

## The impact of transformational leadership on innovation in SMEs: The mediating effect of organizational learning

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**Abstract:** This study examines the impact of transformational leadership (TL) on innovation in small and medium-sized enterprises (SMEs), with a focus on the mediating role of organizational learning (OL). The research aims to shed light on the processes by which leadership behaviors drive innovation, particularly in environments with limited resources. A quantitative, cross-sectional survey was conducted with 268 Tunisian SMEs. Constructs of transformational leadership, organizational learning, and innovation were measured using validated multi-item Likert scales. Mediation analysis was performed using Hayes' PROCESS macro (Model 4) to test the hypothesized relationships. The results indicate that transformational leadership significantly influences innovation, and organizational learning partially moderates the leadership-innovation relationship. These findings highlight the importance of organizational learning as a mechanism through which leaders stimulate innovation in SMEs. The study is limited to Tunisian SMEs, and larger or transnational samples would allow for broader generalization. Future research could examine sectoral dynamics or extend the framework to other emerging economies. This study advances research on transformational leadership and innovation by empirically validating organizational learning as a mediating mechanism and providing evidence from Tunisian SMEs, a context that has been underexplored in the innovation management literature. The findings offer valuable theoretical insights and concrete recommendations for fostering innovation in resource-constrained environments.

**Keywords:** Innovation, SMEs, Organizational learning, Transformational leadership, Tunisia.

### 1. Introduction

In today's globalized economy, small and medium-sized enterprises (SMEs) face an increasingly turbulent and competitive environment. To survive, achieve sustained growth, and remain competitive, organizations must not only adapt to external changes but also cultivate internal capabilities that foster flexibility, efficiency, and, most importantly, innovation (Gad David, Yaseen, & Al-Khour, 2023; Zhao, Li, & Zhang, 2022). Innovation has therefore become a pillar of organizational success, enabling companies to achieve a sustainable competitive advantage by optimizing their products and processes, strengthening customer loyalty, and increasing profitability (Cardona-Cano, Sánchez-García, & Cegarra-Navarro, 2024; Trott, 2002). Small and medium-sized enterprises (SMEs), often considered the backbone of global economies, are particularly dependent on innovation for their resilience and growth (Ahmad, Khan, & Yousaf, 2024; Jabbour Al Maalouf, El Achi, & Balouza, 2025). In these structures, where resources are often limited, leadership styles play a key role in stimulating innovation (West & Farr, 2003).

In recent decades, researchers have increasingly emphasized that individuals are the most critical asset for creating and maintaining a competitive advantage (Darwish, 2013; Sabuhari, Soleman,

Soleman, Fahri, & Rachmat, 2025). Leadership is recognized as a critical factor in shaping innovative behaviors, and effective leaders foster a culture focused on learning and knowledge sharing, thus establishing a solid foundation for sustainable creative progress (Bass, 1999; Senge, 1990). Among the various leadership styles, transformational leadership stands out for its ability to inspire teams, encourage creativity, and facilitate change within the organization, giving it a central role in the development of SMEs (Bass & Riggio, 2006; Ishaq & Haleema, 2024).

Organizational learning (OL) plays a crucial mediating role by transforming leadership practices into collective knowledge creation and innovation (Salman, Al-Kurdi, & Aboramadan, 2024; Senge, 1990). It encourages experimentation, dialogue, and trust, thus enabling companies to translate leadership into innovation performance (Abdul-Azeez, Ihechere, & Idemudia, 2024).

Yet, despite a growing body of research, the interaction between leadership, organizational learning, and innovation remains underexplored in SMEs operating in emerging economies, particularly in North Africa (Hidayat-Ur-Rehman & Alsolamy, 2023). Consequently, the lack of integrative research leaves unanswered the question of how transformational leadership fosters innovation through organizational learning in SMEs operating in emerging economies. This study aims to fill this gap by examining these relationships in the context of Tunisian SMEs, thereby expanding the literature on innovation management and providing practical insights for managers and policymakers in similar contexts. In this context, this study examines the impact of transformational leadership on innovation in Tunisian SMEs, with a focus on the mediating role of organizational learning. In doing so, it contributes to the ongoing debate on how leadership shapes innovation, while extending empirical evidence to a developing country context that remains underrepresented in current studies.

The research makes three main contributions. First, it extends the literature on leadership and innovation to a developing country context where empirical studies remain scarce. Second, it highlights organizational learning as a key mechanism mediating the leadership–innovation relationship. Third, it offers practical insights for SME leaders seeking to foster innovation through leadership practices and learning-oriented strategies.

Building on the research gaps identified, this study seeks to address the following research questions:

RQ1: How does transformational leadership (TL) influence innovation in Tunisian SMEs?

RQ2: To what extent does OL mediate the relationship between TL and innovation?

To answer these research questions, it is necessary to draw on existing theoretical and empirical work on transformational leadership (TL), organizational learning (OL), and innovation. A targeted literature review will clarify the link between TL and innovation, how OL strengthens firms' adaptive and creative capabilities, and how OL can play a mediating role in the TL-innovation relationship. The literature review is therefore structured into three sections: (1) transformational leadership and innovation; (2) organizational learning and innovation; and (3) the mediating role of organizational learning in the TL-innovation relationship. This framework forms the basis for developing the study's hypotheses.

## 2. Literature Review

### 2.1. Innovation in SMEs: Challenges and Opportunities

Small and medium-sized enterprises (SMEs) are often recognized as key drivers of employment, regional progress, and economic vitality. However, despite their importance to national economies, they face specific challenges that influence their ability to innovate and sustain growth. Recent global research highlights recurring obstacles for SMEs, including limited access to finance, a shortage of skilled personnel, and difficulties in participating in networks and leveraging external knowledge. These obstacles limit their ability to effectively adopt and implement new technologies and practices (Organisation for Economic Co-operation and Development, 2023).

Innovation is defined as the implementation of new or substantially improved products, processes, or organizational practices (Organisation for Economic Co-operation and Development, 2005). Within SMEs, innovation is often incremental and relies heavily on human and social capital rather than large R&D budgets (Damanpour, 1991).

Innovation has become a central theme in organizational studies, particularly in the context of small and medium-sized enterprises (SMEs). In highly dynamic environments characterized by globalization, rapid technological change, and increased competition, SMEs rely on innovation to maintain a competitive advantage and improve their performance (Gopalakrishnan & Damanpour, 1997; Trott, 2002). Innovation enables companies to launch new products and services, attract and retain customers, and improve their profitability. However, achieving innovation requires not only technological investments but also effective leadership and human capital management strategies.

SMEs in developing countries, such as Tunisia, face particular challenges: limited financial resources, restricted access to technology, and sometimes rigid structures. Leadership thus becomes a key determinant of successful innovation, compensating for these structural constraints.

## *2.2. Transformational Leadership and Innovation*

Transformational leadership, a theory initially conceptualized by Burns (1978) and later developed by Bass (1985), is characterized by four fundamental dimensions: (1) idealized influence, where the leader embodies an exemplary model that inspires trust and respect; (2) inspirational motivation, which involves formulating a mobilizing vision and fostering collective optimism to achieve ambitious goals; (3) individualized consideration, which translates into personalized attention to the needs and professional development of employees; and (4) intellectual stimulation, encouraging the questioning of conventions and the exploration of innovative solutions (Bass & Riggio, 2006).

This leadership style has a positive impact on various organizational indicators, such as employee satisfaction, engagement, and performance, as well as crucially, on innovation (Avolio, Walumbwa, & Weber, 2009; Jung, Chow, & Wu, 2003). Bass (1997) explains that transformational leadership is effective because it cultivates an organizational climate conducive to creativity, calculated risk-taking, and collective ownership of strategic objectives.

This impact is particularly evident in the context of small and medium-sized enterprises (SMEs), where management exerts a direct and decisive influence on culture and strategic direction (West & Farr, 2003). In these structures, transformational leaders are considered key players in stimulating the innovation process, from idea generation to concrete implementation (Saad & Mazzarol, 2010).

Recent research conducted in various contexts reinforces this relationship. For example, Gad David et al. (2023) in their study of 252 Kenyan manufacturing SMEs highlighted a positive and significant effect of transformational leadership on innovation. Similarly, Cuevas-Vargas, Estrada, and Larios-Gómez (2023), through a quantitative survey of 225 Mexican SMEs, demonstrate that this leadership style not only improves innovation but also enhances the overall performance of the company. More recently, Abdul-Azeez et al. (2024) highlight the ability of transformational leaders to establish an organizational environment that fosters creativity and employee engagement by cultivating a culture open to change and experimentation.

All of this research converges on a unanimous conclusion: within SMEs, transformational leadership represents an essential strategic lever for establishing a culture of sustainable innovation, thus positioning leaders as the primary catalysts for organizational transformation dynamics.

## *2.3. Organizational Learning as a Strategic Capability*

Organizational learning is defined as the process by which organizations acquire, create, and transfer knowledge, subsequently modifying their behavior to incorporate new perspectives (Argyris & Schön, 1978; Senge, 1990). This process involves both individual learning and collective mechanisms for sharing, integrating, and institutionalizing knowledge (Crossan, Lane, & White, 1999).

Considered a key mechanism, organizational learning is often the vehicle through which leadership contributes to innovation. It is described as the collective process of acquiring, creating, and disseminating knowledge that shapes organizations' capacity to respond to environmental challenges (Dodgson, 1993; Hedberg, 1981).

Previous research emphasizes that leadership, particularly transformational leadership, plays a crucial role in creating the conditions conducive to this learning. Transformational leaders foster experimentation, tolerate mistakes as learning opportunities, and encourage dialogue and reflection (Bass, 1999; McGill, Slocum, & Lei, 1992). More specifically, they stimulate intellectual engagement and cultivate a climate of trust, collaboration, and motivation among employees, which strengthens organizational learning (Coad & Berry, 1998). By encouraging knowledge sharing, they establish a culture of continuous learning (Senge, 1990; Slater & Narver, 1995).

Organizational learning, in turn, is a key foundation for innovative behavior. It allows employees to explore new solutions, integrate diverse perspectives, and apply acquired knowledge to product and process innovation (Chahal, Kaur, & Kaur, 2016; Díaz-Fernández, González-Rodríguez, & Simonetti, 2015).

Salman et al. (2024), in a comprehensive study, show that the dimensions of intellectual stimulation and individualized consideration in transformational leadership are strongly correlated with organizational learning.

Cardona-Cano et al. (2024) also demonstrate that transformational leadership strengthens organizational ambidexterity (the ability to explore new possibilities and leverage existing skills simultaneously), a key component of learning and innovation.

This research confirms that organizational learning is a key driver through which transformational leadership catalyzes innovation, fostering dynamic cultures conducive to adaptation and creativity.

#### *2.4. Linking Transformational Leadership, Organizational Learning, and Innovation*

The literature establishes a strong interaction between transformational leadership, organizational learning, and innovation. The influence of transformational leadership on innovation is exerted both directly, by motivating employees to pursue creative initiatives, and indirectly, through its positive effect on organizational learning (Mirkamali, Hashemi, & Choopani, 2011). Thus, organizational learning acts as a mediating variable that translates leaders' behaviors into innovative outcomes.

Despite the existence of extensive research, empirical studies examining this tripartite dynamic in the specific context of SMEs remain scarce, particularly in developing economies like Tunisia. Given the economic importance of SMEs in these regions, understanding how transformational leadership and organizational learning jointly influence innovation is essential for advancing both theory and practice.

This relational model is widely supported by the literature, which confirms that transformational leadership influences innovation both directly and indirectly by fostering organizational learning (Slater & Narver, 1995). Leaders inspire their subordinates, stimulate intellectual curiosity, and foster a climate of trust, thereby encouraging collective learning. In turn, organizational learning enhances innovation by enabling companies to generate, absorb, and apply new knowledge.

Contemporary literature converges on the following idea: transformational leadership influences innovation directly through motivation and creative stimulation, and indirectly through organizational learning (Mirkamali et al., 2011). Recent empirical data corroborate this integrative model in various SME contexts:

- Ahmad et al. (2024) studied the impact of "green transformational leadership" on green innovation in manufacturing SMEs.
- Hidayat-Ur-Rehman and Alsolamy (2023) illustrate how this type of leadership supports both sustainable performance and innovation, using an SEM-ANN approach with 442 respondents in Pakistan.

- Ishaq and Haleema (2024), through an exploratory factor analysis in Pakistani SMEs, it is revealed that transformational leadership strongly influences employees' innovative behavior, a key driver of SME performance.

Therefore, organizational learning can effectively mediate the relationship between transformational leadership and innovation.

### 3. Hypotheses Development and Conceptual Model

#### 3.1. Transformational Leadership and Innovation

Transformational leadership is widely recognized as a catalyst for innovation, as it fosters risk-taking, the sharing of a common vision, and the questioning of established routines (Bass, 1997; Bass & Riggio, 2006). Leaders who formulate an inspiring vision and stimulate intellectual curiosity encourage their employees to explore unconventional solutions and adopt innovative behaviors (Jung et al., 2003).

Recent research confirms this effect in the context of small and medium-sized enterprises (SMEs). For example, Gad David et al. (2023) demonstrated that transformational leadership is a significant predictor of product and process innovation within Kenyan manufacturing SMEs. Similarly, Cuevas-Vargas et al. (2023) highlighted a direct and positive relationship between transformational leadership and innovation and organizational performance in a sample of Mexican SMEs. Furthermore, Ishaq and Haleema (2024) emphasize that transformational leadership has a significant influence on employees' innovative behaviors, which are crucial for SME competitiveness.

Given their inherent agility and flexibility, SMEs are a particularly fertile ground for transformational leadership, which can directly foster innovative outcomes by empowering employees and shaping an organizational culture conducive to experimentation.

*H<sub>1</sub>: Transformational leadership has a positive and significant impact on innovation in SMEs.*

#### 3.2. Transformational Leadership and Organizational Learning

Transformational leadership acts as a key catalyst for organizational learning, defined as an organization's ability to acquire, interpret, and disseminate knowledge for continuous adaptation (Dodgson, 1993; Senge, 1990). Transformational leaders facilitate this process by providing intellectual stimulation, encouraging knowledge sharing, and fostering a climate of trust and collaboration (Coad & Berry, 1998). Recent empirical research supports this link: Salman et al. (2024) demonstrated a strong correlation between dimensions of this leadership, including intellectual stimulation and individualized consideration, and organizational learning practices. Similarly, Cardona-Cano et al. (2024) showed that transformational leadership enhances organizational ambidexterity (exploration and exploitation), a key dimension of learning. Thus, in the specific context of SMEs, where leaders directly influence routines, transformational leadership is expected to strengthen learning processes, thereby laying the necessary foundations for innovation.

*H<sub>2</sub>: Transformational leadership has a positive and significant impact on organizational learning in SMEs.*

#### 3.3. Organizational Learning and Innovation

Organizational learning (OL) is not limited to an adaptive function; it is a fundamental driver of innovation. Facilitating the acquisition, interpretation, and application of knowledge, it enables organizations to generate innovative solutions and integrate them into their products, processes, or services (Hedberg, 1981; Slater & Narver, 1995).

Recent empirical findings support this assertion. Cardona-Cano et al. (2024) emphasize that OL simultaneously strengthens exploratory and exploitative innovation in dynamic environments. Similarly, Ahmad et al. (2024) established that OL plays a mediating role in the impact of "green transformational leadership" on sustainable innovation within manufacturing SMEs. Furthermore, the work of Hidayat-Ur-Rehman and Alsolamy (2023) highlights that learning mechanisms are central to translating leadership behaviors into sustainable performance outcomes.

Consequently, SMEs that cultivate organizational learning practices prove to be better able to leverage their limited resources, adapt quickly to changes in their environment, and drive innovation.

*H<sub>3</sub>: Organizational learning has a positive and significant impact on innovation in SMEs.*

### 3.4. The Mediating Role of Organizational Learning

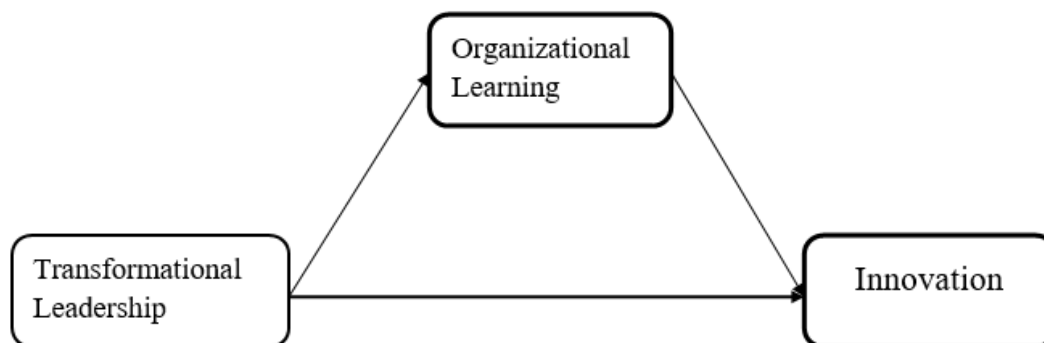
While transformational leadership has a direct influence on innovation, its most significant impact is likely to occur through organizational learning. Transformational leaders are architects of learning-friendly environments, fostering dialogue, encouraging reflective practices, and promoting knowledge integration (Senge, Kleiner, Roberts, Ross, & Smith, 1994). Such an environment is essential for SMEs to translate leadership vision into tangible, innovative results.

Recent empirical evidence supports the mediating role of organizational learning. Abdul-Azeez et al. (2024) emphasize that transformational leadership stimulates innovation primarily through engagement and learning mechanisms. This view is corroborated by the work of Ahmad et al. (2024), who confirmed that organizational learning plays a mediating role in the relationship between leadership and green innovation. Similarly, Ishaq and Haleema (2024) emphasize that innovative employee behavior emerges as a joint product of the influence of transformational leadership and the learning environment.

Given these elements, it is reasonable to postulate that organizational learning constitutes a crucial mediating mechanism in the link between transformational leadership and innovation within SMEs.

*H<sub>4</sub>: Organizational learning mediates the relationship between transformational leadership and innovation in SMEs.*

The conceptual model (Figure 1) illustrates these relationships, positioning organizational learning as the mediating variable.



**Figure 1.**  
Research model.

## 4. Methodology

This study adopts a quantitative, cross-sectional design to empirically examine the relationships among transformational leadership (TL), organizational learning (OL), and innovation in Tunisian SMEs. A quantitative approach is particularly suitable for testing theoretical models with multiple constructs and for assessing mediation effects using structural analysis (Creswell & Creswell, 2018).

### 4.1. Sample and Data Collection

The study population comprised Tunisian SMEs operating across manufacturing, services, and technology sectors. SMEs were defined according to the Tunisian Ministry of Industry's classification, i.e., firms with fewer than 250 employees.

A stratified random sampling technique ensured diversity across sectors. Data were collected through a structured self-administered questionnaire, distributed both in person and electronically. The key informants were SME managers and senior employees, as they are most knowledgeable about

leadership practices, learning processes, and innovation activities. Out of 400 questionnaires distributed, 268 valid responses were obtained, yielding a satisfactory response rate comparable to recent SME-focused studies (Cuevas-Vargas et al., 2023; Ishaq & Haleema, 2024).

#### 4.2. Measurement of Constructs

All variables were measured using validated multi-item Likert-type scales (1 = strongly disagree, 5 = strongly agree). To ensure content validity, items were adapted from prior studies and reviewed by both academics and practitioners. A pilot test with 16 SME managers confirmed clarity and relevance.

**Table 1.**  
Measurement of Constructs

Construct	Dimensions	No. of Items	Example Item	Source(s)
Transformational Leadership (TL)	- Idealized Influence - Inspirational Motivation - Intellectual Stimulation - Individualized Consideration	20	"My leader encourages me to think about problems in new ways."	Bass and Riggio (2006) and Abdul-Azeez et al. (2024)
Organizational Learning (OL)	- Knowledge Acquisition - Knowledge Dissemination - Knowledge Utilization	12	"Our organization continuously shares knowledge across departments."	Senge (1990); Salman et al. (2024) and Cardona-Cano et al. (2024)
Innovation	- Product Innovation - Process Innovation	10	"In the last three years, our firm has introduced new products to the market."	Jung et al. (2003) and Ahmad et al. (2024)

#### 4.3. Data Analysis

Data analysis was conducted in SPSS 28 and the PROCESS macro (Model 4; Hayes, 2018). Reliability and validity were assessed through Cronbach's alpha, composite reliability (CR), average variance extracted (AVE), and discriminant validity tests (Fornell–Larcker criterion and HTMT ratios). To address common method bias (CMB), procedural remedies were applied (e.g., anonymity, randomization of items, varied scale anchors), and statistical checks such as Harman's single-factor test and full collinearity VIFs were performed (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

**Table 2.**  
Descriptive Statistics, Reliability, and Validity of Constructs.

Construct	Mean	SD	Cronbach's $\alpha$	CR	AVE	No. of Items
Transformational Leadership (TL)	3.84	0.62	0.92	0.94	0.68	20
Organizational Learning (OL)	3.77	0.58	0.89	0.91	0.66	12
Innovation	3.69	0.65	0.88	0.90	0.64	10

All values exceed recommended thresholds ( $\alpha > 0.70$ , CR > 0.70, AVE > 0.50), confirming reliability and convergent validity (Fornell & Larcker, 1981; Hair, Hult, Ringle, Sarstedt, & Danks, 2022).

#### 4.4. Discriminant Validity

To ensure that TL, OL, and Innovation are distinct constructs, discriminant validity was examined using both the Fornell–Larcker criterion and HTMT ratios.



**Table 3.**  
Discriminant Validity.

(a) <b>Fornell–Larcker Criterion</b>			
Constructs	TL	OL	Innovation
Transformational Leadership (TL)	<b>0.82</b>		
Organizational Learning (OL)	0.61	<b>0.81</b>	
Innovation	0.55	0.58	<b>0.80</b>
(b) <b>HTMT Ratios</b>			
Constructs	TL ↔ OL	TL ↔ Innovation	OL ↔ Innovation
HTMT	0.74	0.71	0.76

The square roots of the Average Variance Extracted (AVE), displayed as bold values on the diagonal, exceed the correlations between constructs, and all HTMT ratio values remain below the 0.85 threshold. Both tests confirm discriminant validity (Henseler, Ringle, & Sarstedt, 2015).

## 5. Results

### 5.1. Descriptive Statistics and Correlations

Table 4 presents the correlations between the constructs, alongside their means and standard deviations. TL was positively correlated with OL ( $r = 0.61$ ,  $p < 0.001$ ) and innovation ( $r = 0.55$ ,  $p < 0.001$ ). Similarly, OL was positively correlated with innovation ( $r = 0.58$ ,  $p < 0.001$ ). These significant correlations provide initial support for the hypothesized relationships.

**Table 4.**  
Correlations among Constructs.

Constructs	Mean	SD	1. TL	2. OL	3. Innovation
1. TL	3.84	0.62	1		
2. OL	3.77	0.58	0.61***	1	
3. Innovation	3.69	0.65	0.55***	0.58***	1

Note: \*\*\* $p < 0.001$ .

### 5.2. Reliability and Validity

The results of the measurement model analysis, summarized in Tables 2 and 3, demonstrate robust internal consistency ( $\alpha > 0.88$ ; CR  $> 0.90$ ) and satisfactory convergent and discriminant validity for all constructs. With the reliability and validity of the model thus confirmed, its suitability for hypothesis testing was deemed appropriate.

### 5.3. Hypothesis Testing

H1: Transformational leadership has a positive and significant impact on innovation in SMEs.

Regression analysis indicated that TL had a positive and significant effect on innovation ( $\beta = 0.31$ ,  $t = 5.42$ ,  $p < 0.001$ ). This supports H1, confirming that transformational leadership directly enhances innovation in SMEs.

H2: Transformational leadership has a positive and significant impact on organizational learning in SMEs.

The results showed that TL significantly influenced OL ( $\beta = 0.55$ ,  $t = 11.07$ ,  $p < 0.001$ ). Thus, H2 is supported, suggesting that transformational leaders foster knowledge sharing and collective learning.

H3: Organizational learning has a positive and significant impact on innovation in SMEs.

Organizational learning was found to be a strong predictor of innovation ( $\beta = 0.37$ ,  $t = 6.44$ ,  $p < 0.001$ ). Hence, H3 is supported, confirming that SMEs with stronger learning capabilities achieve higher levels of innovation.

H4: Organizational learning mediates the relationship between transformational leadership and innovation in SMEs.



Mediation analysis was performed using Hayes' PROCESS Macro (Model 4, 5000 bootstrapped resamples). Results indicated that OL partially mediated the relationship between TL and innovation.

- Direct effect (TL → Innovation):  $\beta = 0.20$ , 95% CI  $[0.11, 0.29]$ ,  $p < 0.001$
- Indirect effect (TL → OL → Innovation):  $\beta = 0.20$ , 95% CI  $[0.12, 0.29]$ ,  $p < 0.001$
- Total effect:  $\beta = 0.40$ , 95% CI  $[0.31, 0.49]$ ,  $p < 0.001$

Since the indirect effect was significant and the direct effect remained positive but reduced in magnitude, mediation was confirmed. This supports H4, highlighting OL as a crucial mechanism through which TL drives innovation in SMEs.

**Table 5.**  
Mediation Analysis Results (PROCESS Macro, Model 4)

Path	$\beta$	t-value	p-value	95% CI (LL-UL)
TL → OL (a path)	0.55	11.07	<0.001	$[0.45, 0.65]$
OL → Innovation (b path)	0.37	6.44	<0.001	$[0.26, 0.49]$
TL → Innovation (direct, c')	0.20	4.10	<0.001	$[0.11, 0.29]$
Indirect effect (a × b)	0.20	—	<0.001	$[0.12, 0.29]$
Total effect (c path)	0.40	8.97	<0.001	$[0.31, 0.49]$

## 6. Discussion

### 6.1. Discussion of Findings

The results of this study confirm that transformational leadership (TL) has a significant positive effect on innovation in SMEs, both directly and indirectly through organizational learning (OL). This conclusion aligns with the classic view of TL as a catalyst for creativity and innovation (Bass & Riggio, 2006) while also supporting recent empirical evidence from SMEs operating in emerging economies.

First, the positive link between TL and innovation (H1) corroborates previous work showing that leaders who articulate a motivating vision, inspire commitment, and stimulate intellectual curiosity foster the emergence of innovative behaviors among employees (Abdul-Azeez et al., 2024; Cuevas-Vargas et al., 2023). This observation is reinforced by recent studies, which demonstrate that LT simultaneously improves exploratory and exploitative innovation within SMEs, thereby consolidating their competitive performance (Jabbour Al Maalouf et al., 2025).

Second, the results showed that transformational leadership (TL) significantly improves organizational learning (OL), confirming hypothesis H2. This finding supports the central role of transformational leaders in promoting knowledge sharing, experimentation, and collaborative problem-solving (Salman et al., 2024; Senge, 1990). It is also consistent with recent findings that these leaders foster a learning-friendly environment within SMEs, enabling continuous adaptation and knowledge integration (Cardona-Cano et al., 2024).

Third, the analysis revealed a direct positive effect of organizational learning on innovation (H3). This observation aligns with previous literature, which establishes that firms with strong learning capabilities are better equipped to introduce new products and processes (Ahmad et al., 2024; Dodgson, 1993). Recent contributions specify that organizational mobilization (OM) strengthens organizational ambidexterity (combining exploitation and exploration) in SMEs, which, in turn, fuels sustainable innovation (Cardona-Cano et al., 2024).

Finally, the study confirmed the partial mediating role of organizational learning in the relationship between transformational leadership and innovation (H4). This finding extends the work of Ishaq and Haleema (2024) and Sabuhari et al. (2025), who emphasize that the effects of leadership are often transmitted through intermediary mechanisms, such as perceptions of fairness or a learning culture. Thus, transformational leadership stimulates innovation not only directly but also by institutionalizing learning as a fundamental organizational capability.

### 6.2. Theoretical Contributions

This study makes three major theoretical contributions to the literature.

First, it proposes an integration of the concepts of transformational leadership (TL), organizational learning (OL), and innovation within SMEs. By testing a mediation model, this research enriches the existing body of work by clarifying the mechanisms through which leadership influences innovation in SMEs, a particularly relevant context in emerging economies.

Second, this research offers validation of the mediating role of organizational learning. The demonstration that OL partially mediates the relationship between TL and innovation highlights the crucial importance of knowledge-based mechanisms. This finding extends and consolidates previous conceptual models linking leadership and organizational learning (Cardona-Cano et al., 2024; Slater & Narver, 1995).

Third, the study provides a significant contextual contribution. While most previous research has focused on large firms in developed economies (Cuevas-Vargas et al., 2023; Hidayat-Ur-Rehman & Alsolamy, 2023), this work provides empirical evidence from Tunisian SMEs. It thus helps to fill a gap in the still-limited literature on leadership and innovation in North Africa.

### 6.3. Managerial Implications

The practical implications of these findings concern both SME leaders and policymakers.

For managerial practices, developing transformational leadership skills is imperative. SME leaders should therefore be trained to adopt specific behaviors, such as formulating a clear vision, fostering creativity, and mentoring employees, as these practices have a direct influence on innovation (Abdul-Azeez et al., 2024).

Furthermore, promoting a learning-oriented organizational culture is equally crucial. Leaders are encouraged to implement systems that facilitate the acquisition, dissemination, and use of knowledge by establishing cross-functional collaboration mechanisms or deploying digital platforms dedicated to knowledge sharing (Salman et al., 2024).

Another major implication lies in the need to balance exploration and exploitation. Managers should strive for a form of organizational ambidexterity, seeking to support both radical and incremental innovations, given that transformational leadership has demonstrated its ability to foster both types of functions (Jabbour Al Maalouf et al., 2025).

With regard to public policy, these findings place the responsibility on public authorities to design training programs and support mechanisms specifically aimed at strengthening leadership development and organizational learning in SMEs, thereby helping to boost innovation capacity at the national level.

### 6.4. Limitations and Future Research

Despite its scientific contribution, this study has several limitations that open up stimulating avenues for future research.

Methodologically, the use of a cross-sectional design limits the possibility of establishing causal relationships, despite the partial confirmation of the theoretical model. Longitudinal studies would be necessary to understand the dynamic evolution of the links between transformational leadership, organizational learning, and innovation.

Another limitation lies in the contextual specificity of the sample, composed of Tunisian SMEs, which may affect the generalizability of the results. The external validity of the model would benefit from being tested through comparative studies in other regions, such as the MENA region, sub-Saharan Africa, or Europe.

Furthermore, the self-reported data collection makes this study susceptible to common methodological bias. Although corrective measures were applied following the recommendations of Podsakoff et al. (2003), this inherent limitation cannot be entirely eliminated. To overcome this constraint, future research would benefit from triangulating survey data with objective indicators of innovation performance.

Finally, conceptually, the emphasis on transformational leadership obscures the potential influence of other leadership styles. Emerging approaches, such as humble or ethical leadership, have recently demonstrated their ability to stimulate learning and innovation (Cardona-Cano et al., 2024; Sabuhari et al., 2025). Exploring integrative or comparative models would therefore represent a significant step forward.

## 7. Conclusion, Limitations, and Future Research

This study examined the influence of transformational leadership (TL) on innovation in small and medium-sized enterprises (SMEs), focusing specifically on the mediating role of organizational learning (OL). Based on survey data collected from 268 Tunisian SMEs, this research demonstrates that TL positively affects innovation, both directly and indirectly, through its ability to foster organizational learning. By inspiring a shared vision, stimulating intellectual curiosity, and providing personalized support, transformational leaders cultivate a learning-oriented environment that enhances creative outcomes and innovation capabilities.

From a theoretical perspective, this research contributes to the literature on the link between leadership and innovation by empirically validating the role of OL as a key mediating mechanism. It reinforces the idea that leadership influences innovation not only through motivational pathways but also by shaping knowledge-intensive processes and learning cultures. Furthermore, by situating the analysis within the context of a developing economy, specifically in North Africa, it fills a significant gap in the literature and provides much-needed evidence from an underrepresented region.

On a practical level, the findings underscore the strategic importance of transformational leadership in SMEs. Managers are encouraged to adopt transformational behaviors, such as formulating an inspiring vision, promoting critical thinking, and mentoring employees, to foster both learning and innovation. Policymakers, for their part, should prioritize initiatives that enhance leadership development and learning infrastructures within SMEs, recognizing their crucial role as drivers of competitiveness in increasingly volatile markets.

Despite these contributions, several limitations open up promising avenues for future research. First, the cross-sectional design used prevents the establishment of robust causal conclusions; longitudinal studies would allow for a better understanding of the dynamic interaction between long-term leadership, operational awareness, and innovation over time. Second, the exclusive focus on Tunisian SMEs may limit the generalizability of the results; comparative research in different national, cultural, and sectoral contexts would allow for testing the robustness of the proposed model. Third, the use of self-reported data, despite efforts to control for common methodological bias, may introduce a degree of subjectivity; future work should incorporate objective innovation indicators or third-party assessments to triangulate the results. Finally, expanding the model to include other leadership styles (e.g., ethical, humble, or digital) or additional contextual factors, such as organizational culture, digital transformation, or environmental uncertainty, could lead to a richer and more nuanced understanding of the determinants of innovation in SMEs.

In summary, this study confirms that transformational leadership directly fuels innovation, but it also strengthens organizational learning as a strategic driver of innovative outcomes. For SMEs operating in a rapidly changing business landscape, investing in transformational leadership and learning capabilities is not just an asset; it is a critical condition for resilience, growth, and a sustainable competitive advantage.

## Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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