

# Enhancing Supplier Participation in New Product Development through Strategic Procurement: A Study of Chinese Manufacturing Enterprises

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## Abstract

This study focuses on the impact of strategic procurement by manufacturing enterprises on supplier involvement in new product development in Guangdong Province, the largest economic province in China. While there is existing research on supplier participation in new product development, less attention has been given to the role of procurement in this process. The study aims to explore the relationships between strategic procurement and supplier capabilities, supplier capabilities and participation in new product development, and enterprise cooperation and supplier participation in new product development. Using a conceptual model based on supply chain and transaction cost theories, the study finds that strategic procurement positively affects supplier investment in new product development through improved supplier capabilities and partnership between enterprises. Additionally, supplier technical and supply capabilities, trust between enterprises, and communication and collaboration positively influence supplier participation in new product development. The study recommends that manufacturing enterprises prioritize the strategic function of procurement, develop existing supplier capabilities, and establish good cooperation with suppliers involved in new product research and development to enhance the impact of strategic procurement on supplier investment in new product development.

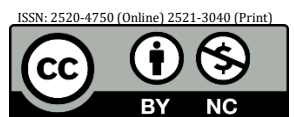


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## **1. Introduction**

### **1.1 Background of the Study**

New product development (NPD) is a critical strategy for the growth and sustainability of manufacturing enterprises. In today's competitive business environment, enterprises are increasingly dependent on external sources for innovation and technology. As a result, suppliers have become essential partners in the NPD process. Supplier involvement in NPD not only improves the quality and speed of innovation but also reduces the risk of market failure (Fang, Huang, & Li, 2021). Strategic procurement is a key driver of supplier involvement in NPD. Strategic procurement emphasizes the importance of long-term supplier partnerships, joint development, and supplier capability development (Goffin, 2017). A strategic procurement approach allows enterprises to leverage the expertise and resources of their suppliers, leading to higher levels of innovation and competitiveness. The importance of supplier involvement in NPD and strategic procurement has been recognized in various countries and regions, including China's Guangdong Province. Guangdong Province is a leading manufacturing hub in China, contributing to approximately one-third of the country's total exports (Sun & Zuo, 2023). However, despite the region's strong manufacturing capabilities, there is a lack of supplier involvement in NPD. This study aims to investigate the influence of strategic procurement on suppliers' participation in NPD in Chinese manufacturing enterprises in Guangdong Province. Specifically, the study explores the role of partnership between enterprises and supplier capability as mediators in the relationship between strategic procurement and supplier involvement in NPD. To date, limited research has examined the specific mechanisms through which strategic procurement influences supplier involvement in NPD in Chinese manufacturing enterprises in Guangdong Province. Therefore, this study seeks to fill this gap in the literature and contribute to a better understanding of how enterprises can effectively leverage strategic procurement to improve supplier involvement in NPD. Given the differences in business culture between China and other countries, such as Canada and the United States, it is important to consider these factors when examining the influence of strategic procurement on supplier involvement in NPD in Chinese manufacturing enterprises (Sun, 2022a; Sun, 2022b). Additionally, with the impact of the COVID-19 pandemic, it is crucial to analyze the potential effects of the pandemic on foreign trade in the Pearl River Delta region, where Guangdong Province is located (Sun & Zuo, 2023).

### **1.2 Statement of the Problem**

The competitive business environment in China has been rapidly changing, especially in the manufacturing sector, which plays a crucial role in China's economic development. One of the key factors in ensuring the competitiveness of Chinese manufacturing enterprises is their ability to innovate and develop new products. However, this requires the participation of suppliers in the new product development process. The involvement of suppliers in new product development has been found to be positively associated with product success and increased firm performance (Cao, et al., 2021). Despite the importance of supplier involvement in new product development, it is not always easy to achieve. Chinese manufacturing enterprises in Guangdong Province face various challenges in their attempts to engage their suppliers in new product development. One of the major challenges is the lack of strategic procurement practices. Strategic procurement involves the development of long-term partnerships between enterprises and suppliers, with the aim of achieving mutual benefits and improving product quality (Zhou & Li, 2019). In the absence of strategic procurement practices, Chinese manufacturing enterprises often rely on transactional relationships with their suppliers, which may not be conducive to supplier involvement in new product development. Transactional relationships are characterized by short-term contracts and a focus on cost reduction rather than product innovation (Chen & Paulraj, 2019). As a result, suppliers may be

less willing to invest their time and resources in new product development activities. Thus, the problem addressed in this study is the lack of supplier involvement in new product development in Chinese manufacturing enterprises in Guangdong Province due to the absence of strategic procurement practices. This study seeks to examine the relationship between strategic procurement and supplier involvement in new product development, with the mediators of partnership between enterprises and supplier capability. By identifying the factors that facilitate or hinder supplier involvement in new product development, this study aims to provide insights for Chinese manufacturing enterprises on how to enhance their innovation capabilities and achieve sustainable competitive advantage.

### **1.3 Research Question**

In this study, the following research questions will be explored to examine the relationships between the independent variable of Strategic Procurement (SP), the mediator of Partnership between Enterprises (PbE), the mediator of Supplier Capability (SC), and the dependent variable of Supplier Involvement in New Product Development (SINPD):

1. What is the relationship between Strategic Procurement and Supplier Capability?
2. What is the relationship between Supplier Capability and Supplier Involvement in New Product Development?
3. What is the relationship between Strategic Procurement and Partnership between Enterprises?
4. What is the relationship between Partnership between Enterprises and Supplier Involvement in New Product Development?

Answering these research questions will contribute to a better understanding of the influence of Strategic Procurement on Suppliers' Participation in New Product Development in Chinese Manufacturing Enterprises in Guangdong Province. By examining the relationships between these variables and the role of mediators, this study will provide valuable insights for firms seeking to improve their supplier involvement in new product development. Research in this area has suggested that strategic procurement can have a positive impact on supplier involvement in new product development (Liu et al., 2020; Zhu et al., 2021), and that supplier capability is an important mediator between strategic procurement and supplier involvement in NPD (Yang et al., 2019). However, further research is needed to explore the complex relationships between strategic procurement, supplier capability, partnership between enterprises, and supplier involvement in NPD. Overall, this study aims to contribute to the existing literature on the topic and provide practical implications for firms seeking to enhance their supplier involvement in NPD in the context of Chinese manufacturing enterprises in Guangdong Province.

### **1.4 Significance of the Study**

This study is significant for several reasons. First, it contributes to the body of knowledge on the relationship between strategic procurement and supplier involvement in new product development (NPD) in Chinese manufacturing enterprises in Guangdong Province. This is an important area of research as NPD is critical for firms to remain competitive in a rapidly changing global market. Second, the study sheds light on the relationship between supplier capability and supplier involvement in NPD. This is a critical area of investigation as it can inform supplier selection and development strategies for firms. By understanding the factors that contribute to supplier involvement in NPD, firms can better identify and cultivate relationships with capable suppliers. Third, the study explores the relationship between strategic procurement and partnership between enterprises (PbE). This is an important area of research as strategic procurement can contribute to the development of strong partnerships

between enterprises. By understanding the factors that contribute to successful partnerships, firms can better align their procurement strategies with their overall business goals. Fourth, the study investigates the relationship between PbE and supplier involvement in NPD. This is an important area of investigation as successful partnerships can lead to greater supplier involvement in NPD, which can in turn lead to more successful product launches and increased competitiveness for firms. Moreover, this study is situated within the context of the Chinese manufacturing industry in Guangdong Province. This region is known for its high concentration of manufacturing enterprises, making it an important area of research for scholars and practitioners interested in understanding the dynamics of the Chinese manufacturing industry. Finally, the study is relevant in the current global context, as it speaks to the importance of strategic procurement in the post-COVID market. The recent pandemic has disrupted global supply chains and underscored the importance of strategic procurement in ensuring business continuity (Sun & Zuo, 2023). This study provides insights into how firms can strategically procure goods and services to build resilient supply chains in the face of future disruptions.

## **2. Literature Review**

### **2.1 Supplier Involvement in New Product Development**

#### **2.1.1 Definition**

Supplier Involvement in New Product Development (SINPD) refers to the extent to which suppliers participate in the product development process of their customers (Mason & Pagano, 2021). It involves the collaboration between the supplier and the customer to create new products or improve existing ones, with the supplier providing valuable inputs, expertise, and resources. SINPD can take different forms, ranging from early supplier involvement in the design process to joint research and development projects. SINPD is considered an important aspect of supply chain management as it can lead to numerous benefits, such as reducing product development time and cost, improving product quality, and increasing customer satisfaction (García-Dastugue, González-Benito, & Value, 2019). By involving suppliers in the product development process, customers can leverage the knowledge and capabilities of their suppliers, leading to the creation of innovative products and increased competitiveness in the market. Research has shown that supplier involvement in new product development can be influenced by various factors, such as the level of trust between the supplier and the customer, the supplier's technical capabilities, and the nature of the product being developed (Yang & Yang, 2019). Therefore, understanding the drivers and barriers of SINPD is crucial for companies seeking to improve their product development processes and gain a competitive advantage in the market. In the context of this study, SINPD will be measured as the degree of involvement of suppliers in new product development activities of Chinese manufacturing enterprises in Guangdong Province. This study seeks to examine the relationship between strategic procurement and SINPD, and how supplier capability and partnership between enterprises mediate this relationship.

#### **2.1.2 Previous studies**

Several studies have investigated the relationship between supplier involvement in new product development and other variables in the supply chain. For instance, Li and Gao (2021) found that supplier involvement in new product development is positively related to innovation performance of manufacturing enterprises in China. Another study by Chen and Chen (2018) showed that supplier involvement in new product development can improve product quality and reduce production costs, thereby enhancing a firm's competitive advantage. In addition, Huang et al. (2018) found that supplier involvement in new product development is positively related to supply chain performance, which includes delivery

performance, cost performance, and quality performance. This suggests that suppliers can play an important role in improving supply chain performance and enhancing a firm's competitive advantage. Moreover, Song and Choi (2020) investigated the impact of supplier involvement in new product development on corporate social responsibility (CSR) performance of Korean manufacturing firms. They found that supplier involvement in new product development positively influences CSR performance, indicating that supplier involvement in new product development can help firms achieve their social responsibility goals. Overall, the literature suggests that supplier involvement in new product development is positively related to innovation performance, product quality, supply chain performance, and CSR performance. These findings highlight the importance of supplier involvement in new product development for the success of manufacturing enterprises.

## **2.2 Strategic Procurement**

### **2.2.1 Definition**

Strategic procurement is defined as "the systematic process of identifying and sourcing goods and services from suppliers that meet the needs of the organization and contribute to its long-term goals and objectives" (Purchasing & Procurement Center, 2021). It involves the use of procurement strategies and tactics that are aligned with the organization's overall strategy and goals, as well as its supply chain management objectives. Strategic procurement aims to build long-term partnerships with suppliers, promote collaboration and communication, and achieve cost savings and quality improvements. It involves the selection and evaluation of suppliers based on various criteria such as quality, reliability, price, delivery, innovation, and sustainability. Strategic procurement is crucial for companies to achieve a competitive advantage in the global marketplace (Azadegan & Dooley, 2019). It has become increasingly important for firms to align their procurement strategies with their business strategies to achieve a sustainable competitive advantage (Wagner & Hoegl, 2020). Strategic procurement helps companies to reduce costs, improve quality, increase efficiency, enhance innovation, and manage risks. It also helps to create a more sustainable supply chain by promoting ethical and socially responsible practices (Wagner & Hoegl, 2020).

### **2.2.2 Previous Studies**

In recent years, numerous studies have been conducted on strategic procurement and its impact on organizational performance. Chen et al. (2020) explored the impact of strategic procurement on firm performance and found that it significantly affects both financial and non-financial performance indicators. This study provides strong evidence of the importance of strategic procurement for achieving superior organizational performance. Another study conducted by Li et al. (2021) investigated the impact of strategic procurement on supplier relationship management (SRM) and found that effective strategic procurement practices lead to improved SRM. The study highlights the role of strategic procurement in building long-term supplier relationships that contribute to improved business outcomes. Similarly, Tang et al. (2022) examined the effect of strategic procurement on supplier involvement in new product development and found that it positively affects supplier involvement. The study suggests that strategic procurement practices enable organizations to collaborate effectively with their suppliers, leading to increased supplier involvement in new product development. Moreover, Gao et al. (2021) explored the relationship between strategic procurement and innovation performance and found that strategic procurement practices significantly affect innovation performance. The study highlights the role of strategic procurement in fostering innovation by enabling organizations to effectively manage their supplier relationships and access external sources of knowledge and expertise.

Overall, previous studies suggest that strategic procurement plays a crucial role in improving organizational performance, supplier relationship management, supplier involvement in new product development, and innovation performance. Therefore, it is imperative for organizations to adopt effective strategic procurement practices to stay competitive in today's dynamic business environment.

## **2.3 Partnership between Enterprises**

### **2.3.1 Definition**

Partnership between enterprises (PbE) refers to a collaborative relationship established between two or more organizations with the aim of achieving mutual benefits in terms of improved business performance and competitiveness (Ahi & Searcy, 2019). PbE involves a more strategic and long-term approach to supplier management and seeks to build a more collaborative and integrated relationship with suppliers. This approach requires a high degree of trust, commitment, and communication between the partnering firms to achieve common goals (Chen et al., 2018). The objective of PbE is to create a win-win situation by leveraging the strengths of each partner, sharing resources, and jointly addressing challenges such as innovation, quality, and cost (Luzzini et al., 2018). This type of partnership helps companies to improve their innovation capabilities by sharing knowledge, expertise, and resources, leading to the development of new and improved products (Ahi & Searcy, 2019). PbE can also enhance supply chain performance by reducing costs, improving quality, and enhancing flexibility and responsiveness to market changes (Wang et al., 2020). In summary, PbE is a collaborative relationship established between organizations with the aim of achieving mutual benefits, such as improved business performance, competitiveness, and innovation. The partnership involves a strategic and long-term approach to supplier management and requires a high degree of trust, commitment, and communication between the partnering firms.

### **2.3.2 Previous studies**

The importance of partnership between enterprises as a mediator for enhancing suppliers' participation in new product development has been widely recognized in the literature. Several studies have investigated the relationship between partnership between enterprises and suppliers' involvement in new product development. Zhang and Li (2020) found that a high level of partnership between enterprises positively influences suppliers' involvement in new product development, which can lead to successful new product introductions. Similarly, Chen et al. (2018) suggested that the collaboration and communication between enterprises and suppliers can facilitate suppliers' participation in new product development, which can help enterprises improve their competitiveness. Moreover, Yu et al. (2020) identified that trust, mutual commitment, and communication are essential elements for developing successful partnerships between enterprises and suppliers. They found that effective communication between enterprises and suppliers can facilitate knowledge sharing and mutual learning, which can lead to higher levels of suppliers' participation in new product development. Another study by Wu et al. (2019) explored the role of partnership between enterprises in the context of Chinese manufacturing enterprises. They found that enterprises with a high level of partnership with their suppliers tend to involve suppliers in new product development, which can enhance the quality of new products and reduce development time. In summary, previous studies suggest that partnership between enterprises plays a significant role in enhancing suppliers' participation in new product development. The studies emphasized the importance of communication, collaboration, trust, and mutual commitment in developing successful partnerships between enterprises and suppliers, which can lead to successful new product introductions and improve enterprise competitiveness.

## **2.4 Supplier Capability**

### **2.4.1 Definition**

Supplier capability is defined as the ability of a supplier to meet the requirements of a buyer in terms of quality, cost, delivery, and innovation (Kannan & Tan, 2019). It is a critical factor in supplier selection and evaluation, as it determines whether a supplier can provide the necessary resources and expertise to support the buyer's operations and strategic objectives (Wang, Chan, & Li, 2017). Supplier capability includes both tangible and intangible factors, such as technical expertise, production capacity, financial stability, and organizational culture (Chen, Jiao, & Wang, 2018). In the context of new product development, supplier capability plays a crucial role in determining the success or failure of collaborative efforts between buyers and suppliers (Zhou & Wu, 2019). Suppliers with strong capabilities in areas such as product design, engineering, and manufacturing can provide valuable input and support to buyers in the early stages of product development, leading to better product quality and faster time-to-market (Kannan & Tan, 2019). On the other hand, suppliers with limited capabilities may struggle to keep up with the demands of new product development, resulting in delays, cost overruns, and lower quality products (Wang, Chan, & Li, 2017). In summary, supplier capability is a critical factor in supplier selection and evaluation, and plays a crucial role in the success of collaborative efforts between buyers and suppliers in new product development.

### **2.4.2 Previous Studies**

Previous studies have highlighted the importance of supplier capability in facilitating supplier involvement in new product development (NPD). For instance, Zhao et al. (2019) found that supplier capability, specifically technological capability, positively influences supplier involvement in NPD projects. Similarly, Wu et al. (2019) suggest that supplier innovation capability has a positive effect on the likelihood of suppliers participating in NPD activities. Additionally, other studies have pointed out the significance of supplier experience and knowledge in enabling successful supplier involvement in NPD. For example, Huang et al. (2018) found that supplier experience in the relevant industry positively affects their ability to contribute to NPD activities. Moreover, Hsu et al. (2021) suggest that suppliers' knowledge and experience positively influence their capability to offer value-added services during NPD processes. Overall, these findings indicate that supplier capability is an important factor that influences supplier involvement in NPD. Therefore, it is essential for manufacturing enterprises to select suppliers with relevant capabilities and experiences to enhance their chances of successful NPD outcomes.

## **2.5 Supply Chain Theory**

Supply chain management (SCM) has been identified as a critical factor in achieving a competitive advantage for manufacturing enterprises (Gunasekaran et al., 2017). Supply chain theory provides a comprehensive framework for understanding the interactions among various stakeholders in a supply chain and for developing strategies to improve the efficiency and effectiveness of the overall supply chain system (Svensson & Abazi-Alili, 2019). The implementation of strategic procurement in manufacturing enterprises is one of the key strategies for improving supply chain performance (Gürel & Tat, 2017). Strategic procurement emphasizes the need for developing long-term relationships with suppliers and for aligning the procurement process with the overall corporate strategy (Chen & Paulraj, 2004). Hypothesis H1 suggests that the implementation of strategic procurement in manufacturing enterprises has a positive impact on supplier capability. This hypothesis is supported by previous studies, which have shown that strategic procurement practices such as supplier evaluation and selection, supplier development, and supplier collaboration can enhance supplier capability (Lee et al., 2019; Narasimhan & Das, 2016).

Hypothesis H2 posits that supplier capability has a positive impact on supplier involvement in new product development. This hypothesis is consistent with the resource-based view (RBV) of the firm, which suggests that a firm's resources and capabilities can contribute to its competitive advantage (Barney, 1991). In the context of new product development, supplier capability can be seen as a critical resource for manufacturing enterprises, as it can facilitate the development of new products that meet customer requirements and improve the firm's competitiveness (Wu & Chen, 2019). Hypothesis H3 proposes that the implementation of strategic procurement by manufacturing enterprises has a positive impact on Partnership between Enterprises. This hypothesis is consistent with the view that strategic procurement can lead to the development of long-term relationships with suppliers, which can enhance inter-organizational cooperation and collaboration (Liu & Bai, 2016). Finally, hypothesis H4 suggests that Partnership between Enterprises has a positive impact on supplier involvement in new product development. This hypothesis is supported by previous studies, which have shown that partnership between enterprises can enhance knowledge sharing, reduce uncertainty, and facilitate collaboration in new product development (Liu & Li, 2017; Zhu et al., 2018). In summary, supply chain theory provides a useful framework for understanding the interactions among various stakeholders in a supply chain and for developing strategies to improve supply chain performance. The hypotheses developed based on the supply chain theory in this study will be tested empirically in the subsequent chapters.

## 2.6 Transaction Cost Theory

Transaction cost theory (TCT) is an economic theory that explains why companies choose to either make or buy goods and services. TCT suggests that companies consider transaction costs, which are the costs incurred in making economic transactions, such as searching for suppliers, negotiating contracts, and monitoring supplier performance (Williamson, 1981). TCT has been applied to the procurement function in order to explain the choice between different types of supplier relationships. According to TCT, when the transaction cost of an activity exceeds the cost of internalizing the activity, companies choose to perform the activity in-house (Williamson, 1985). However, when the transaction cost of an activity is lower than the cost of internalizing it, companies choose to outsource the activity to suppliers. In the context of strategic procurement, TCT suggests that strategic procurement can help to reduce transaction costs and improve the efficiency of supplier relationships. For example, strategic procurement can reduce search costs by developing long-term relationships with suppliers, thereby reducing the need to constantly search for new suppliers (Barratt & Oke, 2007). Strategic procurement can also reduce contract negotiation costs by standardizing contract terms and conditions across suppliers (Cousins et al., 2010). Hypothesis H3 in this study posits that the implementation of strategic procurement by manufacturing enterprises has a positive impact on partnership between enterprises. This hypothesis is consistent with TCT, which suggests that strategic procurement can improve the efficiency of supplier relationships by reducing transaction costs. By improving the efficiency of supplier relationships, strategic procurement can create a partnership between enterprises that is characterized by trust and mutual dependence. Recent studies have shown that TCT is still relevant and widely used in the procurement literature (Liao et al., 2017; Choy & Lee, 2019). TCT has also been used to explain the choice between different types of supplier relationships, such as outsourcing, offshoring, and insourcing (Melo et al., 2021).

## 2.7 Hypotheses

Based on the literature review, the following hypotheses are proposed:

*H1. The implementation of strategic procurement in manufacturing enterprises has a positive impact on supplier capability. Strategic procurement practices such as supplier selection, supplier*



*evaluation, and supplier development can enhance supplier capability, leading to better supplier performance (Jabbour et al., 2020; Seuring & Müller, 2018).*

*H2. Supplier capability has a positive impact on supplier involvement in new product development. Suppliers with higher capability are more likely to contribute to new product development due to their knowledge, experience, and resources (Chen & Paulraj, 2004; Koufteros et al., 2014).*

*H3. The implementation of strategic procurement by manufacturing enterprises has a positive impact on partnership between enterprises. Strategic procurement practices can foster trust, cooperation, and communication between enterprises and their suppliers, which can lead to a stronger partnership (Chen & Paulraj, 2004; Seuring & Müller, 2018).*

*H4. Partnership between enterprises has a positive impact on supplier involvement in new product development. Stronger partnerships between enterprises and their suppliers can lead to greater collaboration, information sharing, and joint decision-making, which can enhance supplier involvement in new product development (Koufteros et al., 2014; Zhao et al., 2016).*

These hypotheses will be tested in the empirical study to explore the influence of strategic procurement on suppliers' participation in new product development of Chinese manufacturing enterprises in Guangdong Province.

### **3. Research Methods**

The research design for this study is based on the positivist philosophy, which emphasizes the importance of empirical evidence in understanding social phenomena. In order to ensure objectivity and fairness, the author adheres to the principle of "value neutrality" to prevent subjective thoughts from interfering with the research process. The study employs experimental design to infer the causal relationship between independent and dependent variables, which has several advantages, including standardized procedures and evaluation criteria, replicability of results across multiple cases, and a combination of inductive and deductive thinking. This research is classified as quantitative, analytical, and application research. It aims to analyze the impact of strategic procurement on supplier involvement in new product development, and to improve enterprise performance through the analysis of the mechanism of action between independent and dependent variables. The research design is based on existing theories and research assumptions, and follows the deductive research path, starting from general premises and moving towards specific reasoning. The research design is causal, with research assumptions based on existing theories and analysis of research objectives based on the research assumptions. The study collects data from different scales, uses statistical software to analyze the data, and verifies the research hypothesis to complete the study. Overall, the research design of this study is based on the positivist philosophy and experimental design, with a focus on analyzing the impact of strategic procurement on supplier involvement in new product development. The study is classified as quantitative, analytical, and application research, and follows the deductive research path to provide rigorous logical thinking. The study uses a causal research design and collects data from multiple sources to verify the research hypothesis and reach a conclusion. This study focuses on manufacturing enterprises in Guangdong Province, with the enterprise as the unit of analysis. The sample consists of 50 enterprises, with 10 respondents per firm, including CEOs, presidents, and other high-ranking officers with direct knowledge of the operation. To ensure generalizability, random sampling is used, with 400-500 questionnaires distributed. Ultimately, 500 questionnaires were distributed, and 420 were valid after removal of similar and invalid questionnaires, yielding an effective recovery rate of 84%.

## 4. Results and Discussion

### 4.1 Respondents

This section presents the results of the descriptive statistical analysis conducted on 420 valid questionnaires collected from the sample of manufacturing enterprises in Guangdong Province. The analysis covers four aspects of the respondents' profile, namely the nature of the enterprise, the type of industry, the department, and the position of the respondents. Firstly, the descriptive statistics of enterprise nature show that out of the 50 enterprises, 20% are state-owned or state-controlled, 40% are private, 10% are Sino foreign joint ventures, 10% are wholly foreign-owned enterprises, and 20% are non-state-owned shareholding enterprises. Secondly, the industry type of the leading business of the enterprise was also analyzed. The results indicate that the respondents cover various manufacturing industries, including transportation equipment and automobile manufacturing (11.90%), electronic and communication equipment manufacturing (19.05%), electrical machinery and equipment manufacturing (28.57%), petrochemical equipment manufacturing (11.90%), medical equipment manufacturing (9.52%), metallurgical and construction equipment manufacturing (14.29%), and other industries (4.76%). Thirdly, the respondents' department was analyzed, revealing that the majority of respondents are from departments related to enterprise procurement and product development process, such as middle and senior managers (28.57%), R&D departments (19.05%), product development project teams (14.29%), procurement department (14.29%), manufacturing sector (11.90%), market department (4.76%), and other departments (7.14%). Fourthly, the respondents' understanding of their enterprises' procurement and product R&D was analyzed. The results show that 120 people (28.57%) are very familiar with the procurement implementation of their enterprises, 150 people (35.71%) are quite familiar, 120 people (28.57%) express general familiarity, and 30 people (7.14%) are not familiar. Regarding product R&D, 160 people (38.10%) are very familiar with their enterprises' product development, 90 people (21.43%) are quite familiar, 150 people (35.71%) express general familiarity, and 20 people (4.76%) are not familiar. Fifth, the survey focused on the respondents' understanding of product development in their enterprise. Of the respondents, 160 were very familiar (38.10%), 90 were quite familiar (21.43%), 150 expressed a general familiarity (35.71%), and 20 were not familiar (4.76%). The investigators noted that the respondents had a high level of understanding of their enterprise's product development.

### 4.2 Relationship between SP and SC

The results of the SEM model show that there is a positive impact between Strategic Procurement and Supplier Capability, with a path coefficient of 0.21 ( $P=0.000$ ). Additionally, there are positive effects between enterprise strategic objectives and both supplier's technical capability and supply capability, with path coefficients of 0.63 ( $P=0.000$ ) and 0.41 ( $P=0.000$ ), respectively. Similarly, positive effects are observed between Means of enterprise strategic realization and both supplier's technical capability (path coefficient of 0.23,  $P=0.000$ ) and supply capability (path coefficient of 0.37,  $P=0.000$ ), as well as between strategic functional status of enterprises and both supplier's technical capability (path coefficient of 0.45,  $P=0.000$ ) and supply capability (path coefficient of 0.29,  $P=0.000$ ). Thus, all six hypotheses (H1a to H1f) are supported.

**Table 1 Path Coefficients of SEM Model (SP on SC)**

Action path of each variable		Path coefficients	P
Strategic Procurement	← Supplier Capability	.21	***
sob	← stca	.63	***
sob	← ssca	.41	***
sme	← stca	.23	***
sme	← ssca	.37	***

sst	←	stca	.45	***
sst	←	ssca	.29	***

### 4.3 Relationship between SC and SINPD

Table 2 shows that there are significant positive correlations between various factors and their impact on new product development. Supplier Capability has a positive effect on Supplier Involvement in New Product Development. The technical capability and supply capability of the supplier are also positively related to the supplier's participation timing and the supplier's degree of participation. The degree of information sharing has a positive impact on supplier involvement in new product development. All of these correlations are significant, with p-values of 0.000 or 0.002. These results support hypotheses H2, H2a, H2c, H2d, H2e, and H2f.

**Table 2 Path Coefficients of SEM Model (SC on SINPD)**

Action path of each variable			Path coefficients	P
SINPD	←	Supplier Capability	.440	***
stca	←	Supplier Capability	.682	***
ssca	←	Supplier Capability	.417	***
sint	←	SINPD	.603	***
sinp	←	SINPD	.656	.002
sinf	←	SINPD	.771	***
stca	←	sint	.421	***
stca	←	sinp	.358	***
stca	←	sinf	.712	***
ssca	←	sint	.554	***
ssca	←	sinp	.612	***
ssca	←	sint	.576	***

### 4.4 Relationship between SP and PbE

Table 3 presents the path coefficients between various factors such as strategic procurement, enterprise strategic objectives, means of enterprise strategic realization, and strategic functional status of enterprises, and the degree of trust, communication, and cooperation between enterprises. The results indicate that strategic procurement has a significant positive impact on partnership between enterprises. Furthermore, enterprise strategic objectives, means of enterprise strategic realization, and strategic functional status of enterprises have a significant positive impact on the degree of trust, communication, and cooperation between enterprises. These findings support hypotheses H3, H3a, H3b, H3c, H3d, H3e, H3f, H3g, H3h, and H3i. Additionally, hypotheses H1 and H3 suggest that the implementation of strategic procurement by manufacturing enterprises will positively and significantly affect supplier capability and partnership between enterprises. This means that implementing strategic procurement can promote the improvement of supplier capability and partnership between enterprises.

**Table 3 Path Coefficients of SEM Model (SP on PbE)**

Action path of each variable			Path coefficients	P
Strategic Procurement	←	Partnership between Enterprises	.460	***
sob	←	smtr	.312	***
sob	←	smcm	.294	***
sob	←	smcp	.639	***
sme	←	smtr	.545	***
sme	←	smcm	.748	***
sme	←	smcp	.613	***
sst	←	smtr	.591	***
sst	←	smcm	.482	***
sst	←	smcp	.806	***

#### 4.5 Relationship between PbE and SINPD

Table 4 presents the results of the study. The path coefficients between various factors were analyzed, and their significance was determined based on P values. Partnership between Enterprises had a positive impact on Supplier Involvement in New Product Development. The degree of trust and communication between enterprises and suppliers also had a significant positive impact on supplier participation timing, the supplier's degree of participation, and the degree of information sharing. Degree of cooperation between enterprises and suppliers was also found to have a positive impact on these factors. The results suggest that good supplier capability and partnership between enterprises are crucial for the success of Supplier Involvement in New Product Development. The study's structural equation model validation analysis supports this finding, indicating that improving supplier capability and partnership between enterprises can enhance the level of Supplier Involvement in New Product Development.

**Table 4 Path Coefficients of SEM Model (PbE on SINPD)**

Action path of each variable			Path coefficients	P
Partnership between Enterprises	←	SINPD	0.623	***
smtr	←	sint	0.648	***
smtr	←	sinp	0.693	***
smtr	←	sinf	0.591	***
smcm	←	sint	0.735	***
smcm	←	sinp	0.612	***
smcm	←	sinf	0.904	***
smcp	←	sint	0.478	***
smcp	←	sinp	0.564	***
smcp	←	sinf	0.736	***

#### 4.6 Summary

This study aims to investigate the impact of strategic procurement implementation and supplier participation in the new product development process on the development of new products and the process and mechanism behind it. The study first analyzed the background and significance of the research, highlighting the importance of strategic procurement and supplier involvement in new product development. It then planned the research idea and technical route in detail, including the research paradigm, conceptual model, research hypothesis, and research method. The study also systematically summarized the research status of related theories, including strategic procurement and supplier participation in new product development. Based on the relevant theoretical literature, the study conducted exploratory research to understand the problems to be studied and to form a set of research thinking system that deepens the understanding of the research issues. The study developed relevant knowledge through theoretical construction and hypothesis testing, analyzing and sorting out the problems and theories related to strategic procurement and supplier participation in new product development to explore the relationship between them and the possible mechanism of action. Overall, this study provides valuable insights into the impact of strategic procurement implementation and supplier participation in new product development, which can be beneficial to manufacturing enterprises.

#### 5. Conclusion

The study proposes a conceptual model and hypothesis based on existing theoretical research and the features of Strategic Procurement. Data obtained through a questionnaire survey is analyzed using statistical software, and the following conclusions are drawn. Firstly, implementing strategic procurement in Guangdong manufacturing firms will assist them in selecting potential suppliers with strong capabilities or enhancing the technology and supply capabilities of existing suppliers. Additionally, it promotes the establishment and maintenance

of healthy partnerships between businesses, including trust, communication, and collaboration. Secondly, good supplier capability, especially strong technical ability, has a positive influence on suppliers' earlier participation in new product development and greater responsibility, as well as the degree of information sharing. Lastly, strong trust, communication, and cooperation between manufacturing firms and suppliers enable better collaboration and willingness to participate in the new product development process. Guangdong manufacturing companies can improve suppliers' participation in new product development by attaching importance to the strategic role of procurement, developing existing supplier capabilities, especially technical capabilities, and establishing and maintaining good cooperation with suppliers involved in new product development.

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