

# *Factors Influencing the Quality Performance of "Specialized and New" Enterprises*

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**Abstract:** With the gradual implementation of the policy, how to improve the quality performance of "Specialized and new" enterprises needs to be addressed. Based on the current development situation of "Specialized and new" enterprises, this paper analyzes the internal innovation mechanism of enterprises and discusses the key factors influencing the quality performance of "Specialized and new" enterprises in terms of innovation capability, quality culture and supply chain quality risk, so as to promote the quality performance of "Specialized and new" enterprises. The paper discusses the key factors influencing the quality performance of "Specialized and new" enterprises in terms of innovation capability, quality culture and supply chain quality risk, and promotes the development of "Specialized and new" enterprises across the quantum, and proposes corresponding management suggestions.

## **1. Introduction**

In the post-epidemic era, the trend of counter-globalization has intensified, the global value chain and industrial chain have been reconfigured, and some of the key assembly components in China are in short supply, leading to the suspension of final products [1]. Therefore, the implementation of hard science and technology innovation by "Specialized and new" enterprises is a key initiative to enhance the independent controllability and integrity of China's key technology supply chain [2]. It is easier for "specialized and new" SMEs to implement innovation in strategy, management and technology [3], promote the implementation of regional innovation strategies, provide economic vitality for high-quality economic development, and are highly supported by the government [4]. At the same time, "Specialized and new" enterprises with specialized positioning can form a precise management system, which can achieve cross-sector expansion and drive the synergistic effect of upstream and downstream of the industrial chain at the same time good management. Its gradient-based incubation system can motivate enterprises to seek cross-volume development proactively [2], undertake the mission of being the engine of science and technology innovation, enhance the peer effect of their peers, and advance the process of 2025 manufacturing power.

The empirical study by J. Liu (2022) proved that quality management practices positively affect manufacturing performance [5]. With the constraint and improvement of enterprise quality

management, scholars have constructed a comprehensive quality performance evaluation system to refine specific quality management results, optimize quality issues, and improve product reliability and customer satisfaction. Wan (2012) argued that the evaluation of quality performance is a comprehensive evaluation of the results of quality practices and the productive capacity of organizational quality capabilities [6], which helps enterprises to identify and fill in the gaps, promote the process of product quality innovation, and gain sustainable competitiveness. In summary, this paper investigates the factors influencing the quality performance of "specialized and new" enterprises, improves the quality capability of enterprises at this stage, stabilizes technological advantages, leads technological innovation, and forms the trend of collaborative innovation and integrated development of enterprises in the industrial chain [7] to enhance the resilience of China's economic growth.

Specifically, the purpose and significance of this paper are as follows: to gain an in-depth understanding of the characteristics and practices of the specialized and new enterprises, and to provide a background and foundation for studying the quality performance of enterprises; To investigate the factors affecting the quality performance of specialized and special new enterprises, and to provide a theoretical basis for improving the quality performance of enterprises; To verify the effects of different factors on the quality performance of enterprises through empirical studies and case studies, and to provide practical references for enterprises to formulate; To provide practical reference for the formulation of quality performance management strategies through empirical studies and case studies ;To propose countermeasures and suggestions for improving quality performance, providing guidance for enterprises to improve quality performance, enhance competitiveness and achieve sustainable development.

## **2. Theoretical Basis**

### **2.1 Connotation of "Specialized and New" Enterprises**

"Specialized and new" enterprises emphasize business and strategic focus, and rely on the principles of specialization, sustainability and long-term, relying on a refined management system, gradually migrating from low-end to high-end positioning in niche areas, continuous innovation, and continuous improvement of products, technologies and services. The Ministry of Industry and Information Technology clearly points out that high-quality SMEs are those with strong innovation ability in products, technology, management and mode, focusing on niche markets and good growth, and proposes the construction of a "Small Giant" enterprise comprising innovative SMEs, "Specialized and New" SMEs and Specialized and New It proposes to build a gradient cultivation system of high-quality SMEs, which includes 3 levels of innovative SMEs, "specialized and new" SMEs and specialized and new "Small giant" enterprises [2]. This cultivation system can provide clear goals for each gradient, guide enterprises to progress step by step, enhance their capabilities and cultivation goals to complement each other, reduce the phenomenon of hidden technical knowledge, break the technical barriers, follow the leading enterprises and achieve cross-volume development.

### **2.2 Quality Performance**

Quality performance is a multidimensional evaluation system that digitizes the results of a company's quality management practices. It is more oriented to the comprehensive measurement of several specific indicators, such as product or service quality, productivity, scrap and rework costs, delivery lead time of purchased materials and delivery lead time of finished products to customers[8]. Total Quality Management is a process management that positively affects product

quality, i.e., quality performance. While the basis of competitive advantage for manufacturing companies is currently shifting from quality to innovation, TQM can improve product quality based on the promotion of innovation[9]. Therefore, we investigate the feasibility and limitations of quality performance for the inter-volume development of "Specialized and new" enterprises by measuring the quality performance of "Specialized and new" enterprises and investigating the mechanism of internal TQM and innovation.

### **3. Analysis of the Factors Influencing the Quality Performance of "Specialized and New" Enterprises**

#### **3.1. The Relationship between Innovation Capability and Quality Performance of "Specialized and New" Enterprises**

"The only way to save them is to actively seek innovation, including green eco-innovation and hard technology innovation. Green eco-innovation takes environmental protection as the primary purpose, using green technology to reduce the waste of raw materials, improve the process, reduce the cost of waste disposal, and reduce environmental pollution from the root[10]. While "Specialized and new" enterprises should pay attention to the sustainable impact on the environment while developing themselves, the management of the ecological environment of the factory needs to introduce green eco-innovation, but the sustainable development of manufacturing enterprises is based on green quality management. Manufacturing enterprises should integrate the green system into the whole cycle of product production, focus on green quality, incorporate green indicators into the comprehensive quality evaluation of enterprises[11], and balance the relationship between society, environment and profit.

Green technology is the key to implementing green quality management. The company's existing processes, production equipment and waste disposal methods are the key parts of the green quality management system to improve. Companies Integrate environmental requirements into the process, improve the original rough and tedious production methods, reducing time and material costs, and increasing product yield. At the same time, technological innovation promotes equipment replacement, abandoning crude production methods, improving efficiency and reducing equipment maintenance costs. In the digital era, "specialized and new" enterprises introduce digital products into the green quality management system, always supervise quality data, continuously improve existing quality problems, and meet the green needs of customers as the primary purpose to obtain long-term relationships. Therefore, eco-green innovation is positively influencing the quality performance of "Specialized and New" companies.

Hard technology has the characteristics of continuous innovation, high technical requirements and wide range of applications, which are similar to general technology and core technology[12]. [2]"Specialized and new" enterprises emphasize on developing high-end products, capturing high-end markets and providing high-end services, which require and rely on high technology. Innovation performance, therefore, hard technology innovation is essential. Hard technology innovation is all about pursuing deeper transformative innovation after the maturity of general-purpose technology, for example, the current stage of digital technology, which is built on the basis of massive data computing, seeking simpler, faster and more intelligent algorithms[12], forming the industry characterized by the development trend of artificial intelligence, which greatly solves the problem of production resource allocation, while promoting business model innovation[13], stimulating enterprises to invest a lot of dedicated assets, allocate specialized docking process routes, personnel as well as equipment, lead to enterprises towards advanced routes of industrial base, firmly grasp the general technology, solidify the position in the industrial chain, attract potential customers and establish a good quality image.

Due to the scale of "specialized and new" enterprises, the output of technology greatly forms a cluster effect, which greatly promotes industrial transformation[14], and hard technology innovation can also provide "specialized and new" enterprises with green technology, which can be certified by the government and gain more carbon market. The hard-tech innovation can also provide green technology for "specialized and new" enterprises to obtain more carbon market through government certification, and get green credit from financial institutions to relieve the financial pressure [15], which can positively stimulate R&D efforts and bring sustainable competitiveness and expand market share for enterprises. In summary, creativity positively affects the quality performance of "Specialized and new" enterprises.

### **3.2. The Relationship between Quality Culture and Quality Performance of "Specialization and Innovation" Enterprises**

Quality is a soft power for companies to compete. With the rapid economic development and digital technology, customers' demands for quality and services are changing rapidly [16], traditional quality management cannot achieve better growth of corporate performance and requires deep organizational changes to better deploy quality management practices across departments. The lack of quality culture often leads to quality process reengineering and departmental planning failure, which will seriously threaten the survival of the organization [17]. Therefore, the relationship between different quality cultures and quality performance in " Specialized and new " enterprises is studied.

For an employee empowerment-oriented quality culture, the focus is more on guiding employees' quality awareness and forming a bottom-up unified quality culture. For the above scenario, the leader is quality-oriented, focuses on cultivating a good quality concept among employees, motivates employees to learn quality management skills, improves the awareness of prevention beforehand, and works in strict accordance with international quality standards, so that the whole enterprise has a unified quality management system[18], which facilitates communication between departments and improves the efficiency of information transfer, effectively reducing the loss rate and improving individual performance. At the same time, the employees of "Specialized and New" companies with such quality culture are more inclined to absorb advanced quality management experience, which facilitates the work and greatly improves the quality performance of the company.

For an improvement and innovation oriented quality culture there is a preference for developing dynamic capabilities in quality management. Companies are adept at capturing the quality needs of their customers and responding positively to new service demands[19], which poses a great challenge to the overall innovation capability as well as the dynamic capability of the company. However, this type of corporate culture is better able to absorb foreign quality culture and promote cultural integration. In addition, companies pursuing quality innovation are better at attracting outstanding foreign talents, focusing on cooperation between industry, academia and research, and driving the overall quality development of the company with technological innovation[20]. For "Specialized and New" enterprises, the demand for quality innovation increases and quality management practices are enhanced, which can effectively improve product quality. At the same time, quality innovation requires more knowledge from employees, which can fully drive the enthusiasm of quality learning of employees, and employees with innovation needs at the grassroots level can take the initiative to propose practical quality innovation initiatives to effectively solve enterprise quality problems, thus improving enterprise performance[16].

For a quality culture with strict quality control and a rigorous hierarchy of requirements, strict supervision by the leadership is essential. This type of company focuses more on strict monitoring

of the quality process, focusing on the use of quality tools to monitor the quality of the entire process of product production, so that product quality is transparent[21]. This culture can standardize the various processes of products, eliminate quality errors from the source, and facilitate quality traceability. At the same time, the strict requirements of quality can cultivate a sense of quality responsibility among employees, who can be more rigorous and responsible in their work, reduce the error rate, reduce the number of rework, effectively improve the product qualification rate, and greatly guarantee the delivery time[22], harvest customer trust and satisfaction, attract potential customers, and directly link to corporate performance. Therefore, a rigorous quality culture can also promote quality performance.

For the last type of market and customer demand-oriented quality culture, it advocates quality management to keep up with the times and has the characteristics of flexibility and agility[16]. In the digital era, the Internet of Things, big data, and artificial intelligence are emerging, and these digital technologies are being applied to industry to improve efficiency while changing user needs, and the market is changing due to the new technologies. This quality culture requires companies with agile manufacturing and response mode, high production flexibility, the ability to keenly observe market demand and thus change strategy to new product development[23], which requires high overall research capabilities and market forecasting capabilities, but continuous improvement of quality management is expected to yield greater returns, high market share, and can effectively improve the "specialization and innovation The comprehensive strength of "Specialized and new " enterprises, thus achieving cross-volume development[24]. In summary, quality culture can significantly influence quality performance.

### **3.3. The Relationship between Supply Chain Quality Risk and Quality Performance of "Specialized and New" Enterprises**

Supply chain quality risk is the quality risk management of the whole life cycle of the product, which also includes the quality risk management of the interaction between the enterprise and the external environment, such as the quality management of raw materials delivered by suppliers in the upstream of the supply chain and the sales of products and after-sales protection of customers in the downstream of the supply chain[25], which involves a wide range and complex processes with multiple conflicts of interest for the enterprise. It is difficult for enterprises to trace the quality of products from the source, and the information asymmetry caused by logistics and information flow passing through the supply chain[26] dramatically hinders enterprise quality management. Therefore, appropriate initiatives to control supply chain quality risk are vital.

For the upstream of the supply chain, "specialized and new" enterprises pay attention to the protection of the rights and interests of both parties when assessing the quality risk of the supply chain. Therefore, "Specialized and new " companies should take the leadership of the upstream supply chain, fully coordinate the supply chain members' relationship, establish uniform quality standards, and make both parties share the risk and transfer the bearer of the risk by signing a contract[25]. At the same time, companies and suppliers simultaneously conduct quality training, standardize production processes, improve the transparency of raw materials, and form a strong partnership. Both parties carry out quality prevention and control to ensure the stability of the supply chain, reduce the impact of reverse globalization, guarantee the effectiveness of delivery, and enhance the resilience of the supply chain, which enables the stable development of "Specialized and new" enterprises and promotes the high-quality development of the regional economy.

## 4. Conclusion

The purpose of this paper is to explore the factors affecting the quality performance of the specialized and new enterprises, and to propose countermeasures and suggestions to improve the quality performance of the enterprises, so as to provide reference for the development of the specialized and new enterprises.

Discussion from market competition and demand changes: Market competition and demand changes are one of the external factors affecting the quality performance of specialized and new enterprises. Quality management should keep pace with the times, update quality tools in real time, deal with quality issues in the production process in a more precise and agile way, and improve core competitiveness, thus guiding SMEs to focus on their core business, improve specialized and refined production capacity, focus on product compatibility, and Facilitate synergy and complementary development of enterprises in various fields.

The discussion from policies and regulations and industry standards: Policies and regulations provide assistance to "Specialized and new "enterprises through resource leaning and financial support, on the other hand, they guide talents, subsidize platforms, provide outsourced talent services, establish high-end research platforms, and promote the construction of intelligent manufacturing. "Specialized and new" enterprises need to comply with relevant laws and regulations and industry standards to ensure the quality and safety of their products or services, and to improve their credibility and image.

Discussion from the supply chain quality risk management capability: the quality management capability of the supply chain and partners directly affects product quality. Trust mechanisms should be established among the members of the supply chain, and the rights and interests of members should be safeguarded through industry ethics, while reasonable penalty mechanisms should be developed to reduce quality defects. Select partners with high quality and jointly improve the quality and competitiveness of products or services to improve quality performance.

From natural environment and social responsibility: Natural environment and social responsibility is one of the external factors that affect the quality performance of the specialized and new enterprises. Enterprises need to pay attention to environmental protection and social responsibility, actively fulfill corporate social responsibility, protect the natural environment and promote social progress, and improve corporate image and credibility.

### 4.1. Management Recommendations

Leaders' role and management ability: Leaders of "Specialized and New" enterprises are the core strength of the enterprise, and their role and management ability have a significant impact on the quality performance of the enterprise. Focus on the investment in ERP system, business process and financial data in real time to reduce business risks.

Quality and capability of talents: "Specialized and new" enterprises are people-oriented enterprises, and the quality and capability of talents have an important impact on the quality performance of enterprises. Enterprises need to recruit and train high quality and high ability talents, encourage the innovation and motivation of employees, analyze the job matching of talents, establish a synergistic platform of performance and salary, and create a transparent reward and punishment system to fully explore the potential of employees and create added value.

Technological innovation and R&D capability: technological innovation and R&D capability are the core competitiveness of "Specialized and new" enterprises, introducing digital technology, enterprises need to continuously invest in R&D capital and manpower, actively explore new technologies, achieve independent control of key links in the industrial chain, focus on cultivating and developing high value-added links , improve patent concentration and We need to improve the

concentration and continuity of patents, focus on the correlation and accumulation of knowledge within each patent technology, and improve R&D output.

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## References

- [1] Wang H Q, Chen K Y. (2022). *The impact of innovation support policies on R&D investment and business performance of enterprises: micro evidence from "small giant" enterprises*. *Southern Finance*, 555(11), 22-35.
- [2] Zhou T T, Li M K. (2023). *Hard science and technology innovation, industry science and technology self-reliance and specialization across volume development*. *Soft Science*, 2, 1-11.
- [3] Liu P, Guo J J. (2022) *Reflections on digital transformation of quality management in manufacturing enterprises*. *State-owned assets management*, 4, 27-32.
- [4] Wang W N, Wang K, Yan Z C. (2023) *Research on the mechanism of regional high-quality development on the innovation performance of "specialized and special new" SMEs*. *Research Management*, 44(02), 32-44.
- [5] Liu J. (2022). *The impact of quality management practices on manufacturing performance-an analysis of moderating and mediating effects*. *Modern Economic Inquiry*, 483(03), 103-114.
- [6] Wan Y C, Chen C H. *An empirical study on the impact of supply chain relational capital on purchasing performance-A case study of manufacturing firms in the Pearl River Delta*. (2012) *Science and Technology Management Research*, 32(24), 214-219.
- [7] Lei LN, Tan ZY. (2021) *"Single Champion + Small Giant": Complementary forces for key core technology breakthroughs*. *Tsinghua Management Review*, 97(12), 93-100.
- [8] Zehir C, Ertosun Ö G, Zehir S, et al. (2012) *Total quality management practices' effects on quality performance and innovative performance*. *Procedia-Social and Behavioral Sciences*, 41, 273-280.
- [9] Costa M. M., Lorente A. R. (2008). *Does quality management foster or hinder innovation? An empirical study of Spanish companies*. *Total Quality Management* 19, 209-221.
- [10] Liao C.J., Chen J., Tan Y.Y., et al. (2023) *Current status and prospects of research on the intrinsic mechanism of eco-innovation and firm performance*. *Environmental Pollution and Prevention*, 45(02), 219-224+244.
- [11] Sui L H. *Research on the construction and process control of green quality management system in enterprises*. Harbin Institute of Technology, 2007.
- [12] XI J H. (2022) *Characteristics of hard technology innovation and innovation organization change in the digital economy era*. *Academic Exchange*, 343(10), 109-122.
- [13] Li X H. (2022) *Science and technology innovation and business model innovation: Interaction mechanism and policy orientation*. *Seeking*, 333(05), 179-188.
- [14] Zhao T., Ma R. (2023) *Hotspots and frontiers of "Specialized and New" enterprises: A visual analysis based on CiteSpace*. *Journal of Shandong University of Finance and Economics*, 1-10.
- [15] Jiang L, Luo Y q, He M y. (2023) *Study on the path of commercial banks' empowers SMEs' high-quality development in the new development pattern--Insights from specialized and special new enterprises*. *Southwest Finance*, 1-13.
- [16] Li M H. (2020). *An empirical study on the types of organizational quality culture and its relationship with quality performance*. *Shanghai Quality*, 9, 55-59.
- [17] Cameron K. S., & Quinn R. E. *Diagnosing and Changing Organizational Culture: Based on the Competing Values Framework* (3rd Ed.). San Francisco: Jossey-Bass, 2011.
- [18] Zhang M. (2019) *Research on the mechanism of the influence of corporate quality culture on quality performance*. Xi'an University of Technology.
- [19] Hao A H, Zhao Y X, Li M H. (2022) *Study on the relationship between the current situation of quality culture construction and enterprise performance in Chinese manufacturing enterprises*. *Shanghai Quality*, 2, 43-46.
- [20] Gambi L D N, Boer H, Gerolamo M C, et al. (2015) *The relationship between organizational culture and quality techniques, and its impact on operational performance*. *International Journal of Operations & Production Management*, 35(10), 1460-1484.
- [21] Mohelska H. & Sokolova M. (2015) *Organizational Culture and Leadership Joint Vessels*. *Procedia-Social and Behavioral Sciences*, 171(1), 1011- 1016.
- [22] Neyestani B, Juanzon JBP. (2016) *Identification of a Set of Appropriate Critical Success Factors for Successful TQM Implementation in Construction, and Other Industries*. *International Journal of Advanced Research*, 4(11), 1581-

1591.

[23] Liu Shidian. (2020) *Study on the relationship between quality innovation influencing factors and innovation performance from the perspective of quality culture embedding*. Tianjin University of Commerce.

[24] Fundin A, Bergquist B, Eriksson H, et al. (2018) *Challenges and propositions for research in quality management*. *International Journal of Production Economics*, 125-139.

[25] Shen M Z. (2018). *The impact of supply chain quality risk management on the quality performance of enterprises*. Wuhan University.

[26] Liu X Y, Zhao Q Q, Sun M. (2018). *The impact of supply chain relationship quality on firm quality performance - a study of the mediating effect of supply chain leadership*. *Industrial Technology Economics*, 37(09), 83-90.