication channels, social systems, and the roles of opinion leaders. In an organizational context, leaders often act as change agents who promote innovation adoption, making DOI particularly relevant for exploring the role of e-leadership. Moreover, DOI accommodates the influence of organizational culture and perceived barriers-such as fear of failure on the rate and likelihood of adoption.

By integrating TOE and DOI, this study leverages the strengths of both frameworks: TOE offers a structural lens to examine internal organizational factors influencing adoption, while DOI provides a behavioral and process-oriented perspective on how innovations diffuse and why some organizations and individuals adopt technologies earlier or more effectively than others. This theoretical synthesis allows for a more comprehensive analysis of the antecedents, mediators, and moderators that influence digital technology adoption in contemporary organizational settings.

2.2. Hypothesis Development

2.2.1. E-leadership and Digital Technology Adoption

In the context of increasing digitalization, leadership

plays a pivotal role in shaping organizational readiness and commitment toward adopting new technologies (Hargitai & Bencsik, 2023; Mokganya et al., 2024; Ruel et al., 2021). Traditional leadership styles often reliant on face-to-face communication and hierarchical control may be insufficient to manage the complexities of digital transformation (April & Dalwai, 2019; Terry, 2025). In response, the concept of e-leadership has emerged, defined as the ability to exert social influence through advanced information and communication technologies (ICTs) to achieve organizational goals (Roman et al., 2019; Torre & Sarti, 2020). E-leaders are distinguished by their capacity to lead virtual teams, navigate technological uncertainty, and leverage digital tools to foster collaboration, innovation, and change (Chamakiotis et al., 2021).

Digital technology adoption refers to the process through which organizations or individuals recognize the value of digital tools and incorporate them into their operational or strategic activities (Mokganya et al., 2024). In the present study, it refers to the extent to which digital technology has been adopted and used by the respondents (Venkatesh & Davis, 2000). This process is not purely technical; it is heavily shaped by leadership-driven factors such as vision-setting, motivation, and strategic alignment (Mokganya et al., 2024). E-leadership, by virtue of its digital fluency and transformational characteristics, is uniquely positioned to promote technology adoption by creating a culture that supports innovation and reduces resistance to change (Salih, 2024).

According to Diffusion of Innovation (DOI) theory, change agents and opinion leaders often leaders themselves play an essential role in influencing adoption decisions within social systems (Rogers, 2003). Similarly, within the organizational context of the TOE framework, leadership is considered a key internal factor that determines a firm's willingness and capability to embrace technological innovation (Amini & Jahanbakhsh Javid, 2023; Pateli et al., 2020). E-leaders can encourage experimentation, communicate the strategic value of new technologies, and allocate resources necessary for successful adoption (Liu et al., 2018). Empirical studies have found that leadership support is positively associated with the adoption of technologies such as cloud computing, ERP systems, and e-business platforms (Alos-Simo et al., 2017; Pathan et al., 2017).

Despite the growing interest in digital transformation, there remains limited empirical research that directly links e-leadership, as opposed to general leadership, to digital technology adoption, particularly in emerging economies. Understanding this relationship is essential for identifying internal enablers of successful digital transitions. Therefore, the following hypothesis is proposed:

H1: E-leadership has a positive influence on digital technology adoption.

2.2.2. Digital Orientation as a Mediator

In the context of digital transformation, individual employees play a critical role in determining whether new technologies are successfully adopted and integrated into daily operations (Cetindamar et al., 2021). One key psychological

factor influencing this process is digital orientation, which in this study is defined as an individual's commitment to the application of digital technologies to support the accomplishment of work-related tasks (Afrianty et al., 2022). Employees with a strong digital orientation are more likely to view digital tools as essential enablers of productivity, efficiency, and innovation in their roles (Afrianty et al., 2022).

E-leadership, the ability to lead through digital communication and technological platforms, can have a significant influence on shaping employees' digital orientation (Roman et al., 2019; Torre & Sarti, 2020). E-leaders not only provide strategic direction but also foster a digital-friendly work environment, encourage experimentation, and serve as role models in the use of digital tools (Chamakiotis et al., 2021). When leaders actively demonstrate confidence in and commitment to digital technology, it reinforces employees' own perceptions of its value, thereby strengthening their personal commitment to using such tools in their work. This aligns with prior research suggesting that leadership behaviors significantly influence followers' attitudes, mindsets, and behavioral orientations toward technology (Nguyen et al., 2022; Nong et al., 2024; Van Wart et al., 2019).

Once digital orientation is established, it serves as a key internal motivator for individuals to engage with, explore, and adopt digital solutions in their job functions. Employees who are digitally oriented are more likely to seek out digital tools, adapt quickly to technological changes, and integrate innovations into their workflows (Afrianty et al., 2022). As such, digital orientation can be understood as a mechanism through which e-leadership translates into actual digital technology adoption at the individual level.

Therefore, in this study, digital orientation is proposed to mediate the relationship between e-leadership and digital technology adoption. E-leadership enhances individuals' digital commitment, which in turn increases the likelihood of successful and sustained use of digital technologies in their roles. Therefore, the following hypotheses are developed:

H2: E-leadership has a positive influence on digital orientation.

H3: Digital orientation has a positive influence on digital technology adoption.

H4: Digital orientation mediates the relationship between e-leadership and digital technology adoption.

2.2.3. The Moderating Role of Fear of Failure

Digital transformation often requires employees to embrace new technologies, adapt to unfamiliar systems, and operate outside of their comfort zones. One critical yet often overlooked psychological barrier in this process is fear of failure, which refers individual's anxiety about making mistakes and facing negative evaluations or outcomes (Leung et al., 2014). Fear of failure can lead to risk aversion, hesitation, and a preference for maintaining the status quo, all of which can negatively impact the adoption of digital technologies and new initiatives (Gkrimpizi et al., 2023; Nong et al., 2024). Fear of failure may stem from anxiety about making mistakes, damaging one's reputation, or being unable to meet performance expectations, especially when faced with

rapidly evolving digital tools (Cacciotti & Hayton, 2015; Nong et al., 2024).

In organizations, this fear can undermine even the most well-intentioned change initiatives (Gkrimpizi et al., 2023; Nguyen et al., 2025; Nong et al., 2024). Employees who fear failure may resist learning new technologies, avoid experimentation, or delay engagement with digital tools due to concerns about performance consequences or peer judgment (Hadlington & Scase, 2018; Nong et al., 2024). This is particularly problematic in digital transformation efforts (Hadlington & Scase, 2018). Consequently, fear of failure can dampen the positive effects of leadership influence and digital orientation, thereby moderating the relationships between these enablers and actual technology adoption.

Moreover, from a Diffusion of Innovation (DOI) perspective, fear of failure can also slow the rate of innovation adoption by increasing perceived complexity and decreasing trialability two characteristics known to inhibit diffusion. In this way, fear of failure may moderate the strength of the relationships between e-leadership and technology adoption, and digital orientation and technology adoption, by undermining confidence and increasing resistance among decision-makers and employees.

Thus, even in the presence of strong leadership and a clear digital strategy, high levels of fear of failure may create psychological resistance, leading to delayed or rejected adoption decisions. Conversely, in organizations where fear of failure is low, the positive effects of e-leadership and digital orientation are likely to be amplified. Hence, the following hypotheses are stated:

H5: Fear of failure negatively moderates the relationship between digital orientation and digital technology adoption, such that the relationship is weaker when fear of failure is high.

H6: Fear of failure negatively moderates the relationship between e-leadership and digital technology adoption, such that the relationship is weaker when fear of failure is high.

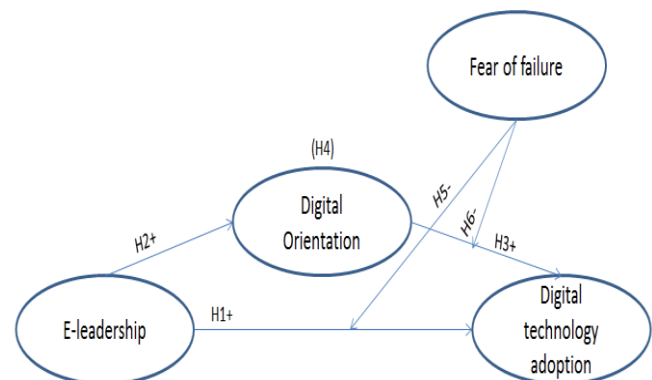


Figure 1: Research Model

3. Research Method

3.1. Research Approach

This study adopts a quantitative research approach to examine the relationships between e-leadership, digital orientation, fear of failure, and digital technology adoption at the individual level. The research is explanatory in nature, aiming to test a moderated mediation model based on empirical data. A cross-sectional survey design was used to collect data from individuals currently working in organizations undergoing digital transformation initiatives.

3.2. Sampling and Respondents

The target population of this study consists of employees in the Vietnamese small and medium enterprises (SMEs) sector. A convenience sampling method was employed to select participants. The details of the demographic information of the participants were presented in Table 1 below. As can be seen from the Table 1 “Other gender” category represented 13 respondents (4.6% of the sample). Due to its small proportion and the study’s focus on broader gender trends, no separate statistical analysis was conducted for this group; however, it is reported here for completeness and transparency.

Table 1: Participant’s Demographic Information (N=284)

Measure	Class	Frequency	Percent
Gender	Male	127	44.7
	Female	144	50.7
	Other	13	4.6
Age	20-29	63	22.2
	30-39	96	33.8
	40-49	67	23.6
	More than 49	58	20.4
Education level	Below bachelor	63	22.2
	Bachelor	149	52.4
	PhD	72	25.4
Years of experience	Less than 5 years	50	17.6
	5-10 years	95	33.5
	11-15 years	65	22.9
	More than 15 years	74	26.1
Total		284	100

(Source: Created by authors)

3.3. Data Collection and Procedure

To gather data in Vietnam, the questionnaire was first translated from English to Vietnamese by a qualified translator. Subsequently, three experts experienced in quantitative research and the digital transformation sector reviewed the items to ensure face and content validity. Although the scales were adapted from previously published studies, a pilot test with 30 respondents was conducted to assess clarity, reliability, and content validity. The pilot data were evaluated using Cronbach’s alpha and inter-item correlations. All Cronbach’s

alpha values for the main constructs exceeded the threshold of 0.70, and all inter-item correlations were above 0.30, demonstrating acceptable internal consistency (Hair et al., 2011).

The official survey was conducted online using a structured questionnaire distributed via professional networks, social media platforms, and organizational contacts across various industries. A convenience sampling approach was employed to reach participants who were accessible and met the inclusion criteria. Because the survey link was openly distributed without a fixed sampling frame, the total number of individuals who received the invitation was unknown; therefore, an exact response rate could not be calculated.

To mitigate potential self-report bias, several procedural remedies were implemented: (1) respondents were assured of anonymity and confidentiality, (2) informed consent was obtained prior to participation, (3) the questionnaire used simple and unambiguous wording to reduce misinterpretation, and (4) items measuring predictor and outcome variables were placed in separate sections to minimize common method variance (Podsakoff et al., 2003).

3.4. Measures

All constructs were measured using validated scales from existing literature, modified slightly for contextual relevance and clarity. All items were rated on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree).

E-Leadership was measured using a 4-item scale developed by Ben Sedrine Doghri et al. (2021) focusing on leaders’ digital communication, influence, and support. An example item is: “*Your leader empowers you to use technology in innovative ways to enrich work*”

Digital Orientation was assessed using a revised scale based on Afrianty et al. (2022), reflecting an individual’s personal commitment to applying digital technology to accomplish work tasks. An example item is: “*I realized the importance of utilizing digital technology to support my work.*”

Fear of Failure was measured using 4-item scale adapted from Nong et al. (2024)-for example “I often worry that my leaders will blame me for performance that is below his/her standards.”

Digital Technology Adoption was assessed through 4-item scale adapted from Venkatesh and Davis (2000). Respondents were asked to share their experiences regarding the extent to which they use digital technology and integrate it into their work processes. A sample item from the scale is: “*I has been using digital technology related to industry 4.0 in my works (Artificial Intelligence, Data Analysis etc.)*”

3.5. Data Analysis

Data analysis was conducted using SPSS 22 and Smart-PLS 3.0. Preliminary analyses including descriptive statistics, and Harman’s single-factor test were performed using SPSS 22, while the measurement and structural model evaluations were conducted using the PLS-SEM approach in Smart-PLS 3.0.

4. Findings

4.1. Primary Checks and Descriptive Statistics

To address potential common method variance (CMV) arising from the use of a single data source, the current study conducted a preliminary assessment using Harman’s single-factor test. The unrotated factor analysis revealed that the first factor accounted for 34.33% of the total variance, which is below the commonly accepted threshold of 50% (Podsakoff et al., 2003). This result suggests that no single factor dominates the variance in the data, indicating that common method bias is unlikely to pose a significant threat to the validity of the study’s findings.

Additionally, prior to further analysis, descriptive statistics were examined. Table 2 below presents the descriptive statistics for the main constructs in the study.

Table 2: Descriptive statistics (N=284)

Constructs	Min-Max	Mean	SD
E-Leadership	1.0-5.0	3.84	0.890
Digital orientation	1.0-5.0	2.80	0.893
Fear of failure	1.0-5.0	3.89	0.834
Digital technology adoption	1.0-5.0	4.07	0.825

(Source: Created by authors)

4.2. Measurement Model Evaluation

In this stage, the study assessed the measurement model by examining both convergent validity and reliability, as well as discriminant validity. To evaluate convergent validity and reliability, the study followed the guidelines proposed by Fornell and Larcker (1981), utilizing four key indicators: Cronbach’s alpha (> 0.70), outer loadings (> 0.70), composite reliability (CR) (> 0.70), and average variance extracted (AVE) (> 0.50). Discriminant validity was assessed using the heterotrait–monotrait (HT MT) ratio, with a recommended threshold of less than 0.90 (Hair et al., 2011).

The results, as presented in Tables 3 and 4, indicate that all constructs satisfied the required thresholds. Thus, the measurement model demonstrates acceptable levels of both convergent and discriminant validity, confirming its reliability and construct validity.

Table 3: Outer loadings, Cronbach’s Alpha, CR, and AVE of latent variables

Constructs	Item Coding	Outer Loading	Cronbach’s alpha	CR	AVE
E-leadership	EL1	0.836	0.877	0.916	0.731

	EL2	0.880			
	EL3	0.906			
	EL4	0.794			
Digital orientation	DO1	0.875	0.829	0.897	0.745
	DO2	0.881			
	DO3	0.832			
Fear of failure	FF1	0.736	0.848	0.891	0.673
	FF2	0.810			
	FF3	0.917			
	FF4	0.808			
Digital technology adoption	DTA1	0.865	0.872	0.912	0.723
	DTA2	0.862			
	DTA3	0.848			
	DTA4	0.825			

(Source: Created by authors)

Table 4: HTMT (heterotrait–monotrait ratio)

Constructs	E-leadership	Digital orientation	Fear of failure	Digital tech adoption
E-leadership	-			
Digital orientation	0.422	-		
Fear of failure	0.236	0.183	-	
Digital technology adoption	0.419	0.319	0.204	-

(Source: Created by authors)

5. Structural Model Evaluation

5.1. Lateral collinearity assessment

Prior to evaluating the structural model, inner variance inflation factor (VIF) values were examined to identify potential issues of multicollinearity among the predictor constructs. Following the guideline proposed by Hair et al. (2011), inner VIF values should remain below the threshold of 5.0 to avoid multicollinearity concerns. In this study, all inner VIF values ranged from 1.00 to 1.427, indicating that multicollinearity is not a concern.

5.2. Model Explanatory Power and Predictive Relevance

As shown in Table 5, the model explains 17.8% of the variance in Digital Orientation ($R^2 = 0.178$) and 24.4% of the variance in Digital Technology Adoption ($R^2 = 0.244$). Following Cohen’s (1988) guidelines, these correspond to small and medium explanatory power, respectively.

The Q^2 values, obtained via blindfolding, are 0.127 for Digital Orientation and 0.168 for Digital Technology Adoption. Since both values are above zero, the model demonstrates predictive relevance for both endogenous constructs, with small predictive relevance for Digital Orientation and medium predictive relevance for Digital Technology Adoption (Hair et al., 2022).

Regarding effect sizes (f^2), E-leadership has a medium

effect on Digital Orientation ($f^2 = 0.217$) and a small effect on Digital Technology Adoption ($f^2 = 0.096$). In contrast, Digital Orientation has a very small effect on Digital Technology Adoption ($f^2 = 0.018$). These results indicate that E-leadership plays a relatively stronger role in fostering Digital Orientation than in directly driving Digital Technology Adoption, and that the mediating effect of Digital Orientation is modest in magnitude.

Table 5: Coefficient of Determination (R^2), Effect Size (f^2), and Predictive Relevance (Q^2)

	R^2	Q^2	f^2	Results
Digital Orientation	0.178	0.127		Small
Digital Technology Adoption	0.244	0.168		Medium
E-leadership → Digital Orientation			0.217	Medium
E-leadership → Digital Technology Adoption			0.096	Small
Digital Orientation → Digital Technology Adoption			0.018	Very small

(Source: Created by authors)

5.3. Hypothesis testing

The current study employed bootstrapping to assess and test the significance of the model. The T-statistics value indicates the importance of path coefficients (Ringle et al., 2015). Table 5 presents the PLS-SEM results. As shown in Table 5, all direct, indirect, and moderating effects were supported, excepting H6. Specifically, e-leadership positively affects digital technology adoption ($\beta = 0.306$, $T = 5.384$, $p < 0.001$), supporting H1. E-leadership positively influences digital orientation ($\beta = 0.422$, $T = 8.423$, $p < 0.001$), supporting H2. Digital orientation positively affects digital technology adoption ($\beta = 0.130$, $T = 2.365$, $p < 0.05$), supporting H3. Digital orientation mediates the relationship between e-leadership and digital technology adoption ($\beta = 0.055$, $T = 2.243$, $p < 0.05$), supporting H4.

Table 6: Hypothesis Testing Results (** $p < .001$, (* $p < .01$, * $p < .05$)

Hypothesis	Relationship	Beta	T-value	P-values	Decision
Direct relationships					
H1	E-LEADER → DTA	0.306	5.384	***	Supported
H2	E-LEADER → DO	0.422	8.423	***	Supported
H3	DO → DTA	0.130	2.365	*	Supported
Indirect relationships					
H4	E-LEADER → DO → DTA	0.055	2.243	*	Supported

Moderating relationships

H5	E-LEADER*FF → DTA	-0.175	2.997	**	Supported
H6	DO*FF → DTA	0.002	0.031		Not-supported

(Source: Created by authors)

Furthermore, the study examined the moderating effect of fear of failure on two key relationships between e-leadership and digital technology adoption, and between digital orientation and digital technology adoption. The results indicate a negative and statistically significant moderating effect of fear of failure on the relationship between e-leadership and digital technology adoption ($\beta = -0.175$, $p < 0.01$), thereby supporting Hypothesis 5.

As illustrated in Figure 2, the positive influence of e-leadership on digital technology adoption is weaker among individuals with higher levels of fear of failure.

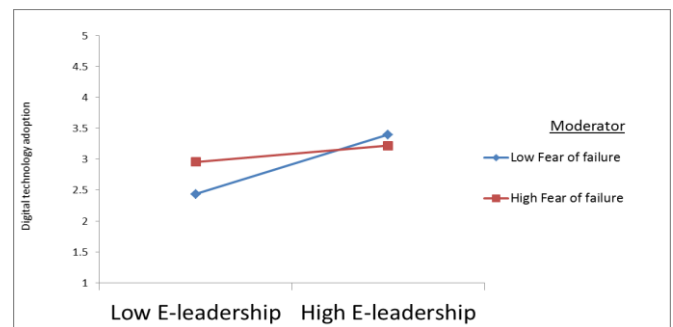


Figure 2: Effect of Fear of Failure on the Relationship between E-leadership and Digital Technology Adoption (E-leadership*FF → DTA)

Note. Fear of failure dampens the positive relationship between e-leadership and digital technology adoption.

Source: Created by authors.

In contrast, the analysis found no significant moderating effect of fear of failure on the relationship between digital orientation and digital technology adoption ($\beta = 0.002$, n.s.), thus not supporting Hypothesis 6. The result model is illustrated in Figure 3.

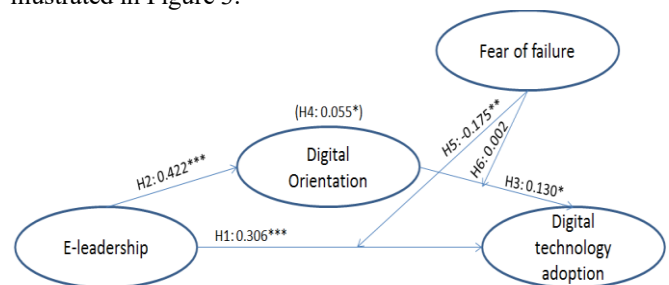


Figure 3: Results of the Study (** $p < .001$, * $p < .01$, * $p < .05$)

Note. Coefficients for indirect effects are in parentheses

(Source: Created by authors)

6. Discussion and Conclusion

6.1. Discussion

This study examined how e-leadership influences digital technology adoption, with digital orientation as a

mediator and fear of failure as a moderator. The proposed model was largely supported, with five of six hypotheses confirmed.

Consistent with prior research (e.g., Ruel et al., 2021; Mokganya et al., 2024), e-leadership had a significant positive effect on digital technology adoption. E-leaders communicate digital vision, motivate employees, and reduce uncertainty, reinforcing their role as change agents in line with Diffusion of Innovation theory (Rogers, 2003) and the organizational dimension of the TOE framework (Tornatzky & Fleischer, 1990; Amini & Jahanbakhsh Javid, 2023). The findings also support arguments that traditional leadership styles may be inadequate in managing digital complexity (April & Dalwai, 2019; Terry, 2025).

Digital orientation was found to significantly mediate the e-leadership–adoption relationship, aligning with Afrianty et al. (2022) and Chamakiotis et al. (2021). This suggests that e-leadership fosters a digital mindset and commitment to using digital tools, which in turn drives actual adoption behavior.

Fear of failure significantly moderated the link between e-leadership and digital technology adoption, consistent with Gkrimpizi et al. (2023) and Nong et al. (2024). In high-fear contexts, even strong e-leadership may not fully translate into adoption, as anxiety and risk aversion dampen responsiveness to leadership influence. This underscores the importance of leaders managing both digital initiatives and the emotional climate surrounding failure (Hadlington & Scase, 2018; Cacciotti & Hayton, 2015).

However, Hypothesis 6 was not supported; fear of failure did not significantly moderate the digital orientation adoption relationship. One explanation is that a strong internal commitment to digital tools may override psychological resistance. Individuals with high digital orientation are intrinsically motivated to engage with digital solutions (Afrianty et al., 2022), potentially buffering the effect of fear. Fear of failure may thus exert more influence on external drivers (e.g., leadership signals) than on personal orientations already internalized.

The relatively low mean score for Digital Orientation ($M=2.80$) offers important context. It reflects a moderate inclination toward digital strategies among employees in Vietnamese SMEs, consistent with their early-stage digital maturity. Organizational reliance on traditional models, limited digital infrastructure investment, and skill gaps likely contribute to this. Such conditions may explain the moderate mediation in H3 and the non-significant moderation in H4. Addressing this requires targeted measures such as leadership-driven digital vision, structured upskilling, and supportive change management to strengthen digital orientation and, in turn, technology adoption outcomes.

6.2. Conclusion

This study contributes to the growing literature on digital transformation by highlighting how e-leadership promotes digital technology adoption through individual-level digital orientation, and how fear of failure can either hinder or have limited impact on this process. The integration of the TOE framework and DOI theory provides a comprehensive

foundation for understanding both structural and psychological dynamics of technology adoption within organizations.

Theoretical contributions include clarifying the mediating role of digital orientation and the conditional effects of fear of failure extending prior work by Roman et al. (2019), Chamakiotis et al. (2021), and Nong et al. (2024). Practically, the findings suggest that organizations should invest not only in digital leadership development but also in cultivating employees' digital mindsets and addressing emotional barriers like fear of failure through supportive cultures and failure-tolerant environments.

Future research may explore longitudinal effects, contextual variations across industries, or other psychological moderators such as digital self-efficacy or resilience. Overall, this study provides evidence that effective digital transformation requires both strategic leadership and attention to the human factors that enable or resist change.

6.3. Theoretical Implication

This study offers several contributions to the theoretical understanding of digital technology adoption within organizational settings. First, by integrating the Technology–Organization–Environment (TOE) framework (Tornatzky & Fleischer, 1990) and Diffusion of Innovation (DOI) theory (Rogers, 2003), the study provides a dual-lens approach that captures both the structural and behavioral dimensions of adoption. While the TOE framework supports the investigation of internal organizational drivers, DOI theory adds a process-oriented view, particularly regarding the role of leadership as a change agent and innovation influencer.

Second, this study extends the literature on e-leadership by empirically validating its influence on individual-level digital technology adoption, a relatively underexplored area. By confirming e-leadership's indirect effect through digital orientation, the research emphasizes that leadership fosters more than compliance; it cultivates internal psychological commitment to digital engagement. This supports prior work on leadership's role in shaping digital mindsets and behaviors.

Third, the study contributes to the growing body of research on psychological barriers to innovation by examining the moderating role of fear of failure. The finding that fear of failure weakens the effect of e-leadership—but not digital orientation—adds nuance to existing theory. It suggests that fear primarily disrupts external influences (e.g., leadership) rather than internalized motivations (e.g., digital commitment).

6.4. Practical Implication

From a managerial perspective, the findings provide several actionable directions. First, organizations pursuing digital transformation should invest in developing e-leadership capabilities particularly among mid- and senior-level managers. Leaders skilled in digital communication, fostering experimentation, and aligning teams with digital goals can directly increase employee engagement with new technologies.

Second, promoting technology adoption requires more than infrastructure and training; it involves cultivating employees' digital orientation. This can be achieved by

embedding digital thinking into job roles, recognizing and rewarding digital engagement, and fostering an innovation mindset across the organization. As digital orientation is a key enabler of adoption, building this psychological commitment is critical for sustaining transformation outcomes.

Third, the negative moderating role of fear of failure highlights the need for psychologically safe workplaces. Managers should acknowledge the emotional risks of failure, normalize learning from mistakes, and reduce the stigma associated with experimentation. Such measures can mitigate fear's dampening effect and unlock the full potential of leadership-driven digital initiatives.

Fourth, the finding that fear of failure did not significantly moderate the relationship between digital orientation and digital technology adoption suggests that once employees possess a strong internal commitment to using digital tools, psychological barriers such as fear of failure may have limited impact on their adoption behavior. For organizations, this insight implies that investments in building digital orientation through targeted skill development, embedding digital practices into daily workflows, and fostering intrinsic motivation may provide a buffer against the negative effects of fear of failure. By focusing on strengthening individual digital commitment, managers can help employees sustain engagement with digital initiatives even in high-risk or uncertain environments.

Finally, HR and organizational development functions should incorporate digital orientation and fear of failure awareness into employee assessments and leadership training. Aligning technological investment strategies with human readiness will enhance the overall effectiveness of digital transformation efforts.

6.5. Limitations and Suggestions for Further Study

Despite offering valuable insights, this study is not without limitations. First, the research employed a cross-sectional design, which restricts the ability to draw causal inferences between variables. Although Partial Least Squares Structural Equation Modeling (PLS-SEM) provides insights into directional relationships, future research would benefit from longitudinal designs to track changes in e-leadership, digital orientation, and technology adoption over time. Furthermore, data were collected through self-reported questionnaires from a single source, which may introduce common method bias despite statistical checks such as Harman's single-factor test. Future studies could mitigate this risk further by collecting data from multiple sources (e.g., both employees and supervisors), or by combining objective usage metrics with perceptual data.

Second, the study focused on employees in Vietnamese organizations, which may limit the generalizability of the findings. Cultural, economic, and technological factors may influence perceptions of leadership, fear of failure, and technology adoption. Future research could replicate this model in other cultural or regional contexts to examine the consistency of the findings across different environments.

Third, while fear of failure was examined as a psychological moderator, other individual-level factors such as

digital self-efficacy, openness to change, or organizational support may also influence technology adoption. Future research could expand the model by incorporating additional psychological or contextual variables to better capture the complexities of digital behavior.

Fourth, this study operationalized digital orientation at the individual level, emphasizing personal commitment to using technology. Future studies may explore team-level or organizational-level digital orientation as a collective construct, and examine how alignment (or misalignment) between leaders' and employees' orientations affects technology adoption outcomes.

Finally, although this research employed a rigorous quantitative approach, incorporating a qualitative component in future studies such as interviews or focus groups with e-leaders and employees could yield deeper insights into how digital orientation is manifested in daily work and how fear of failure is experienced in practice. A mixed-methods design could therefore enrich the understanding of these constructs and their interplay in real-world digital transformation settings.

References

- Afrianty, T. W., Artatanaya, I. G., & Burgess, J. (2022). Working from home effectiveness during Covid-19: Evidence from university staff in Indonesia. *Asia Pacific Management Review*, 27(1), 50-57. <https://doi.org/https://doi.org/10.1016/j.apmr.2021.05.002>
- Al-Abdallah, G., Reda, H., Omar, D. A., & and Wright, L. T. (2023). Differences in how leaders and employees view organizational changes: Lessons from an international multicultural context. *Cogent Business & Management*, 10(2), 2228028. <https://doi.org/10.1080/23311975.2023.2228028>
- Alawamleh, H. K., Alkayed, I. Y., Albdour, A. W. M., & Shatnawi, H. A. (2025). The E-leadership transformation in corporate environment: A bibliometric study. 44(2), 249-267. <https://doi.org/10.3233/hsm-240091>
- Alos-Simo, L., Verdu-Jover, A. J., & Gomez-Gras, J.-M. (2017). How transformational leadership facilitates e-business adoption. *Industrial Management & Data Systems*, 117(2), 382-397. <https://doi.org/10.1108/IMDS-01-2016-0038>
- Amini, M., & Jahanbakhsh Javid, N. (2023). A multi-perspective framework established on diffusion of innovation (DOI) theory and technology, organization and environment (TOE) framework toward supply chain management system based on cloud computing technology for small and medium enterprises. *International Journal of Information Technology Innovation Adoption*, 11, 1217-1234.
- April, K., & Dalwai, A. (2019). Leadership styles required to lead digital transformation. *Effective Executive*, 22(2), 14-45.
- Baker, J. (2012). The Technology-Organization-Environment Framework. In Y. K. Dwivedi, M. R. Wade, & S. L. Schneberger (Eds.), *Information Systems Theory: Explaining and Predicting Our Digital Society, Vol. 1* (pp. 231-245). Springer New York. https://doi.org/10.1007/978-1-4419-6108-2_12
- Bauwens, R., & Cortellazzo, L. (2024). Five decades of leadership and disruptive technology: from e-leadership and virtual team leadership to current conversations on digital leadership. In *Research handbook on human resource management and disruptive technologies* (pp. 105-119). Edward Elgar Publishing.
- Ben Sedrine Doghri, S., Horchani, S. C., & Mouelhi, M. (2021). The e-leadership linking inter-organisational collaboration and

- ambidextrous innovation. *International Journal of Innovation Management*, 25(04), 2150043.
- Cacciotti, G., & Hayton, J. C. (2015). Fear and Entrepreneurship: A Review and Research Agenda. *17(2)*, 165-190. <https://doi.org/10.1111/ijmr.12052>
- Cetindamar, D., Abedin, B., & Shirahada, K. (2021). The role of employees in digital transformation: a preliminary study on how employees' digital literacy impacts use of digital technologies. *IEEE Transactions on Engineering Management*.
- Chamakiotis, P., Panteli, N., & Davison, R. M. (2021). Reimagining e-leadership for reconfigured virtual teams due to Covid-19. *International Journal of Information Management*, 60, 102381. <https://doi.org/https://doi.org/10.1016/j.ijinfomgt.2021.102381>
- Eslamdoust, S., Lee, J. H., & Bohrani, T. (2024). Enhancing team performance in the digital age: Impact of technologically moderated communication in the interplay of e-leadership & trust. *International Journal of Business Management Studies*, 5(04), 56-67.
- Fornell, C., & Larcker, D. F. (1981). Structural Equation Models with Unobservable Variables and Measurement Error: Algebra and Statistics. *18(3)*, 382-388. <https://doi.org/10.1177/002224378101800313>
- Gkrimpizi, T., Peristeras, V., & Magnisalis, I. (2023). Classification of barriers to digital transformation in higher education institutions: Systematic literature review. *Education Sciences*, 13(7), 746.
- Hadlington, L., & Scase, M. O. (2018). End-user frustrations and failures in digital technology: exploring the role of Fear of Missing Out, Internet addiction and personality. *Heliyon*, 4(11).
- Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing theory Practice*, 19(2), 139-152. <https://doi.org/10.2753/MTPI069-6679190202>
- Hargitai, D. M., & Bencsik, A. (2023). The role of leadership in digital learning organizations. *Emerging Science Journal*, 7, 111-124.
- Ifinedo, P. (2011). Internet/e-business technologies acceptance in Canada's SMEs: an exploratory investigation. *Internet Research*, 21(3), 255-281. <https://doi.org/10.1108/10662241111139309>
- Lee, S. M., & Trimi, S. (2021). Convergence innovation in the digital age and in the COVID-19 pandemic crisis. *Journal of business research*, 123, 14-22. <https://doi.org/https://doi.org/10.1016/j.jbusres.2020.09.041>
- Leung, K., Chen, Z., Zhou, F., & Lim, K. (2014). The role of relational orientation as measured by face and renqing in innovative behavior in China: An indigenous analysis. *Asia Pacific Journal of Management*, 31(1), 105-126. <https://doi.org/10.1007/s10490-011-9277-1>
- Liu, C., Ready, D., Roman, A., Van Wart, M., Wang, X., McCarthy, A., & Kim, S. (2018). E-leadership: an empirical study of organizational leaders' virtual communication adoption. *Leadership & Organization Development Journal*, 39(7), 826-843. <https://doi.org/10.1108/LODJ-10-2017-0297>
- Mokganya, P., Webber-Youngman, R., Uys, J., & Olwagan, J. (2024). The role of leadership in technology adoption in the South African mining industry. *Journal of the Southern African Institute of Mining Metallurgy*, 124(11), 617-630.
- Nguyen, H. T., Nguyen, T. V. T., Le, N. Q., Nguyen, T. T. T., & Do, T. D. (2025). Exploring the associations between multicultural experience and creative teaching: the potential roles of cultural intelligence and fear of failure. *Thinking Skills and Creativity*, 58, 101924. <https://doi.org/https://doi.org/10.1016/j.tsc.2025.101924>
- Nguyen, T. V. T., Nguyen, H. T., Nong, T. X., & Nguyen, T. T. T. (2022). Inclusive Leadership and Creative Teaching: The Mediating Role of Knowledge Sharing and Innovative Climate. *Creativity Research Journal*, 1-12. <https://doi.org/10.1080/10400419.2022.2134543>
- Nong, T. X., Chan, S.-J., & Nguyen, T. T. T. (2024). Benevolent leadership and staff's creative work behavior: the mediating role of an innovative climate and fear of failure. *Journal of Applied Research in Higher Education*, ahead-of-print(ahead-of-print). <https://doi.org/10.1108/JARHE-03-2024-0149>
- Oliveira, T., & Martins, M. F. (2011). Literature review of information technology adoption models at firm level. *Electronic journal of information systems evaluation*, 14(1), pp110121-pp110121.
- Pateli, A., Mylonas, N., & Spyrou, A. (2020). Organizational adoption of social media in the hospitality industry: An integrated approach based on DIT and TOE frameworks. *Sustainability*, 12(17), 7132.
- Pathan, Z. H., Jianqiu, Z., Akram, U., Latif, Z., Khan, M. K., & Tunio, M. Z. (2017). Essential factors in cloud-computing adoption by SMEs. *Human Systems Management*, 36(4), 261-275.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of applied psychology*, 88(5), 879-903. <https://doi.org/10.1037/0021-9010.88.5.879>
- Raza, L., & Wang, J. (2023). Innovation Management in the Digital Age: A Comprehensive Review of Best Practices. *Management Science Research Archives*, 1(01), 28-37.
- Ringle, C., Da Silva, D., & Bido, D. (2015). Structural equation modeling with the SmartPLS. *Bido, D., da Silva, D., & Ringle, C. (2014). Structural Equation Modeling with the Smartpls. Brazilian Journal Of Marketing*, 13(2).
- Rogers, E. M. (2003). *Diffusion of innovations* (5th ed ed.). Free Press.
- Roman, A. V., Van Wart, M., Wang, X., Liu, C., Kim, S., & McCarthy, A. (2019). Defining E-leadership as Competence in ICT-Mediated Communications: An Exploratory Assessment. *79(6)*, 853-866. <https://doi.org/https://doi.org/10.1111/puar.12980>
- Ruel, H., Rowlands, H., & Njoku, E. (2021). Digital business strategizing: the role of leadership and organizational learning. *Competitiveness Review: An International Business Journal*, 31(1), 145-161. <https://doi.org/10.1108/CR-11-2019-0109>
- Sahu, A. (2023). Navigating Change: Exploring the Impact of Digital Transformation on Organizational Culture. *TECHNO REVIEW Journal of Technology Management*, 3(4), 01-05.
- Salih, A. M. (2024). *Digital Leadership: Evidence from Theory and Practice*. Taylor & Francis.
- Shao, D., Mwangakala, H., Ishengoma, F., Mongi, H., Mambile, C., & Chali, F. (2023). Sustainance of the digital transformations induced by the COVID-19 pandemic response: lessons from Tanzanian public sector. *Global Knowledge, Memory and Communication*, 72(6/7), 700-713. <https://doi.org/10.1108/GKMC-11-2021-0186>
- Shen, L., Zhang, X., & Liu, H. (2022). Digital technology adoption, digital dynamic capability, and digital transformation performance of textile industry: Moderating role of digital innovation orientation. *43(6)*, 2038-2054. <https://doi.org/https://doi.org/10.1002/mde.3507>
- Terry, K. Y. (2025). *From Traditional Leadership to Transformational Leadership in Times of Crisis: An Explanatory Sequential Design Mixed-Methods Research Study of Character and Style of*

- Leadership* Marymount University].
- Tornatzky, L. G., & Fleischer, M. (1990). *The processes of technological innovation*. Lexington Books.
- Torre, T., & Sarti, D. (2020). The “way” toward e-leadership: Some evidence from the field. *Frontiers in psychology, 11*, 554253.
- Van Wart, M., Roman, A., Wang, X., & Liu, C. (2019). Operationalizing the definition of e-leadership: identifying the elements of e-leadership. *85*(1), 80-97. <https://doi.org/10.1177/0020852316681446>
- Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management science, 46*(2), 186-204.