Proceedings of ICMRED 2026 symposium: Financial Innovation, Risk Governance, and the Dynamics of Global Capital Flows
DOI: 10.54254/2754-1169/2026.BL35161

Transformational Leadership and Employees' Innovative Behavioral Intentions in SME: TPB Perspective

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Abstract. In the context of increasingly volatile and competitive markets, innovation has become a pivotal determinant of the survival of small and medium-sized enterprises (SMEs). Nevertheless, SMEs are often constrained by limited resources and institutional imperfections, which amplifies the importance of employee-driven innovation. While transformational leadership has been extensively recognized as a critical antecedent of innovative outcomes, the underlying psychological mechanisms shaping employees' innovation-related decision-making remain insufficiently theorized. Drawing upon a systematic review of the extant literature, this study adopts the Theory of Planned Behavior (TPB) as an analytical framework to unpack the pathways through which transformational leadership influences employees' innovative behavioral intentions within SMEs. The findings suggest that transformational leadership exerts significant effects on employees' innovative intentions by fostering favorable evaluative attitudes, reinforcing perceived social expectations, and enhancing individuals' sense of capability and control over innovative actions. By elucidating these mechanisms, this study contributes to a more nuanced integration of leadership theory and TPB, while also offering actionable insights for innovation management practices in resource-constrained organizational contexts.

Keywords: Transformational Leadership, Innovative Behavioral Intentions, SMEs, TPB

1. Introduction

In a rapidly changing and fiercely competitive business environment, innovation has become critical for the survival and sustainable development of small and medium-sized enterprises (SMEs) [1]. Compared with large corporations, SMEs often suffer from resource constraints, insufficient risk-bearing capacity, and incomplete incentive systems, making employee innovation particularly important for organizational competitiveness [2]. Transformational leadership, as a key contextual factor, has been widely verified to promote employee creativity, psychological safety, and innovation performance by delivering vision encouragement, intellectual stimulation, and individualized support [3]. However, prior research has mostly focused on the direct relationship between leadership and innovation behaviors or outcomes, while insufficiently exploring employees' internal psychological decision-making processes [4]. TPB provides a systematic framework to explain individual behavioral intention from three cognitive dimensions: attitude toward innovation(ATI), subjective norms(SN), and perceived behavioral control (PBC) [5]. In recent years,

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an emerging stream of research has begun to integrate transformational leadership with TPB to understand the formation of innovative intention [6]. Nevertheless, empirical studies based on the SME context remain limited, and few studies have systematically revealed how transformational leadership shapes employees' innovative behavioral intentions by influencing TPB-based psychological mechanisms. Therefore, this study takes SME employees as samples, establishes a research framework based on TPB, and explores the influence mechanism of transformational leadership on employees' innovative behavioral intentions, aiming to enrich relevant theories and provide practical implications for SME innovation management.

2. Literature review and theoretical framework

2.1. Literature review

Transformational leadership and the Theory of Planned Behavior constitute the core theoretical basis for understanding employee innovative behavioral intentions, which is widely recognized as an effective driver of employee innovation [7]. Meanwhile, TPB, as a classical social psychological theory, argues that behavioral intention is determined by attitude toward behavior, subjective norms, and perceived behavioral control [8]. In innovation management research, TPB has been extensively applied to interpret employees' willingness to implement innovative actions [9]. For SMEs, the organizational structure is relatively flat and formal institutions are imperfect, so leadership plays a more critical role in guiding employee attitudes and behaviors [10].

First, studies on transformational leadership and employee innovation have confirmed that transformational leaders can enhance innovative behaviors by building an innovation-supportive culture, encouraging risk-taking, and enhancing psychological safety [11]. In the SME context, transformational leadership can effectively compensate for resource shortages and institutional deficiencies to stimulate individual innovation and initiative [12]. Second, the application of TPB in innovative intention has been widely supported. Employees' positive attitude toward innovation, perceived social support, and perceived behavioral control can significantly and positively predict their innovative intention [9]. Third, the integration of transformational leadership and TPB has become a new trend. Recent studies suggest that transformational leadership may drive innovative intention by shaping employees' cognitive and social perceptions [3, 6].

In summary, existing literature has laid a solid foundation for understanding transformational leadership, TPB, and employee innovation, but three major gaps exist. First, most studies focus on large enterprises, and empirical evidence specific to SMEs is scarce [1, 2]. Second, few studies take TPB as a unified mediation framework to reveal the psychological mechanism through which transformational leadership affects innovative behavioral intentions. Third, the latest studies from 2024 to 2026 highlight the need for context-specific empirical tests [3]. Therefore, this study focuses on SMEs, integrates transformational leadership and TPB, and systematically examines the formation mechanism of employees' innovative behavioral intentions.

2.2. Theoretical model and hypotheses

Based on the TPB framework, this study posits that transformational leadership, as a potent organizational contextual factor, can drive the formation of innovative intent by shaping individuals' attitudes toward innovation, amplifying their perception of social pressure, and enhancing their sense of perceived competence. Drawing on existing literature, this study attempted to develop a normative model to examine the direct and indirect effects of TSL on employee willingness to

DOI: 10.54254/2754-1169/2026.BL35161

innovate. Drawing on TPB, the model positions ATI, SN, and PBC key mediating mechanisms. As illustrated in Figure 1, TSL is expected to shape employees' innovation-related cognitions and perceptions, which in turn influence their willingness to engage in innovative behavior.

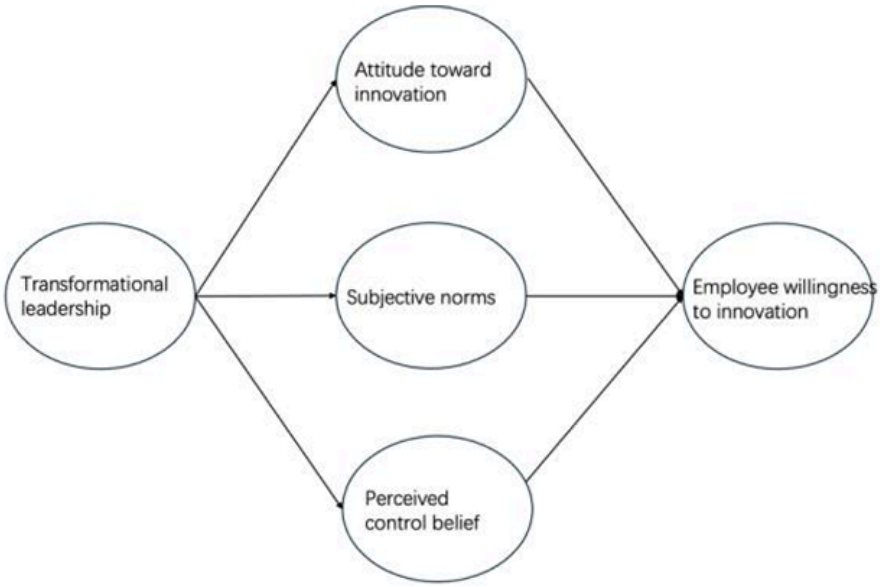

Figure 1. Theoretical framework

3. TPB components

3.1. Transformational leadership and TPB components

Transformational leaders articulate an inspiring vision and emphasize the value of innovation, fostering positive attitudes. Through intellectual stimulation, they encourage employees to challenge routines. They also act as role models, shaping subjective norms. Furthermore, through individualized consideration and empowerment, they enhance employees' perceived behavioral control.

H1: Transformational leadership positively influences employees' TPB components, including ATI, SN, and PBC.

3.2. TPB components and willingness to innovate

According to TPB, employees with positive attitudes are more likely to perceive innovation as worthwhile. Subjective norms reinforce intention through perceived social approval. Perceived behavioral control influences confidence in performing innovative tasks.

H2: Employees' ATI SN, and PBC positively effect their willingness to innovate.

3.3. The mediating role of TPB components

TPB provides a coherent mechanism through which transformational leadership translates into innovation willingness. By shaping employees' cognitive evaluations, social expectations, and sense of control, transformational leadership creates a supportive environment that facilitates innovation intention.

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H3: Employees' attitude toward innovation, subjective norms, and perceived behavioral control mediate the relationship between transformational leadership and employees' willingness to innovate.

4. Methodology

4.1. Sample and data collection

A pilot test was conducted with postgraduate students and SME employees to refine wording. The final questionnaire was distributed via online platforms. Participation was voluntary and anonymous. A total of 260 completed questionnaires were obtained; after screening, 242 seable questionnaires remained in the final sample. Respondents came from various SMEs across different industries.

4.2. Measures

All constructs in this study were measured using multi-item scales adapted from well-established studies in the literature. The questionnaire items were slightly modified to fit the context of SMEs and employee innovation behavior. All items were measured using a five-point Likert scale, ranging from 1 = strongly disagree to 5 = strongly agree.

Transformational leadership was measured using adapted items capturing inspirational motivation, intellectual stimulation, individualized consideration, and idealized influence. Innovative behavioral intention was measured using items assessing willingness to generate and implement new ideas. Attitude toward innovation, subjective norms, and perceived behavioral control were measured in accordance with TPB. Control variables included gender, age, education, and work experience.

5. Data analysis and result

5.1. Reliability and validity

Table 1 shows the descriptive statistics (mean, standard deviation) and reliability analysis results for all constructs in this study. As shown in the table, the mean values of all variables range from 3.319 to 3.455, indicating that respondents generally hold a moderately positive attitude toward the items measured in the questionnaire, with no extreme response bias. The standard deviations of all constructs are between 1.003 and 1.193, suggesting that the sample data exhibit a reasonable degree of dispersion. In terms of reliability, the Cronbach's α coefficients for all five constructs---Transformational Leadership (TL, α = 0.965), Attitude toward Innovation (ATI, α = 0.899), Subjective Norms (SN, α = 0.926), Perceived Control Belief (PCB, α = 0.913), and Employee Willingness to Innovation (EWI, α = 0.896)---all exceed the threshold of 0.7 recommended by Nunnally (1978). This demonstrates that the constract measures used in there have excellent internal consistency and reliability.

Table 1. Descriptive statistics and reliability analysis

Dimension	M	SD	Cronbach' α	Number
TL	3.395	1.003	0.965	14
ATI	3.455	1.193	0.899	2

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Table 1. (continued)

SN	3.319	1.090	0.926	4
PCB	3.354	1.079	0.913	4
EWI	3.360	1.035	0.896	4

Prior to conducting exploratory factor analysis (EFA) was conducted to assess the construct validity of the measurement scales. In addition, the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity were performed.. Table 2 reports the results.

The overall sample yields a The KMO value of 0.936, as reported in the table, exceeds the recommended threshold of 0.7, indicating excellent sampling adequacy. Furthermore, Bartlett's test of sphericity yields a chi-square value of 6126.287 with 378 degrees of freedom, and the significance level is 0.000 ($p < 0.001$). These findings satisfy the fundamental prerequisites for subsequent factor analysis and structural equation modeling.

Table 2. KMO and Bartlett's test of sphericity

Measure		Value
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.936
Bartlett's Test of SphericityApprox.	Chi-Square	6126.287
	df	378
	sig	0.000

After confirming the reliability and validity of the measurement model, the structural equation model was estimated to examine the hypothesized relationships among the constructs.The results of the structural path analysis, including standardized regression weights (SRW), critical ratios (CR), and p-values (Table 3).

In Table 3, all seven hypothesized paths in the theoretical model are statistically significant. Specifically, transformational leadership (TL) exerts significant positive effects on attitude toward innovation (ATI, $\beta = 0.482$, CR = 7.415, $p < 0.001$), SNs ($\beta = 0.376$, CR = 5.529, $p < 0.001$), and PBC belief (PCB, $\beta = 0.465$, CR = 7.045, $p < 0.001$). Additionally, attitude toward innovation ($\beta = 0.268$, CR = 3.775, $p < 0.001$), subjective norms ($\beta = 0.195$, CR = 2.826, $p = 0.005$), and perceived control belief ($\beta = 0.223$, CR = 3.055, $p = 0.002$) all have significant positive impacts on employee willingness to innovate (EWI). Notably, transformational leadership demonstrates significant effects on employee willingness to innovate ($\beta = 0.217$, CR = 3.100, $p = 0.002$).

All critical ratios exceed the threshold of 1.96 ($p < 0.05$), and all p-values are below the commonly used significance level of 0.05, confirming the robustness and statistical significance of the path coefficients.

Table 3. Results of structural path analysis

Structural path	SRW	Critical ratio	p-value
TL→ATI	0.482	7.415	<0.001
TL→SN	0.376	5.529	<0.001
TL→PCB	0.465	7.045	<0.001
ATI→EWI	0.268	3.775	<0.001
SN→EWI	0.195	2.826	0.005

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Table 3. (continued)

PCB→EWI	0.223	3.055	0.002
TL→EWI	0.217	3.100	0.002

5.2. Hypotheses testing

To visually illustrate the estimated results of the structural model and the strength of the relationships between the constructs, the path coefficient diagram of the final structural model is depicted in Figure 1. This diagram explicitly presents the standardized path coefficients, the squared multiple correlations (SMC) for each endogenous construct, and the levels of statistical significance.

As illustrated in Figure 1, all hypothesized paths in the theoretical model are positive and statistically significant at the 0.001 level (denoted by ***), indicating that the proposed relationships are strongly supported. Specifically, transformational leadership demonstrates the strongest predictive power for attitude toward innovation (β = 0.618, ***p < 0.001), followed by perceived control belief (β = 0.593, ***p < 0.001) and subjective norms (β = 0.576, ***p < 0.001).

Regarding the consequences of the mediating variables, attitude toward innovation exhibits the most substantial impact on employee willingness to innovate (β = 0.279, ***p < 0.001), compared to perceived control belief (β = 0.321, ***p < 0.001) and subjective norms (β = 0.213, ***p < 0.001). In terms of the explanatory power of the model, the squared multiple correlations (SMC) indicate that the three mediators (ATI, SN, and PCB) explain 38.2%, 33.2%, and 35.2% of the variance in transformational leadership, respectively. Furthermore, the entire model explains 42.7% (SMC = 0.427) of the variance in employee willingness to innovation, reflecting a moderate to strong level of explanatory power.

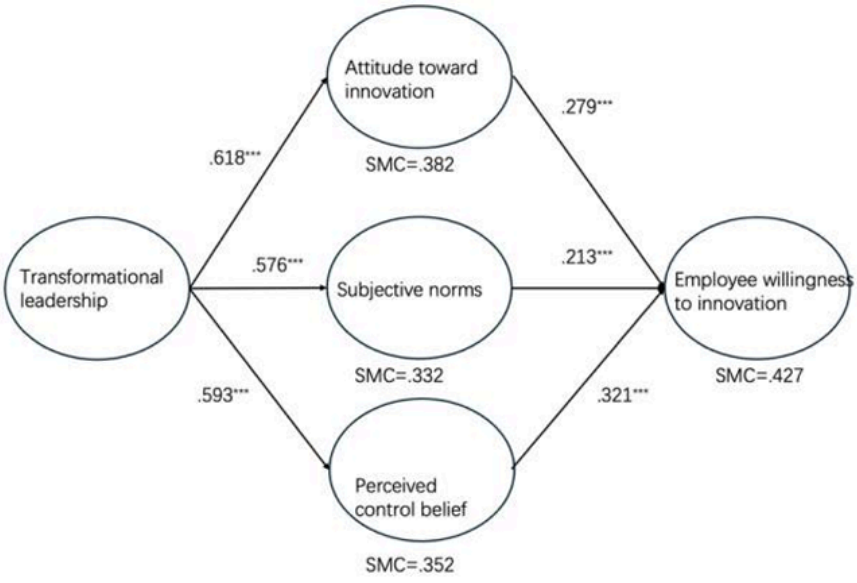

Figure 2. Structural model with standardized path coefficients

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6. Discussion

6.1. Research findings

This study examines how transformational leadership influences employees' willingness to innovate by integrating leadership theory with the TPB. Specifically, this study focused on uncovering the underlying psychological mechanisms through which leadership behaviors shape employees' innovation-related intentions.

The empirical findings provide strong support for the proposed integrated model. First, by articulating an inspiring vision, encouraging intellectual stimulation, and offering individualized support, such leaders foster more positive evaluations of innovation, strengthen perceived social expectations, and enhance employees' confidence in their ability to engage in innovative activities.

Second, consistent with the core assumptions of TPB, the results indicate that the three cognitive components serve as significant predictors of employees' willingness to innovate. Employees who perceive innovation as valuable and meaningful, who experience stronger social support and expectations, and who feel capable of performing innovation-related tasks are more seem to develop strong willingness to get invove in innovative behavior.

Overall, the study demonstrates that transformational leadership contributes to the development of an innovation-supportive psychological environment within SMEs. These findings not only validate the applicability of TPB in organizational innovation research but also offer deeper insights into the ways in which leadership influences innovation via cognitive and social processes.

6.2. Theoretical implications

This study offers several important theoretical implications by integrating transformational leadership theory with the TPB to explain employees' willingness to innovate.

First, this research advances the application of TPB in organizational behavior by extending it to the context of employee innovation. By empirically demonstrating that attitude toward innovation, subjective norms, and perceived behavioral control jointly predict employees' willingness to innovate, this study confirms the robustness of TPB as a micro-level theoretical framework for understanding innovation-related intentions within organizations. Second, this study extends the extisting literature by the transformational leadership literature by unpacking the underlying psychological mechanisms through which leadership influences innovation outcomes. Prior research has mainly examined the direct effects of transformational leadership on innovation performance or creativity. In contrast, this study adopts a process-oriented perspective and shows that transformational leadership operates primarily by shaping employees' cognitive and social perceptions. Third, this research contributes to the integration of leadership theory and behavioral intention models by developing a coherent, theory-driven framework that links macro-level leadership behaviors with micro-level psychological processes. By positioning TPB components as mediating mechanisms, the study bridges the gap between leadership styles and employee behavioral intentions. Finally, the study extends innovation management research in SMEs by highlighting the role of leadership in shaping an innovation-supportive psychological environment under resource constraints. In doing so, it provides a more nuanced theoretical understanding of how innovation emerges in resource-constrained organizational settings.

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6.3. Practical implications

First, organizations should emphasize the development of transformational leadership capabilities among managers. Leaders who demonstrate inspirational motivation, intellectual stimulation, and individualized consideration can effectively influence employees' perceptions of innovation and encourage them to adopt more positive attitudes toward innovative activities. Second, managers should actively cultivate a work environment that promotes positive attitudes toward innovation. This can be achieved by recognizing innovative ideas, rewarding creative contributions, and communicating the strategic importance of innovation for organizational development. Third, organizations should foster a supportive social environment that encourages innovation. Since subjective norms significantly influence employees' willingness to innovate, managers should encourage collaboration, knowledge sharing, and open communication among employees. Fourth, managers should enhance employees' perceived behavioral control by providing adequate resources and support for innovation. Training programs, access to information, and opportunities for skill development can help employees feel more capable of engaging in innovative tasks.

7. Conclusion

This study set out to examine how transformational leadership influences employees' willingness to innovate by integrating leadership theory with the TPB. The findings demonstrate that transformational leadership shapes employees' innovation intentions primarily through cognitive and psychological mechanisms, specifically by influencing their attitudes toward innovation, subjective norms, and perceived behavioral control.

From a theoretical perspective, this study makes several important contributions. First, it extends the application of TPB to the domain of organizational innovation. By confirming that attitude, subjective norms, and perceived behavioral control are significant predictors of innovation willingness, this study demonstrates the robustness and explanatory power of TPB in organizational contexts. Second, this research contributes to the transformational leadership literature by moving beyond direct effect explanations and uncovering the underlying psychological mechanisms through which leadership influences innovation. This shifts the focus from "what leadership does" to "how leadership works." Third, the study offers new insight into the literature on innovation management in SMEs. The results suggest that transformational leadership can compensate for structural limitations by cultivating a supportive psychological climate, thereby enabling employees to engage in innovative behavior even under constrained conditions.

Despite these contributions, several limitations of this study should be noted. First, the use of self-reported data may lead to common method bias. Second, the cross-sectional design restricts the ability to make causal inferences.Third, the sample is primarily drawn from SMEs, thereby potentially restricting the extent to which the findings can be generalized. Finally, further research could further enrich the model by incorporating additional contextual and organizational variables, such as organizational culture or innovation-supportive practices.

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