

How Transformational Leadership Affects Firm Innovation Performance - A Perspective Based on Environmental Dynamism and Business Model Innovation

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ABSTRACT

This study aims to examine the impact of transformational leadership on firms' innovation performance and to analyze the relationship between environmental dynamism and business model innovation. The context of the study is that firms need to innovate to maintain a competitive advantage in the face of changing external environments and competitive pressures, and transformational leadership is considered to have an essential role in driving corporate innovation. However, existing literature has yet to consider the factors of environmental dynamism and business model innovation when exploring the impact of transformational leadership on innovation performance. This study uses Structural Equation Modeling (SEM) to analyze the data to address this research gap. Data were obtained from 40 manufacturing industries in China through a questionnaire survey of over 150 corporate management and technical staff. The findings indicate that transformational leadership positively impacts firm innovation performance and that environmental dynamics and business model innovation play a mediating role. The significance of this study is that it fills the research gap in the existing literature on the relationship between transformational leadership and corporate innovation and proposes environmental dynamism and business model innovation as mediating variables, providing a new research perspective on corporate innovation. At the same time, the research methodology uses Structural Equation Modeling to effectively analyze the complex relationship between transformational leadership, environmental dynamism, and business model innovation, which provides some theoretical guidance for business leaders.

KEYWORDS

Transformational leadership; Corporate innovation; Environmental dynamism; Business model innovation

1. Introduction

As the global economy proliferates and competition intensifies, corporate innovation has become the key to gaining sustained competitive advantage. In the face of a market environment full of opportunities and challenges, the impact of transformational leadership has become a research area of great interest (Siangchokyo et al., 2020). Transformational leadership enhances employees' motivation and incentive to innovate and guides a company's innovation direction and strategy, thereby improving innovation performance. Especially in a rapidly emerging market like China, the impact of transformational leadership on firm innovation performance is of great importance (Eliyana & Ma'arif, 2019).

However, although some research findings have explored the impact of transformational leadership on innovation performance, there are still some unresolved questions about the mechanism of action between transformational leadership and innovation performance (Lai et al., 2020). At the same time,

the dynamic nature of the current market environment and the importance of business model innovation provide new theoretical perspectives for research. Therefore, this study aims to investigate the impact of transformational leadership on firms' innovation performance and to analyze its mechanism of action from the perspective of environmental dynamism and business model innovation (Kwan, 2020).

Currently, the main focus of research is on the relationship between transformational leadership and firm innovation performance. Still, the domestic and international literature has limited the moderating role of environmental dynamics and business model innovation. Therefore, this study aims to fill this research gap, investigate the moderating role of ecological dynamics and business model innovation, and further improve the theoretical framework on the mechanism of the part of transformational leadership and innovation performance (Peng et al., 2021).

This study uses Structural Equation Modeling to analyze questionnaire data from firms in the Chinese region. The data sources are questionnaires from different industries in other areas of China, and a sample of data that meets the requirements is obtained after the effective screening. This study will explore the relationship between transformational leadership and innovation performance through a quantitative approach and analyze the moderating role by combining the perspectives of environmental dynamism and business model innovation (Geissdoerfer et al., 2018).

The theoretical contribution of this study is twofold: on the one hand, by profoundly analyzing the influence mechanism of transformational leadership on innovation performance, this study will provide new ideas and expand the research paradigm for leadership research (Silva et al., 2020); on the other hand, from the perspective of environmental dynamics and business model innovation, this study will provide a more systematic and comprehensive view for corporate innovation management, and can provide a scientific basis for the formulation and implementation of corporate innovation strategies (Li et al., 2020). In terms of practical significance, the results of this study can provide better guidance for business leaders, as well as powerful references and suggestions for the government and related industrial management departments (Baloch et al., 2021).

The remaining sections of this paper are the literature review and research hypothesis, methodology section, research results section, and discussion.

2. Literature review and hypothesis development

Transformational leaders are conceptual, motivational, intelligent, and individualistic in their ability to motivate organizational members to adapt to environmental changes and achieve innovative goals (O'Reilly et al., 2020). In the modern business environment, innovation has become the key to the survival and growth of a company, so transformational leaders play an essential role in a company's innovation process (Farahnak et al., 2020). Transformational leadership can positively impact innovation performance by stimulating innovation awareness, promoting knowledge sharing, and supporting employees to try out novel ideas (Kim & Park, 2020).

2.1 Transformational leaders and business innovation

First, transformational leaders stimulate a sense of innovation among organizational members. By actively advocating creation, encouraging employees to develop novel ideas, and practicing innovative approaches, they inspire employees to be more active in innovation activities. Compared with traditional leaders, they focus on employees' freedom to innovate and think freely and are more willing to accept creative and innovative ideas (Mysirlaki & Paraskeva, 2020). Second, transformational leaders promote knowledge sharing. They emphasize knowledge sharing and encourage the sharing and circulation by establishing knowledge management mechanisms and formulating systems about knowledge sharing to enhance corporate innovation capabilities. Knowledge sharing within the enterprise helps to avoid duplication of efforts and knowledge waste, improve team collaboration, and thus effectively promote the innovation process of the enterprise (Jensen et al., 2020). Finally, transformational leadership supports employees in trying out novel ideas. Without the support and encouragement of leaders, employees may abandon many innovative ideas, thus affecting the

company's innovation performance. By providing resources and knowledge support, transformational leaders encourage employees to try novel ideas and make them explore and innovate more boldly, thus promoting the company's innovative development (Singh et al., 2020). In short, transformational leaders play an essential role in a company's innovation process. They positively influence corporate innovation performance by stimulating innovation awareness, facilitating knowledge sharing, and supporting employees to try out novel ideas. Firms must focus on developing transformational leaders to promote increased innovation and economic efficiency.

Past research has divided the impact of transformational leadership into two broad categories: the effect on creativity and the innovation environment and the impact on innovation performance. Transformational leadership has become a hot topic in business management as an effective leadership style (Abu-Rumman, 2021). Research has shown that transformational leadership can have a positive impact not only on creative capability and innovation environment but also on the innovation performance of a company in a significant way (Son et al., 2020). A series of studies have shown that transformational leaders can create a favorable climate for innovation and inspire employees to be innovative and think creatively. Transformational leaders usually have an open and inclusive mindset to encourage employees to develop new ideas and give positive feedback and support (Al-Husseini et al., 2021). In addition, they will make innovation a core value of the company and allow employees more time and space to try new innovative solutions by creating a relaxed and free working atmosphere. Creating such a creative atmosphere helps improve the company's innovation capability and stimulates employees' enthusiasm and creativity, thus increasing employee satisfaction and loyalty.

A series of studies have also shown that transformational leaders can further enhance the innovative performance of a company by guiding organizational members to set long-term goals and increasing their self-efficacy (Lei et al., 2020). Transformational leaders will help employees understand the company's long-term strategic plan and motivate them to pursue higher goals, thus encouraging them to contribute more to the company's development. At the same time, they will also improve employees' self-efficacy through training, feedback, and motivation so that employees will have more confidence to try new innovative solutions and continue to progress and improve. This way of enhancing self-efficacy improves employees' enthusiasm and efficiency, thus helping companies improve their innovation performance and market competitiveness (Akdere & Egan, 2020).

In conclusion, the role of transformational leadership in business management must be addressed. By creating a good innovation atmosphere, guiding organization members to set long-term goals, and improving employees' self-efficacy, transformational leadership can improve innovation performance and generate higher value for the enterprise. Therefore, in actual business management, the learning and practice of transformational leadership ideas should be strengthened to maintain a sustainable competitive advantage in the ever-changing market environment.

2.2 Environmental dynamism and business model innovation

The dynamic nature of the environment refers to the fact that the external environment around the company changes frequently (Hou et al., 2019). The environment's dynamism can moderate the impact of transformational leadership on business model innovation. Research shows that the role of transformational leadership is more significant when the environment is more dynamic. Because a dynamic environment requires companies to continuously innovate their business models in response to market and technological changes, transformational leadership can drive companies to constantly optimize and innovate their business models to better adapt to environmental changes through continuous innovation (Hock-Doepgen et al., 2021). The external environment around a company is a dynamic system, and its constant changes will significantly impact the company's development. In this environment, companies need to adjust their business models to adapt to changes constantly, so business model innovation has become one of the critical factors for companies to survive (Dubey et al., 2020).

In this process, the role of the leader becomes vital. Research shows that transformational leaders are essential to the business model innovation process. Their innovative thinking and driving force can facilitate companies to continuously innovate and optimize their business models to better adapt to the changing environment. And when the environment is more dynamic, the role of transformational leaders becomes more significant. This is because, in a dynamic environment, companies need to respond to market and technological changes through continuous innovation, and this innovation needs to have a certain speed and flexibility (Wamba et al., 2020). Transformational leaders can provide sufficient support and guidance to help companies quickly adapt to this changing environment and, thus, advance business model innovation more successfully. In short, in a dynamic business environment, the role of transformational leaders is critical. They can help companies respond effectively to changes, driving continuous innovation and optimization to achieve long-term growth.

2.3 The moderating role of business model innovation

Business model innovation is one of the effective means for modern enterprises to gain a competitive advantage in the fierce market competition (Pieroni et al., 2019). The core of business model innovation is to position the market and develop new consumer groups through combining products, services, or resources and the interaction change. With the help of business model innovation, enterprises can achieve more competitive products or services, thus increasing their market share and profits (Breier et al., 2021). In this process, business model innovation is essential in mediating the relationship between transformational leadership and innovation performance. Innovation performance is one of the critical drivers of firm success, and transformational leadership is a necessary factor in facilitating the achievement of innovation performance. Research shows that business model innovation significantly strengthens the positive relationship between transformational leadership and innovation performance (Ranta et al., 2021).

On the one hand, business model innovation can help companies better understand market needs and find new business models, thus facilitating the performance of transformational leadership. By exploring new markets, firms can better utilize their innovation capabilities, expand their market share, and better resist competitive market pressures (Kraus et al., 2022). On the other hand, business model innovation gives companies a more significant competitive advantage in the market competition by changing how products, services, or resources are combined and interact. This not only pushes companies to bring into play their innovation capabilities and improve their innovation performance but also allows them to meet consumer needs better and increase customer loyalty through differentiated competitive strategies, ultimately realizing long-term profits for the company (Sjödin et al., 2020). In summary, the moderating role of business model innovation on the relationship between transformational leadership and innovation performance must be addressed. Successful business model innovation can help companies establish more competitive advantages and promote companies to maximize the use of an invention, thus improving competitiveness.

In summary, this paper proposes the following hypotheses:

H1: Transformational leadership positively impacts firms' innovation performance.

H2: Environmental dynamics moderate the impact of transformational leadership on business model innovation.

H3: Business model innovation mediates between transformational leadership and innovation performance.

3. Methods

3.1 Study sample and collection procedures

This study used a stratified sampling method to obtain the sample data. The selection came from more than 20 enterprises in China, 153 questionnaires were distributed, and 134 questionnaires were finally returned, with an effective rate of 87%.

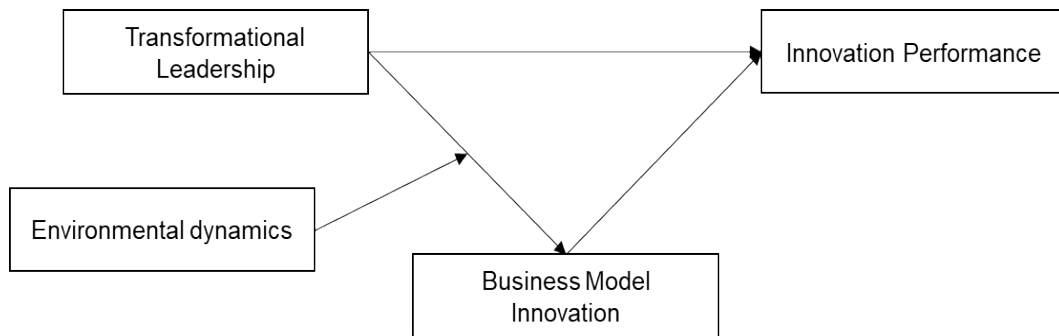


Figure 1 Theoretical diagram of this study

Each firm was considered an independent stratum in the stratified sampling method. In the first stratum, we selected firms that were representative in size, geography, and industry type to ensure a diverse and representative sample. For each firm, we conducted independent sampling to obtain the required sample data. When completing the selection, we thoroughly considered the differences and characteristics of each stratum and weighted the samples for each stratum to ensure the reliability and validity of the model. In addition, we strictly controlled the sample selection criteria to ensure the quality and validity of the model. Ultimately, we collected sample data from more than 20 enterprises, which representatively reflect the general situation and development trend of Chinese enterprises. This reliable database provides a strong basis and support for the research in this paper (Tong, 2006).

3.2 Measurement scales

3.2.1 Transformational Leadership Questionnaire

The Transformational Leadership Questionnaire (TLQ) is a scale of transformational leadership proposed by Bass and Avolio (1995), which was adapted by Li and Shi (2008) based on the cultural context of China. It is one of China's most commonly used scales for assessing transformational leadership. The TLQ is divided into four dimensions, with 26 items, and is one of the most frequently used scales to evaluate transformational leadership in China (Leong & Fischer, 2011). It includes "integrity and selflessness". The scale has a Cronbach's alpha value of 0.827.

3.2.2 Environmental Dynamism Scale

This scale was developed concerning Miller and Friesen's (1983) scale to assess the dynamism of an organization's environment. Environmental dynamism can be reflected by several specific indicators, such as product exit from the market, prediction of rival behavior, prediction of customer needs and preferences, technological updates in the industry, and changes in the company's behavior. By measuring these indicators, we can more comprehensively and accurately assess the dynamics of the environment faced by the company and thus provide a more scientific basis for the company to formulate its operation strategy. The scale includes multiple dimensions to assess all aspects of the company's environmental dynamics (Li & Liu, 2014). The scale has a Cronbach's alpha value of 0.832.

3.2.3 Business Model Innovation Scale

The Business Model Innovation Scale is commonly used to assess the extent and effectiveness of a company's or organization's business model innovation (Clauss, 2017). The scale has a Cronbach's alpha value of 0.801.

3.2.4 Innovation Performance Scale

This study uses the Innovation Performance Scale developed by Janssen and van Yperen (2004). Relevant questions include "the number of new products (services) in the firm is high compared to the main competitors (Inkinen et al., 2015)". The scale has a Cronbach's alpha value of 0.791.

3.3 Common method bias

To ensure the accuracy of the study results, this study recognizes that common modality bias may

confound the results. Therefore, we followed the recommendation of Chin et al. (2012) to attenuate the effect of common modality bias on the study results by testing for it. For this purpose, we used the Harman one-way method and carefully examined the data from the questionnaire. The purpose of this step was to improve the accuracy and credibility of the results while ensuring that common modality bias was controlled for and attenuated in the research survey. Specifically, we focused on the relationships and interactions among study participants in order to accurately determine the presence and extent of common modality bias. Through such rigorous testing, we can ensure the reliability and validity of the study results.

$2/df=8.323>5$, $RMSEA=0.131>0.1$, $CFI=0.612<0.9$, $TLI=0.451<0.9$

According to the results of the SRMR test used in this study, the SRMR value of the measurement model was 0.91, which exceeded the standard value of 0.08. This indicates that the survey data used in this study were not threatened by the usual methodological bias. Therefore, there is no need to further control the data to ensure the accuracy and reliability of the study findings.

4. Study results

4.1 Basic information about the model

This study evaluated the structural equation model using Smart-PLS 3.3.3 software. According to the PLS-SEM criteria proposed by Sarstedt et al. (2020), we need to ensure that multiple metrics in the model have external loading values greater than 0.7, AVE values above the thresholds of 0.50 and 0.70, and CR scores that meet the consistency criteria. Only when these criteria are met can we consider the model internally consistent.

Table 1 Model results

Path analysis	Path coefficients	Specific indirect effects	Hypothesis	Status	VAF
TL → IP	0.628***		H1	Supported	
ED x TI → BMI		0.434(5.524)***	H2	Supported	63.271%
BMI x TL → IP		0.237(3.044)***	H3	Supported	56.227%

Note: TL (Transformational leadership); IP (Innovation Performance); ED (Environmental Dynamics); BMI (Business Model Innovation)

To better assess the quality of the PLS-SEM model and to deal with its complexity, we referred to related studies and adopted HTMT and R² as evaluation metrics. We require that the HTMT index of the model does not exceed 0.9, while the more significant R² results are better. By using these metrics, we can assess the model quality more accurately and thus significantly improve the reliability and validity of the study (Sarstedt et al., 2014).

Table 2 HTMT and R² results

	TI	DI	OR	IP	R ²
TI					0.912
ED	0.82				0.917
BMI	0.77	0.73			
IP	0.73	0.77	0.79		0.917

Note: TL (Transformational leadership); IP (Innovation Performance); ED (Environmental Dynamics); BMI (Business Model Innovation)

4.2 Model estimation results

In this study, SRMR was used as a criterion for model evaluation. SRMR is the square root of the mean of the sum of the absolute values of all residuals in the standardized residual matrix. It can be used to assess the average difference between the correlations of the samples and the predictions to judge the model fit. If the SRMR value is less than 0.08, the model is a good fit; if it is less than 0.1, the fit is within an acceptable range. In addition to SRMR, Chi-square, d_G (Geodesic Distance),

Table 3 Model fitting evaluation results

	Saturated model	Estimated model
Chi-square	1691.717	1694.137
d_G	0.903	0.916
d_ULS	0.718	0.737
SRMR	0.032	0.031
NFI	0.917	0.927

d_ULS (The Squared Euclidean Distance), and NFI (Normed Fit Index) were also used as reference results. Where $NFI > 0.9$ indicates a good model fit. Using these metrics allows for a more comprehensive assessment of the model's quality and improves the study's reliability and validity (Sarstedt et al., 2017). The complete analysis of these indicators can help researchers to understand the model fit more accurately and provide more reliable assessment and guidance for scientific research. The above are the evaluation criteria of this study and their importance.

In this study, statistical Table 1 was used to test the H1-H3 hypotheses. These hypotheses were significantly supported, as evidenced by the value of the t-statistic exceeding 1.96. In addition, the VAF indicator was used to assess the strength of the mediating effect, i.e., the ratio of the indirect impact to the total development. The results show that the mediating products of H2 and H3 are 63.271% and 56.227% respectively, reaching the region of 20%-80% and 20%, which are partial mediating effects. Combining these results, the hypothesis of this study is well supported. It is important to note that in the literature of Ramli et al. (2019), the VAF indicator was used to assess the strength of the mediating effect.

4.3 Research findings

Transformational leadership is a critical factor in business development and is closely linked to innovative business performance. Transformational leaders are open-minded, creative, and able to adapt to changing market conditions and guide their companies to meet challenges (Bass, 1999). Such leaders can build a positive organizational culture, encourage innovative thinking among employees, and lead their companies to industry leadership positions. Over the past few decades, transformational leadership has become a critical success factor for companies, especially in the increasingly competitive and unpredictable business environment. Transformational leadership is necessary to maintain a competitive advantage.

So, how does transformational leadership affect innovation performance? First, transformational leadership can effectively stimulate innovation. Transformational leaders pay more attention to the innovation ability of employees (Carless et al., 2000). They will continue to motivate employees to think creatively and be innovative, so that encouragement can establish a culture of innovation and promote innovation and change within the company. Secondly, transformational leaders can better adapt to the challenges brought about by market changes (Ramsey et al., 2017). With the ever-changing market environment, companies must promptly adjust their strategies and business models. This requires a transformational leader who can adapt to market changes and lead the company to success. Furthermore, business model innovation is an important influencing factor for a transformational leader. The business model is an essential part of business activities, and through continuous innovation, business models can break traditional thinking to achieve the goal of more efficient and higher output (Geier, 2016). In short, transformational leadership is crucial in improving a company's innovation performance. Transformational leaders can lead companies forward and grow by motivating employees to think creatively and have a culture of innovation, responding to market changes, and creating changes in business models.

Transformational leadership is considered one of the critical drivers of innovation in companies. However, achieving innovation in a constantly changing environment is a challenging task. Based on environmental dynamism and business model innovation perspectives, this paper explores how

transformational leadership affects firm innovation performance and analyzes the moderating relationship between ecological dynamism on transformational leadership and business model innovation (Giddens, 2018). First, transformational leadership plays an essential role in driving corporate innovation. Transformational leaders have the vision, courage, creativity, and self-efficacy to encourage employees to innovate and to drive change and innovation actively. Research shows that transformational leaders have a higher innovation orientation and creativity that stimulates employees' creativity and innovation potential, thus going innovation performance in the firm. Second, environmental dynamism is essential in the moderating relationship between transformational leadership and business model innovation. Environmental energy refers to the degree and speed of environmental change (Jackson, 2020). The role of transformational leaders is more significant in environments with high environmental dynamics. This is because, in such an environment, companies must continuously innovate to adapt to the changing environment. Transformational leaders can lead their employees to adapt and respond to changes and drive innovation in the company. Finally, business model innovation, as a form of corporate change, is closely related to transformational leadership and environmental dynamism. Business model innovation refers to changes and innovations in a company's business model to create higher value and profits. Transformational leaders can drive business model innovation, stimulate the innovative potential of employees, and lead companies to new business opportunities. The moderating relationship of environmental dynamics on business model innovation is also significant. In environments with high environmental dynamics, companies must continuously innovate and adapt their business models to better adapt to the changing environment (Sun et al., 2017).

In summary, the contribution of transformational leadership to a firm's innovation performance is significant. Especially in environments with high environmental dynamics, the role of transformational leaders is more pronounced. Business model innovation is an essential means to drive business development and can create higher value and profit for companies with the combined effect of transformational leadership and environmental dynamics. Therefore, companies should focus on leadership development and business model innovation to adapt to the changing environment and enhance competitiveness.

Transformational Leadership (TL) has been one of the key drivers of corporate innovation. This leadership style emphasizes leaders stimulate creative thinking and behavior by stimulating the inner potential of their employees, thereby increasing overall corporate innovation and competitiveness. In today's fast-changing business environment, business model innovation has become the key to gaining market share and growth and has posed new challenges to studying the relationship between transformational leadership and innovation performance mediation (Shakeel et al., 2020). Business model innovation creates new business value and profitability models by building unique business logic and service delivery approaches based on their existing asset allocation and value chain portfolio. This innovation shows a powerful driving force in the transformation from traditional business to digitalization, cross-border cooperation, user experience, and value-added services. Transformational leadership plays a critical role in achieving business model innovation. First, transformational leadership can improve companies' agility and responsiveness, promoting business model innovation. Successful business model realization requires rapid response and real-time adaptation. Transformational leaders promote an open organizational culture and an innovative and pioneering atmosphere, encourage employees to think and innovate autonomously, and prioritize emerging technologies and market trends, thus being responsive and flexible (Bhatti et al., 2021). Secondly, transformational leadership can facilitate the sharing and transfer of knowledge and experience within the company and improve innovation performance. Business model innovation requires cross-discipline collaboration and knowledge sharing, so only companies with effective knowledge management and technology transfer mechanisms can stay ahead of the curve in innovation (Haaker et al., 2021). With a demonstration-led approach, transformational leaders are committed to building an open, collaborative,

and trusting work environment by fostering communication and collaboration skills, encouraging innovative thinking, and seeking new solutions so that knowledge-sharing, exchange, and innovation activities are fully supported and promoted.

The role of transformational leadership style in mediating innovation performance under business model innovation can be summarized as follows: it improves the efficiency and quality of corporate innovation to maintain a competitive advantage in the market; it accelerates the digital transformation, service level, and product innovation for business expansion and increasing new profit sources. In short, a transformational leadership style can better help companies respond to the times, embrace business change, and gain unexpectedly high growth and value.

5. Discussion and conclusion

5.1 Discussion

Transformational leadership refers to those leadership styles that actively promote and lead organizational change and innovation. In today's rapidly changing business environment, companies must have the ability to innovate to survive and thrive in a highly competitive marketplace. Therefore, how to drive corporate innovation performance through transformational leadership has become an important research topic. In this paper, we explore the impact of transformational leadership on innovation performance from two perspectives: environmental dynamics and business model innovation (Breier et al., 2021).

First, environmental dynamics have a significant impact on firm innovation performance. Companies must constantly explore new markets and innovate new products and businesses in a rapidly changing market environment. Transformational leadership helps business leaders better respond to changes in the environment and be agile in developing innovative strategies and new product development plans. Transformational leaders have an open mindset and are unafraid to change existing business models.

Second, business model innovation is one of the most important ways to drive innovation in a company. Transformational leadership can play a significant role in business model innovation. Transformational leaders can lead their teams to deeply understand customer needs and market changes, design targeted business models that meet market needs, innovatively serve customers, and create new differentiated value in business models. In addition, transformational leaders have insight into future mainstream trends and technologies. They can lead the company in business model innovation to better adapt to future market changes and provide a guarantee for the long-term development of the company.

In summary, the impact of transformational leadership on corporate innovation performance is reflected in two aspects: the ability to respond to the dynamic nature of the corporate environment and the ability to innovate business models. Therefore, enterprises should pay attention to and cultivate talents with transformational leadership to play an important role in enterprise management, help enterprises adapt to market changes faster, and improve their innovation performance.

5.2 Conclusion

Transformational leadership, as a leadership style, is widely recognized for its ability to promote change and inspire innovation, which can contribute to a firm's innovative performance. This paper focuses on how transformational leadership influences companies' innovation performance through environmental dynamism and business model innovation.

Environmental dynamism refers to the rate of change and the degree of uncertainty in the environment in which a firm operates. Transformational leadership can improve innovation performance by sensing environmental changes more acutely and responding quickly. Research shows that transformational leadership can promote organizational members' sensitivity, awareness, and responsiveness to the external environment, thus helping companies to respond better to environmental

changes and reduce the negative impact of the external environment on corporate innovation.

Business model innovation is a company's market, product, service, and value innovation. Transformational leadership can promote business model innovation by encouraging innovation, supporting trial and error, and motivating employees. Research shows that transformational leadership can increase employees' motivation and creativity level to explore and experiment with new business models, which in turn can enhance the company's innovation performance.

The primary agency by which transformational leadership promotes a company's innovation performance lies in stimulating the internal motivation of organizational members. As a leadership style that encourages inspiration, transformational leadership can stimulate organizational members' self-efficacy, sense of innovation, and creativity, enhance their enthusiasm and motivation, reduce members' resistance and antipathy to change and innovation, and increase the likelihood of successful innovation. Thus, the impact of transformational leadership on business model innovation and environmental dynamism is achieved mainly by stimulating the internal motivational mechanisms of organizational members.

Overall, the impact of transformational leadership on corporate innovation performance is mainly realized through environmental dynamism and business model innovation. The main mechanisms are to stimulate the innovation motivation of organizational members, enhance innovation awareness and creativity, and reduce resistance and antipathy to change. Therefore, companies should pay attention to the cultivation and practice of transformational leadership to better promote innovation and enhance the company's competitiveness and innovation capability.

About the author

Bo Dong is an experienced corporate manager with over 20 years of practice, including nearly 10 years in management consulting. He has provided guidance to several Global 500 companies, including Moutai and State Grid of China. His research interests span various areas such as corporate strategy, group control, brand marketing, and organizational change. With a strong publication record, he has authored two monographs and published numerous journal articles. Additionally, he serves as an expert in management consulting for Chinese SMEs and holds a visiting professorship at the China Academy of Management Sciences. His expertise has led to invitations to participate in academic conferences, deliver keynote speeches, and conduct seminars.

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Data availability statement

The data used to support the findings of this study are included within the article.

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