



# The Effect of Top managers' Perceptions on Corporate Innovation Performance and mediating role of composite competencies in Small and Medium-sized Enterprises (SMEs)

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**Abstract.** Small and medium-sized enterprises generally face problems such as resource constraints and financing difficulties, coupled with factors such as trade protectionism and global economic downturn, Status of SMEs is not optimistic. Innovation is essential for small and medium-sized enterprises (SMEs) to gain competitive advantage and achieve sustainable development. As the decision makers and executors of corporate innovation behavior, the perceptions of top managers are bound to have a significant impact on corporate innovation performance. Therefore, this study starts from the perspective of top managers' perceptions, based on the high-order echelon theory, innovation theory, and composite foundation view, constructs a research model with top managers' perceptions, composite ability, and innovation performance as the main body, uses SPSS 25.0 for empirical testing, explores the relationship between top managers' perceptions and innovation performance, and analyzes the mediating role of integrative competencies between top managers' perceptions and innovation performance.

**Keywords:** Top managers' perceptions; Composite capability; Innovation performance.

## 1 Introduction

As an important part of China's national economy, SMEs play an irreplaceable and important role in promoting economic growth and increasing employment (Gao Xinyu et al., 2023) <sup>[1]</sup>. As of the end of 2021, the number of enterprises in China reached 48.42 million, of which more than 99% were small and medium-sized enterprises (Xiao Ya-qing, 2022) <sup>[2]</sup>. However, SMEs often face a tough competitive environment due to scarce resources, changing business environments, capital constraints and poor financing channels. How to effectively improve innovation performance in a dynamic market environment is a pressing issue for SMEs to address (Li Yingmei and Shi Qi, 2019) <sup>[3]</sup>.

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As decision-makers and executors of corporate innovation behavior, the perceptions level of top managers is closely related to the innovation performance of the enterprise (Wang Wenhua and Zhou Liyao, 2022) <sup>[4]</sup>. Enhancing top managers' perceptions can help increase the innovation performance of enterprises (Yu Fen and Fan Xia, 2022) <sup>[5]</sup>.

According to the theory of high-level teams, top managers' perceptions plays an important role in decision-making, selection, and execution in the process of enterprise innovation (Hambrick & Mason, 1984) <sup>[6]</sup>. The innovation theory holds that high-level executives with high perceptions levels are the main driving force for enterprise innovation (Pacione, 2015) <sup>[7]</sup>. The composite foundation view suggests that for small and medium-sized enterprises lacking heterogeneous resources, they can improve their performance and competitive advantage through a composite strategy (Waseem et al., 2023) <sup>[8]</sup>. This article constructs an evolutionary path of "top managers' perceptions--composite ability--innovation performance", enriching relevant research on compound ability in the Chinese context. Provide new ideas for small and medium-sized enterprises lacking heterogeneous resources, and provide good reference for improving their innovation performance by building composite capabilities.

## 2 Literature Review

The research on top managers' perceptions mainly focuses on the positive effects on corporate strategy and innovation. The more sensitive an enterprise manager is in terms of external environmental awareness, the more advantageous it is for the strategic transformation of the enterprise (Ma et al., 2022) <sup>[9]</sup>. Zhang Jun and Xu Qingrui (2018) argued that the perceptions of top managers are a key element in building a firm's innovation capability <sup>[10]</sup>. Top managers' perceptions have a significant positive impact on both exploratory and exploitative innovation (Yu Hao and Shen Ying, 2021) <sup>[11]</sup>. In the study of innovation performance, Hui Yongtao (2023) believes that government subsidies are more conducive to incentivizing developmental innovation activities of growing enterprises in the manufacturing and service industries <sup>[12]</sup>. Li Donghong et al. (2020) found through empirical research that the competitive strategy of Chinese manufacturing enterprises can help them improve their innovation performance <sup>[13]</sup>. The psychological resilience of managers can encourage enterprises to increase R&D investment and improve the problem of management's short sightedness, thereby enhancing the innovation performance of the enterprise (Qiao Penghua et al., 2022) <sup>[14]</sup>. Compound capabilities are particularly important for the development of enterprises, especially small and medium-sized enterprises (SMEs) that lack core resources. Ma Hongjia et al. (2011) believe that it is necessary for enterprises to continuously integrate resources and form strong integration capabilities, in order to continuously improve their sustained competitive advantage <sup>[15]</sup>. Zhang Zhengang et al. (2023) explored two types of data resource integration behaviors in enterprises: stable adjustment and innovative development, which can empower product innovation performance <sup>[16]</sup>.

### 3 Research Methodology

#### 3.1 Population and the sample

The respondents of this study were the top managers of small and medium-sized enterprises (SMEs). The study adopts a simple random sampling method and adopts a questionnaire survey. Before the formal survey, 80 pre survey questionnaires were distributed. The survey questionnaire consists of the following three parts: (1) Introduction section, which outlines the research purpose of this survey questionnaire; (2) Basic information section, understanding the gender, age, education level, and other information of the respondents; (3) The main part consists of measurement items from various variable scales, including top managers' perceptions, compound ability, and innovation performance. Selecting provinces such as Hunan, Hubei, and Guangdong as research areas, the focus is mainly on industries with high innovation requirements such as software, information technology services, and manufacturing. The research subjects are 4-5 top managers from enterprises. The official investigation will take place from September 2023 to December 2023. A total of 400 questionnaires were distributed through offline or email, and 378 were collected. After screening out invalid questionnaires such as conflicting and incomplete answers, a total of 348 valid questionnaires were obtained. The return rate of the questionnaires was 94.50% and the validity rate of the questionnaires was 92.06%.

To ensure the reliability and effectiveness of the measurement tools, the evaluation scales for the variables used in this survey were based on existing mature scales and appropriately modified according to the research objectives and content, ensuring good applicability in China. All variables were measured using the Likert five level evaluation method, and the final scores of each variable were calculated based on the rules of 1 point for "completely disagree", 2 points for "disagree", 3 points for "uncertain", 4 points for "agree", and 5 points for "completely agree". The higher the score, the higher the degree to which the variable is measured. The perceptions items of top managers were measured using the scale developed by Smith et al. (2010), of which 15 items continue to be used in this paper. The items of compound ability refer to the scale developed by Lu Yadong and Sun Jinyun (2014), and this article refers to four of them. The items of composite ability were based on the scale developed by Lu Yadong and Sun Jinyun (2014), and this study was modified based on pre measurement feedback, including four items.

#### 3.2 Objective

To study the impact of the relationship between top managers' perception and firms' innovation performance. To study the impact of the mediating role of composite competencies on firms' innovation performance.

H1: Top managers' perception has a significant positive effect on SMEs' innovation performance.

H2: Top managers' perception has a significant positive effect on the construction of composite competencies in SMEs.

H3: Composite competencies have a significant positive effect on the innovation performance of SMEs.

### 3.3 Reliability and validity analysis

The Cronbach coefficients of each variable shown in Table 1 are all greater than 0.7, indicating good reliability of the scale.

**Table 1.** Reliability Analysis

Variable	Sample Size	Number of Items	Cronbach's $\alpha$
Top Managers' Perceptions	80	15	0.946
Composite Capability	80	4	0.941
Innovation Performance	80	4	0.943

According to Table 2, shows that the AVE values of the main variables involved in the questionnaire are all above 0.5 and the CR values are all above 0.8, indicating that the main variables have good convergent validity.

**Table 2.** Validity Analysis

Variable	Sample Size	CR Value	AVE Value
Top Managers' Perceptions	80	0.962	0.629
Composite Capability	80	0.944	0.808
Innovation Performance	80	0.930	0.770

## 4 Results of Data Analysis

### 4.1 Correlation analysis

According to Table 3, there is a significant positive correlation between top managers' perceptions and innovation performance, the correlation coefficient is 0.689 ( $P < 0.01$ ); The perceptions of top managers is significantly positively correlated with composite capability, the correlation coefficient is 0.662 ( $P < 0.01$ ); The composite capability is significantly positively correlated with innovation performance, the correlation coefficient is 0.731 ( $P < 0.01$ ).

**Table 3.** Correlation Analysis

	Top Managers' Percep- tions	Composite Capa- bility	Innovation Perfor- mance
Top Managers' Percep- tions	1		
Composite Capability	0.662**	1	
Innovation Performance	0.689**	0.731**	1

\*\*Represents  $p < 0.01$ , \* Represents  $p < 0.05$ , the correlation is significant.

## 4.2 Regressive analysis

This study mainly used SPSS 25.0 software to conduct hypothesis testing on the survey data. In Table 4, Model 1 tested the relationship between top managers' perceptions and innovation performance, with a regression coefficient of 0.746. It passed the significance test and hypothesis H1 holds; Model 2 incorporates composite capability into Model 1, and it can be seen that the standardized regression coefficient between top managers' perceptions and composite capability is 0.723, which passes the significance test and H2 is supported; At the same time, the impact of composite capability on innovation performance was tested, with a regression coefficient of 0.807, which passed the significance test, and H3 passed the validation.

**Table 4.** Regressive Analysis

Variable	Innovation Performance	
	Model 1	Model 2
Top Managers' Perceptions	0.746**	0.723**
Composite Capability		0.807**
F	35.835	52.874

\*\*Represents  $p < 0.01$ , \* Represents  $p < 0.05$ , the correlation is significant.

## 5 Conclusions

Top managers' perceptions contribute positively to innovation performance. The perceptions level of top managers will affect their decision-making and behavior, thereby affecting the innovation performance of the enterprise. The high-level willingness, configuration, and ability perceptions of top managers can enable them to efficiently improve and implement innovation strategies, overcome the limitations of resources and abilities in the development process, have relevant knowledge reserves for carrying out innovation activities, and have the ability to efficiently allocate firm resources to improve the firm's innovation performance. Composite capability is an effective mediator of the effect of top managers' perceptions on innovation performance in SMEs. Composite capabilities can help businesses collaborate and integrate existing tangible or intangible resources from both internal and external sources. The higher cognitive level of top managers helps enterprises achieve better resource integration by enhancing the composite capabilities of small and medium-sized enterprises, thereby helping them improve innovation performance.

This paper provides directions on how SMEs can overcome their difficulties and provides practical guidance on how to improve their innovation performance. The rise of trade protectionism and public health incidents have greatly increased the uncertainty of the environment, with serious implications for the development of SMEs. Difficulties in financing, disruptions in the production chain, increased costs and a host of other problems ensue. Therefore, small and medium-sized enterprises should adhere to innovation and pursue high-quality development. Firstly, top managers should continuously learn and practice, accumulate their own knowledge and experience, gradually form

and improve a structured knowledge framework system that is conducive to the development of the enterprise, thereby enhancing their cognitive level; Secondly, top managers should make full use of social networks, continuously break through organizational boundaries to identify and obtain the resources needed for enterprise development, and enhance the ability to creatively combine internal and external resources of the enterprise. They should also use resource combinations in suitable projects to elevate the construction of composite capabilities to a strategic position.

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