THE INFLUENCING FACTORS OF TCL GROUP'S STRATEGIC COST MANAGEMENT FROM THE PERSPECTIVE OF VALUE CHAIN

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This Independent Study has been Approved as a Partial Fulfillment of the Requirements for the Degree of Master of Business Administration

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ABSTRACT

This study aimed to explore the factors influencing TCL Group's strategic cost management and their underlying mechanisms, construct a structural model of the influencing factors of strategic cost management, and validate the research hypotheses and the model. Based on Porter's Value Chain Theory and Strategic Cost Management Theory, this research analyzed the impacts of supply chain integration capability, technological innovation capability, market response speed, and digital cost control capability on strategic cost management, and put forward targeted strategic suggestions. A quantitative research method was employed in this study, with data collected through questionnaires. A total of 400 questionnaires were distributed, and 332 valid questionnaires were received, resulting in an effective response rate of 83.0%. The research results indicate that supply chain integration capability, technological innovation capability, market response speed, and digital cost control capability all have significant impacts on strategic cost management. Based on these findings, this study proposes strategic suggestions for enhancing TCL Group's strategic cost management: (1) Strengthen supply chain integration capability; (2) Enhance technological innovation capability; (3) Accelerate market response speed; (4) Optimize digital cost control capability.

Keywords: Strategic Cost Management Theory, Porter's Value Chain Theory, strategic cost management, TCL Group, influencing factors

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CHEN MENGQI

DECLARATION

I, CHEN MENGQI hereby certify that the work embodied in this independent study entitled *" The Influencing Factors of TCL Group's Strategic Cost Management from the Perspective of Value Chain"* is result of original research and has not been submitted for a higher degree to any other university or institution.

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Chapter 1 Introduction

1.1 Background of the Study

In the context of ongoing globalization and rapid technological advancement, the market competition in the home appliance industry has reached a fever pitch. Well-known global brands, leveraging their profound technological accumulations and strong brand influences, have established extensive layouts in the global market. Numerous Chinese home appliance enterprises are also on the rise, vying for market shares through price wars and product innovations (Sun et al., 2019). TCL Group, as a significant player in the home appliance industry, is situated in this fiercely competitive environment.

As product functions and qualities increasingly converge, cost has emerged as a critical factor determining whether an enterprise can stand out in the competition. Effective cost management enables enterprises to reduce prices while maintaining product competitiveness, thereby enhancing profit margins and securing a larger market share. Therefore, conducting an in-depth exploration of the factors influencing TCL Group's strategic cost management holds paramount significance for improving its competitiveness within the industry.

Traditional cost management methods primarily focus on the internal production processes of enterprises, aiming to reduce costs by controlling raw material procurement costs and minimizing expenditures during production. However, this model exhibits significant limitations. In today's complex and dynamic market environment, enterprise costs are not solely generated during the production phase but permeate the entire value chain, encompassing product research and development, design, procurement, production, sales, and after-sales service. Traditional cost management overlooks the interconnections and synergies among various links in the value chain, failing to grasp the root causes of cost generation and the potential for cost reduction from a holistic perspective (Shonhadji, 2017). For a large-scale enterprise group like TCL Group, which has diversified businesses and a lengthy industrial chain, the traditional cost management model can no longer meet the demands of its strategic development. There is an urgent need to re-examine and reconstruct the strategic cost management system from the perspective of the value chain.

Porter's Value Chain Theory provides a comprehensive and systematic framework for enterprises to analyze cost drivers and competitive advantages. This theory divides an enterprise's value-creating activities into primary activities and support activities, which are interdependent and mutually influential, jointly constituting the enterprise's value chain. By conducting an in-depth analysis of each link in the value chain, enterprises can clearly identify the primary sources of cost generation and the key points of value creation (Ajanovic et al., 2022). Researching TCL Group's strategic cost management from the value chain perspective can break down the boundaries between

internal departments of the enterprise, extend cost management to the entire industrial chain, help enterprises better understand the relationship between cost and value creation, uncover potential opportunities for cost reduction and value enhancement, and provide a theoretical basis for formulating scientific and rational strategic cost management strategies.

Technological innovation has become the core driving force for the development of the home appliance industry. The continuous emergence of new technologies has not only transformed product performance and functionality but also exerted a profound impact on enterprise production processes, supply chain management, marketing models, and other aspects. For TCL Group, technological innovation capabilities directly influence its product cost structures. Advanced production processes can enhance enterprise production efficiency and reduce the production cost per unit. The application of intelligent manufacturing technologies can achieve automation and precision in the production process, minimizing labor costs and defect rates. Digital supply chain management can optimize inventory levels, reducing inventory costs and logistics costs (Hu & Li, 2022). Therefore, conducting an in-depth study of the impact mechanism of technological innovation capabilities on TCL Group's strategic cost management can assist enterprises in seizing the cost transformation opportunities brought about by technological innovation and improving their cost management levels.

In today's rapidly changing market environment, consumer demands are becoming increasingly diversified and personalized, and product replacement cycles are accelerating. TCL Group needs to possess the ability to swiftly respond to market changes and adjust product strategies and production plans in a timely manner to meet the needs of different customer groups. Market response speed is not only related to an enterprise's sales revenue and market share but also closely tied to cost management (Kwon & Cho, 2024). A rapid market response can help enterprises reduce inventory backlogs, lower inventory costs, avoid production adjustment costs and price reduction losses resulting from product overstocking, and simultaneously enhance customer satisfaction and strengthen brand loyalty. However, achieving a rapid market response requires enterprises to optimize and coordinate in terms of supply chain management, production organization, and research and development innovation, posing new challenges and demands on TCL Group's strategic cost management.

With the rapid development of information technology, digital transformation has become an inevitable trend for enterprise development. The application of digital technologies in the field of cost control provides enterprises with more precise and efficient cost management tools. By establishing a digital cost management system, enterprises can achieve real-time collection, analysis, and monitoring of cost data, promptly identify abnormal cost fluctuations, and take corresponding measures for adjustment. Meanwhile, digital technologies can also support enterprises in cost forecasting and decision-making, providing strong support for enterprise strategic

planning (Milicevic, 2021). As an enterprise actively embracing digital transformation, TCL Group's digital cost control capability has become an important factor influencing its strategic cost management. Conducting an in-depth study on how to optimize digital cost control capability holds significant practical importance for TCL Group to improve the efficiency and quality of cost management and achieve sustainable development.

1.2 Questions of the Study

This study takes Strategic Cost Management Theory as its core guiding framework. This theory emphasizes that enterprises should conduct comprehensive and systematic cost management from a strategic perspective to achieve the synergy between cost advantages and strategic objectives. This study fully draws on Porter's Value Chain Theory, which subdivides an enterprise's value-creating activities into a series of interrelated links, providing a clear framework for enterprises to analyze the internal logic of cost generation and value enhancement. By organically integrating Strategic Cost Management Theory with Porter's Value Chain Theory, a solid theoretical platform is established for researching issues related to strategic cost management, ensuring the correctness and scientificity of the research direction.

To comprehensively and meticulously analyze the factors influencing strategic cost management, this study focuses on four key dimensions: supply chain integration capability, technological innovation capability, market response speed, and digital cost control capability. Supply chain integration capability pertains to the level of collaboration and coordination between an enterprise and its upstream and downstream partners. Efficient supply chain integration can reduce procurement costs, enhance production efficiency, and optimize inventory management, thereby exerting a positive impact on strategic cost management. Technological innovation capability represents the core driving force for enterprises to maintain competitive advantages. Through technological innovation, enterprises can improve production processes, develop new products, and achieve cost reduction and value enhancement. Market response speed reflects an enterprise's sensitivity to market changes and its ability to make rapid adjustments.

This study aims to reveal the impact of each factor on strategic cost management. By conducting an in-depth analysis of whether supply chain integration capability, technological innovation capability, market response speed, and digital cost control capability influence strategic cost management, enterprises can gain insights into which capabilities they should prioritize enhancing at different development stages and under various market environments, as well as how to optimize the allocation and coordination among these factors to achieve the optimization of strategic cost management.

(1) Does supply chain integration capability influence strategic cost management?

(2) Does technological innovation capability influence strategic cost management?

(3) Does market response speed influence strategic cost management?

(4) Does digital cost control capability influence strategic cost management?

1.3 Objectives of the Study

In the academic realm, strategic cost management theory, Porter's value chain theory, and strategic cost management have long been focal points of attention for numerous scholars. Scholars have conducted in-depth discussions on the concepts, connotations, and methods of strategic cost management from various perspectives. Porter's value chain theory also provides a powerful tool for analyzing an enterprise's value creation and cost structure. However, current research mostly focuses on theoretical elaborations and general analyses, with relatively few studies systematically and in-depth analyzing the specific influencing factors of strategic cost management based on Strategic Cost Management Theory and Porter's Value Chain Theory. This research gap leaves enterprises lacking clear guiding factors for influencing strategic cost management in practical applications, making it difficult for them to formulate effective cost management strategies.

This study takes TCL Group as a typical case to conduct research, aiming to comprehensively and deeply understand the core influencing factor framework of strategic cost management from a systematic perspective based on Strategic Cost Management Theory and Porter's Value Chain Theory. TCL Group, as a well-known enterprise in the industry, has a diversified business layout and a complex supply chain system, facing both challenges and opportunities in strategic cost management. By analyzing it, the actual situation of strategic cost management in enterprise operations can be more intuitively presented, providing rich practical materials for theoretical research and offering reference experiences for other enterprises.

(1) To explore the impact of supply chain integration capability on strategic cost management.

(2) To explore the impact of technological innovation capability on strategic cost management.

(3) To explore the impact of market response speed on strategic cost management.

(4) To explore the impact of digital cost control capability on strategic cost

management.

1.4 Scope of the Study

This study took TCL Group as the research object and focused on the specific field of the electronics industry. Considering that the electronics industry is significantly influenced by various factors such as policies, markets, and technologies, the research fully took into account the impacts of these industry characteristics on TCL Group's strategic cost management, ensuring that the research results are industry-specific and representative.

The research content revolves around the influencing factors of TCL Group's strategic cost management based on Strategic Cost Management Theory and Porter's Value Chain Theory. It specifically covers four key aspects: supply chain integration capability, technological innovation capability, market response speed, and digital cost control capability.

A quantitative research method was adopted in this study. A questionnaire survey method was employed to design questionnaires targeting the influencing factors of strategic cost management and questionnaires were distributed to the company's internal employees to collect data. In terms of data analysis, statistical analyses were conducted on the data collected from the questionnaire using correlation analysis and regression analysis to explore the relationships between the influencing factors and strategic cost management. Based on the analysis results, targeted strategic suggestions were proposed to provide practical references for TCL Group to improve its strategic cost management.

1.5 Significance of the Study

1.5.1 Theoretical Significance

At the theoretical level, this study holds significant value in multiple aspects. On the one hand, this study can enrich the application research of strategic cost management theory in specific industry enterprises. Currently, although strategic cost management theory has established a relatively systematic framework, there are still substantial gaps in its specific practices across different industries and enterprises. TCL Group, as a leader in the home appliance and electronic information industry, has diversified businesses, a complex industrial chain, and a unique operation model. Conducting an in-depth exploration of the influencing factors of its strategic cost management from the value chain perspective can provide detailed case support for the application of this theory in complex enterprise environments, making the theory more

practical and guidance-oriented, thereby improving the strategic cost management theory system.

On the other hand, this study helps to expand the depth of integration between value chain theory and strategic cost management. Value chain theory emphasizes examining enterprise costs from the perspective of the overall value chain and focusing on the cost associations and synergies among upstream and downstream links. However, existing research has not achieved sufficient depth in the integration of the two. There is a lack of systematic discussions on how to accurately identify the influencing factors of each link in the value chain on strategic cost management and how these factors interact to influence enterprise cost strategy decision-making. By focusing on TCL Group and analyzing the internal connections between its value chain links and strategic cost management, this study can reveal the inherent laws, promoting the in-depth integration of the two theories and providing new ideas and methods for subsequent research.

This study also offers a new perspective for interdisciplinary research. Strategic cost management involves multiple disciplines such as management, economics, and accounting, while the value chain analysis method is closely related to industrial organization theory and supply chain management theory. By comprehensively applying multidisciplinary theories and methods and taking TCL Group as the research case to explore the influencing factors of strategic cost management from the value chain perspective, this study helps to break down disciplinary boundaries, promote interdisciplinary integration, provide a new direction for interdisciplinary research in the field of enterprise management, and drive enterprise management research towards a more comprehensive and systematic development.

1.5.2 Practical Significance

At the practical level, this study holds significant implications for TCL Group and related industries. For TCL Group, firstly, it can assist in improving its cost management level and competitiveness. Through in-depth research, key cost drivers in each link of the value chain can be accurately identified, such as raw material procurement costs, production manufacturing efficiency, logistics and distribution costs, and marketing expenses. This enables the enterprise to formulate targeted cost control strategies, optimize resource allocation, reduce unnecessary cost expenditures, and improve the refinement level of cost management. Meanwhile, understanding the impact of each link in the value chain on strategic cost management helps evaluate the rationality of the existing value chain layout. The enterprise can then re-integrate and optimize the value chain, such as strengthening cooperation with upstream and downstream enterprises, adjusting production layouts, and optimizing supply chain management, to enhance the operational efficiency of the entire value chain, reduce costs, and strengthen market competitiveness.

The research results on the influencing factors of strategic cost management can provide comprehensive and accurate cost information for TCL Group's top management, supporting them in fully considering cost factors when formulating enterprise strategies, making scientific and rational decisions, and reducing decision risks. For enterprises in the same industry, TCL Group is well-known and highly representative in the home appliance and electronic information industry, and its cost management practices and experiences have a demonstration effect. The cost management methods and strategies with universal applicability summarized in this study can provide beneficial references for enterprises in the same industry, helping them improve their cost management models and enhance their cost management levels, jointly promoting the healthy development of the industry.

From the industrial perspective, the application of the research results of this study will encourage enterprises in the home appliance and electronic information industry to pay more attention to strategic cost management from the value chain perspective, guide them to abandon traditional cost management concepts, and actively explore innovative cost management methods and technologies, thereby improving the overall cost management level of the industry, fostering a favorable competitive atmosphere, and promoting industrial upgrading and transformation. Moreover, by optimizing the value chain layout and cost control strategies, enterprises can improve resource utilization efficiency, reduce resource waste and environmental pollution, which aligns with the requirements of the national sustainable development strategy and helps the industry achieve a win-win situation in terms of economic and environmental benefits, driving the industry's sustainable development.

1.6 Definition of Key Terms

Supply chain integration capability refers to an enterprise's ability to coordinate, collaborate, and share information effectively among all links in the supply chain, including suppliers, manufacturers, distributors, retailers, and end-users, to form a tightly connected and synergistically operating whole.

Technological innovation capability refers to an enterprise's ability to introduce new technologies, processes, products, or services or improve and upgrade existing technologies to enhance production efficiency, product quality, and market competitiveness, thereby achieving sustainable enterprise development.

Market response speed refers to an enterprise's ability to make rapid reactions and adjustments to market changes, customer demands, and competitor dynamics.

Digital cost control capability refers to an enterprise's ability to use digital technologies such as big data, artificial intelligence, and cloud computing to conduct comprehensive, precise, and real-time monitoring, analysis, and management of costs.

Strategic cost management refers to a cost management activity where an enterprise, starting from a strategic perspective, combines cost management with its strategic objectives. By analyzing the internal and external environments of the enterprise, it identifies key factors influencing enterprise costs, formulates cost management strategies and methods suitable for enterprise strategies, and aims to achieve long-term competitive advantages and value maximization for the enterprise.

Chapter 2 Literature Review

2.1 Introduction

This chapter focuses on the theory of strategic cost management and a review of relevant literature, aiming to establish a solid theoretical foundation for the research. On one hand, it conducts an in-depth review of the major literature closely related to Porter's Value Chain Theory and Strategic Cost Management, clarifying their internal logic to provide macro-level guidance for the research. On the other hand, it offers a comprehensive review of the key factors influencing strategic cost management, covering supply chain integration capability, technological innovation capability, market responsiveness speed, and digital cost control capability.

These factors hold significant importance in strategic cost management, and existing literature has extensively explored their relationships with strategic cost management. Through a thorough and systematic review of the literature, theoretical support is provided for the variables in the research model, clarifying the connotations, roles, and positions of each variable. Additionally, it helps to elucidate the interrelationships and internal mechanisms among the variables, offering a clear basis for subsequent hypothesis testing and promoting theoretical innovation and practical development in the field of strategic cost management.

2.2 Literature Review

2.2.1 Strategic Cost Management Theory

(1) Origin and Background of Strategic Cost Management Theory

Strategic Cost Management Theory originated in the 1980s when market competition became increasingly fierce, and traditional cost management methods gradually revealed their limitations (Porter, 1980). Traditional cost management primarily focused on the internal production processes of enterprises, with the core objective of reducing product costs, while neglecting the external market environment and strategic positioning in which enterprises operated (Pita et al., 2016). With the acceleration of globalization and the rapid development of information technology, the competition faced by enterprises is no longer confined to a single product or service, but extends to competition across the entire value chain. Against this backdrop, Simmonds first proposed the concept of strategic cost management in 1981, emphasizing the integration of cost management with corporate strategy and guiding cost management decisions by analyzing the competitive position of enterprises, thereby laying the foundation for the development of strategic cost management theory (Oybekovna, 2025).

(2) Core Connotations of Strategic Cost Management Theory

The core of Strategic Cost Management Theory lies in elevating cost management to a strategic level, conducting comprehensive and systematic cost management from the perspective of the overall corporate strategy. It not only focuses on cost reduction but also emphasizes providing support for formulating and implementing corporate strategies through the analysis and utilization of cost information. Research by Giustiziero (2020) indicated that strategic cost management comprises three primary components: cost planning, cost control, and cost evaluation. Cost planning determined the direction and focuses of cost management based on the strategic objectives of the enterprise (Marzo, 2010). Cost control involves taking effective measures during the production and operation process to ensure the realization of cost targets. Cost evaluation assesses and provides feedback on the effectiveness of cost management, offering a basis for subsequent strategic adjustments. Through the organic integration of these three links, strategic cost management can help enterprises gain a cost advantage in competition and achieve sustainable development.

(3) Main Analytical Tools for Strategic Cost Management Theory

To better implement strategic cost management, scholars have proposed a series of analytical tools. Among them, the most representative ones are value chain analysis, strategic positioning analysis, and cost driver analysis. Value chain analysis decomposes the production and operation activities of an enterprise into a series of interrelated value activities (Du ̧i, 2021). By analyzing the costs and values of these value activities, it identifies key links for cost reduction and value enhancement. Strategic positioning analysis assists enterprises in determining their competitive positions in the market and formulating corresponding cost management strategies based on different strategic positions (such as cost leadership strategy and differentiation strategy). Cost driver analysis delved into the root causes of cost occurrence from a microscopic perspective, classifying cost drivers into structural cost drivers and executive cost drivers (Thai et al., 2016). By controlling cost drivers, enterprises can reduce costs. These analytical tools complement each other and provide strong support for enterprises to conduct strategic cost management.

(4) Integration of Strategic Cost Management Theory and Corporate Strategy

Strategic Cost Management Theory emphasizes close integration with corporate strategy. The strategic objectives of an enterprise determine the direction and focus of cost management, while cost management provides a guarantee for the implementation of corporate strategy. Du ̧i (2021) indicated that for enterprises adopting a cost leadership strategy, strategic cost management will primarily focus on reducing costs through economies of scale and optimizing production processes to gain a competitive advantage in terms of price. For enterprises implementing a differentiation strategy, strategic cost management needs to reasonably control costs while ensuring product

quality and distinctiveness, avoiding excessive costs due to an overemphasis on differentiation (Jeong & Park, 2019). By organically integrating cost management with corporate strategy, enterprises can achieve optimal resource allocation and improve the efficiency and effectiveness of strategy implementation in different market environments.

(5) Future Development Trends of Strategic Cost Management Theory

With the continuous changes in the economic environment and the increasing complexity of enterprise management, Strategic Cost Management Theory is constantly evolving and improving. In the future, Strategic Cost Management Theory will place greater emphasis on the application of digital technologies. The development of technologies such as big data and artificial intelligence provides more convenient and efficient means for collecting, analyzing, and processing cost data, enabling enterprises to achieve intelligent and refined cost management (Yasan, 2018). The concept of sustainable development will be more extensively integrated into strategic cost management theory. While pursuing cost advantages, enterprises need to consider environmental costs and social costs to achieve the unity of economic, environmental, and social benefits. Agbedahin (2019) believed that strategic cost management theory will also strengthen cross-integration with other management theories, such as combining with supply chain management and risk management theories, to provide enterprises with more comprehensive and systematic management solutions.

2.2.2 Porter's Value Chain Theory

(1) Background of Porter's Value Chain Theory

In the 1980s, Michael Porter proposed the value chain theory in his 1985 book Competitive Advantage. This theory breaks down a firm's production and operating activities into a series of interrelated yet independent value-creating activities, which can be classified into primary activities and support activities (Ceil, 2019). Primary activities involve the physical creation of products, sales, delivery, and after-sales services, such as inbound logistics, operations, outbound logistics, marketing and sales, and service. Support activities provide essential support for primary activities, including procurement, technology development, human resource management, and firm infrastructure. By breaking down activities in this manner, firms can more clearly identify the key links in their value creation process (Noga et al., 2020).

After Porter introduced the value chain theory, numerous scholars conducted research based on its fundamental framework. Some scholars focused on analyzing the characteristics and interrelationships of various value-creating activities within the value chain, pointing out that different activities play varying roles in a firm's value creation process and that there are strong linkages among these activities, which affect

the firm's costs and value. For instance, effective coordination between procurement and production activities can ensure the timely supply and stable quality of raw materials, thereby reducing production costs and the risk of production interruptions. Yang (2023) conducted classified research on the primary and support activities in the value chain, exploring how different types of activities contribute to a firm's competitive advantage, laying the groundwork for a subsequent in-depth understanding of the value chain theory.

(2) Applications of Porter's Value Chain Theory

As research progressed, scholars began to focus on the application of Porter's value chain theory in corporate strategic positioning. Lincoln's (2018) research indicated that firms can determine their position within the industry value chain by analyzing their value chains, thereby formulating appropriate strategies. If a firm is located upstream in the industry value chain, it can leverage control over key raw materials or technologies to adopt cost leadership or differentiation strategies. If it is positioned downstream, it can enhance customer value by optimizing sales channels and after-sales services. Al-Shammari and Al-Faqir (2017) proposed that firms should compare their value chains with those of competitors to identify their strengths and weaknesses, enabling targeted strategic adjustments to gain a competitive edge in the market.

Porter's value chain theory offers a new perspective and methodology for cost management. Tomar et al. (2024) pointed out that corporate cost management should not be confined to the production process but should encompass the entire value chain. By analyzing and controlling costs across all links in the value chain, firms can achieve overall cost reduction. Jin and He (2024) focused on identifying cost drivers within the value chain, noting that procurement costs, production costs, and logistics costs are all closely related to specific activities in the value chain. Firms can lower costs in these areas by optimizing procurement processes, improving production efficiency, and enhancing logistics and distribution. Madudová (2021) introduced a value chain-based cost accounting method that more accurately reflects the true cost of products or services, providing a more reliable basis for corporate decision-making.

In the 1990s, with the rise of supply chain management concepts, scholars began to extend Porter's value chain theory to the supply chain domain (Jin & He, 2024). Research demonstrated that a firm's value chain is not limited to its internal operations but is closely interconnected with upstream and downstream firms in the supply chain. By establishing strategic partnerships with suppliers and customers to achieve value chain integration and optimization, firms can enhance the competitiveness of the entire supply chain. Some studies explored how to strengthen collaboration among firms in the supply chain through information sharing and collaborative planning, reducing supply chain costs and improving responsiveness and flexibility. Other scholars suggested that firms should view all enterprises in the supply chain as an integrated

value creation system, jointly pursuing value maximization.

With the rapid development of the service industry, the application of Porter's value chain theory in the service sector has also become a research hotspot. Kan et al. (2022) found that the value chain in the service industry differed from that in manufacturing, with a greater emphasis on customer experience and interaction in the value creation process. Toth-Peter et al. (2023) analyzed the characteristics of the service industry value chain, noting that all aspects of service delivery, such as service design, service delivery, and after-sales service, significantly impact customer satisfaction and loyalty. Firms can enhance service quality and create differentiated competitive advantages by optimizing these links. Muzio (2015) believed that service firms should leverage information technology to automate and initialize service processes, improving service efficiency and value creation capabilities.

Since the 21st century, as market environments have become increasingly dynamic, scholars have begun to focus on the dynamism and adaptability of Porter's value chain theory. Azmeh & Nadvi (2014) indicated that a firm's value chain is not static but continuously adjusts and optimizes in response to changes in market demand, technological progress, and competitive dynamics. Firms can alter their value chain structures by outsourcing non-core businesses, entering new market segments, or engaging in cross-industry collaborations, enhancing their flexibility and innovation capabilities (Du ̨, 2021). Firms should establish dynamic value chain monitoring mechanisms to promptly capture market changes and make real-time adjustments and optimizations to their value chains. The digital age has also brought new challenges to the application of Porter's value chain theory, such as data security issues and rapid technological advancements. Research on Porter's value chain theory will continue to evolve around these new trends and challenges, providing more valuable guidance for corporate practice.

2.2.3 Strategic Cost Management

After the introduction of strategic cost management theory, scholars began to conduct in-depth research on it. Early studies primarily focused on elaborating on the concept of strategic cost management and constructing its theoretical framework. Xiang (2013) validated the feasibility and effectiveness of strategic cost management in firms through case studies and empirical research. El-Dyasty (2007) conducted follow-up surveys on firms adopting strategic cost management and found that these firms achieved significant improvements in cost control, market competitiveness, and profitability. These early studies laid a practical foundation for the further development of strategic cost management and attracted more scholars to focus on this field.

As research on strategic cost management progressed, scholars began to examine its application across different industries. Given that different industries have distinct

characteristics and competitive environments, the implementation of strategic cost management varies accordingly. Liang & James (2009) indicated that in the manufacturing industry, firms can reduce costs by optimizing production processes and improving production efficiency. In contrast, in the service industry, firms focus more on enhancing customer satisfaction by improving service quality and optimizing service processes while reasonably controlling service costs. Through research across different industries, scholars have summarized a series of strategic cost management methods and strategies tailored to various industries, providing firms with more targeted guidance.

The relationship between strategic cost management and corporate performance has been a focal point of scholarly research. Liefner & Losacker (2019) demonstrated that strategic cost management has a significant positive impact on corporate performance. Effective strategic cost management enables firms to reduce costs, improve product quality and service levels, thereby enhancing their market competitiveness and profitability. Firms implementing strategic cost management outperform those that do not in terms of market share, profit margins, and return on assets. However, differences in culture, institutions, and market environments across countries can influence the implementation and effectiveness of strategic cost management (Liefner & Losacker, 2019; Marzo, 2010).

Despite the achievements in strategic cost management research, several challenges remain. On one hand, with the rapid development of economic globalization and information technology, firms face increasingly complex and dynamic competitive environments, requiring strategic cost management to adapt to new circumstances. On the other hand, current research on strategic cost management still has shortcomings, such as inadequate research methodologies and limited research depth. Future research on strategic cost management needs to further strengthen theoretical innovation and methodological improvements, incorporating emerging technologies and management concepts to delve into the internal mechanisms and influencing factors of strategic cost management. Simultaneously, enhancing practical research is essential to better apply theoretical research findings to corporate management practices, providing firms with more scientific and effective strategic cost management solutions (Xiang, 2013; Sun et al., 2019).

2.2.4 Supply Chain Integration Capability

Supply chain management primarily focuses on simple collaboration among various departments within an enterprise as well as between the enterprise and its external suppliers and distributors. As market competition intensifies and globalization progresses, scholars have gradually realized that mere collaboration is insufficient to cope with the complex and ever-changing market environment. Consequently, the concept of supply chain integration has been proposed. Wook Kim (2006) defined

supply chain integration capability as an enterprise's ability to effectively coordinate and integrate the logistics, information flow, and cash flow within the supply chain to optimize the overall performance of the supply chain. This capability encompasses both internal functional integration within the enterprise and external integration with upstream and downstream partners in the supply chain.

To gain a deeper understanding of supply chain integration capability, scholars have classified its dimensions from different perspectives. Huo (2012) divided it into two dimensions: internal integration and external integration. Internal integration mainly focuses on information sharing, process collaboration, and optimal resource allocation among different departments within an enterprise. External integration, on the other hand, emphasizes relationship management, the degree of cooperation and closeness, and the level of information exchange between an enterprise and its external partners, such as suppliers and customers. De Vass et al. (2018) further subdivided external integration into supplier integration and customer integration. This dimensional classification helps enterprises identify the key areas and directions of supply chain integration and enhance their capabilities in a targeted manner.

A substantial amount of research has focused on the relationship between supply chain integration capability and enterprise performance. Liao et al. (2021) indicated that supply chain integration capability has a significantly positive impact on enterprise performance. Jopinus Saragih et al. (2020) found that enterprises with strong supply chain integration capabilities can better cope with the uncertainty of market demand, reduce inventory costs, improve the timeliness and quality of product delivery, thereby enhancing customer satisfaction and enterprise profitability. Through supply chain integration, enterprises can achieve resource sharing, complement each other's advantages, optimize production processes, reduce waste, and enhance market competitiveness, ultimately leading to improved enterprise performance. Research in different industries has also verified the universality of this relationship.

Scholars have extensively explored the factors influencing supply chain integration capability. From an internal perspective, factors such as organizational culture, information technology level, and top management support play crucial roles. Enterprises with an open and collaborative organizational culture are more conducive to integration among internal departments and with external partners. Advanced information technology can provide real-time and accurate information, facilitating information sharing and communication among supply chain members (Huo, 2012). Top management's attention and support provide resources and decision-making guarantees for supply chain integration. From an external perspective, factors such as the uncertainty of the market environment and the level of trust among partners also affect supply chain integration capability. In a highly uncertain market environment, enterprises require stronger integration capabilities to manage risks. The trust relationship between an enterprise and its partners is the foundation for effective integration (Kan et al., 2022; Wang et al., 2024).

With the dynamic changes in the market environment, supply chain integration capability also exhibits dynamic characteristics. Wang et al. (2020) studied the adjustment strategies of supply chain integration capability for enterprises at different life cycle stages or in different market environments. He found that during the growth stage of an enterprise, it may need to strengthen cooperation with suppliers to ensure a stable supply of raw materials. In the maturity stage, it may focus more on deep integration with customers to meet their personalized needs. When the market environment changes rapidly, enterprises need to have the ability to quickly adjust their supply chain integration models to adapt to new competitive challenges. This dynamic research helps enterprises flexibly adjust their supply chain integration strategies according to their development stages and changes in the market environment to maintain a competitive edge (Jopinus Saragih et al., 2020).

2.2.5 Technological Innovation Capability

Technological innovation capability is a crucial driving force for enterprise development, and its conceptual definition has evolved over the years. Linstone (1984) was one of the early scholars to propose that technological innovation is the process by which enterprises transform new knowledge into new products, new processes, and new services, emphasizing the knowledge source and the conversion of innovation outcomes. Subsequent scholars have further deepened this concept. Rasler and Thompson (1991) argued that technological innovation capability is an enterprise's ability to integrate internal and external resources, carry out technological innovation activities, and achieve commercial value, covering the entire process from idea generation to product commercialization. This concept clarifies the comprehensive nature of technological innovation capability, which involves not only the technical aspect but also commercial operations and resource integration.

Numerous scholars have conducted in-depth research on the constituent elements of technological innovation capability. Guan et al. (2006) pointed out that technological innovation capability includes technology acquisition capability, technology transformation capability, and technology protection capability. Technology acquisition capability enables enterprises to introduce advanced technologies from external sources or acquire new knowledge through cooperation with research institutions. Technology transformation capability converts the acquired technology into actual products or services. Technology protection capability safeguards an enterprise's innovation achievements through patents and other means. Wheeler et al. (2002) further proposed that it should also include organizational innovation capability and innovation management capability. Organizational innovation capability involves the support of an enterprise's organizational structure and culture for innovation, while innovation management capability encompasses aspects such as innovation strategy formulation, resource allocation, and project monitoring (Gabriel, 2022).

There is a significant positive correlation between technological innovation capability and enterprise performance. Moon (2016), through research on enterprises in multiple industries, found that enterprises with strong technological innovation capabilities perform better in terms of market share, profit margin, and growth rate. Technological innovation enables enterprises to launch differentiated products, meet the constantly changing needs of consumers, thereby increasing product added value and market competitiveness. Wang et al. (2008) confirmed that R&D investment, as an important indicator of technological innovation, is closely related to enterprise productivity and profit growth, further demonstrating the positive impact of technological innovation on enterprise performance.

Internal factors within an enterprise have a significant impact on technological innovation capability. The absorption capacity theory proposed by Griffith et al. (2003) stated that an enterprise's existing knowledge base and learning ability affect its absorption and transformation of external new knowledge, thereby influencing technological innovation capability. Enterprises with rich knowledge reserves and strong learning abilities can understand and apply new technologies more quickly. An enterprise's organizational culture is also crucial. Gabriel (2022) found that an organizational culture that encourages innovation and tolerates failure can stimulate employees' innovation enthusiasm and promote the conduct of technological innovation activities.

The external environment also exerts an influence on technological innovation capability. Wang's (2024) research showed that factors such as the degree of industry competition, the conditions of factor supply, demand status, and related supporting industries affect an enterprise's motivation and capability for technological innovation. In a highly competitive industry, enterprises are more motivated to engage in technological innovation for survival and development. An abundant supply and strong market demand provide the material basis and market space for technological innovation. The development of related supporting industries can offer enterprises technical, equipment, and service support. Government policies and regulations also affect an enterprise's technological innovation behavior. For example, tax incentives and subsidies can encourage enterprises to increase R&D investment. With the development of digital technology, how to use big data, artificial intelligence, and other technologies to enhance an enterprise's technological innovation capability will become a research hotspot (Wang & Luo, 2020).

2.2.6 Market Response Speed

The concept of market response speed originates from the need for enterprises to adapt to rapidly changing markets. Tse (1998) proposed that market response speed refers to an enterprise's ability to identify market opportunities and threats and respond promptly. In the increasingly competitive market environment at that time, an

enterprise's ability to respond to market demand changes promptly became a key factor determining its survival and development. Early research mainly focused on an enterprise's speed of collecting and processing market information, considering rapid acquisition of market information and decision-making as the basis for an enterprise's quick response to the market.

Scholars have classified the dimensions of market response speed differently. Más-Ruiz et al. (2005) divided it into three dimensions: perception speed, decision-making speed, and action speed. Perception speed refers to an enterprise's ability to detect market changes; decision-making speed is the efficiency with which an enterprise makes decisions based on market information; action speed is the speed at which an enterprise translates decisions into actual actions. This classification helps enterprises comprehensively understand each link of market response speed and make targeted improvements. Market response speed can bring competitive advantages to enterprises. Pullaykkodi and Acharya (2023) believed that a rapid market response enables enterprises to be the first to launch products or services that meet market demand, seize market share, and gain a first-mover advantage. In a rapidly changing market, consumer demands are constantly updated. If enterprises can respond promptly, they can meet consumers' immediate needs, improve customer satisfaction, and loyalty. Tilli's (2015) research also confirmed that enterprises with fast market response speeds can better cope with the challenges from competitors and maintain a leading market position.

Internal factors within an enterprise have an important impact on market response speed. Al-Fuqaha et al. (2015) found that an enterprise's organizational structure affects information transmission and decision-making efficiency. A flat organizational structure can reduce information transmission links, speed up decision-making, and thus improve market response speed. An enterprise's culture and employee quality are also crucial. An enterprise with an innovative and flexible cultural atmosphere can encourage employees to respond quickly to market changes. High-quality employees have stronger market insight and execution ability and can translate market information into actual actions more quickly.

The external environment also affects an enterprise's market response speed. Connolly et al. (2005) pointed out that market uncertainty is one of the important factors influencing market response speed. In a highly uncertain market environment, enterprises need to collect and analyze information more quickly and adjust their strategies and actions. The response speed of suppliers and partners also affects an enterprise's market response. If suppliers can provide raw materials and services in a timely manner and partners can quickly cooperate with an enterprise's market actions, the enterprise can respond to market demand more quickly. The speed of technological change also drives enterprises to accelerate their market response to keep up with the pace of industry development. Market response speed research will develop in a more intelligent and dynamic direction. With the development of artificial intelligence and

Internet of Things technologies, enterprises can use these technologies to achieve real-time collection and analysis of market information, improving the accuracy and timeliness of market perception (Pullaykkodi &Acharya, 2023).

2.2.7 Digital Cost Control Capability

With the advent of the digital era, digital cost control capability has become an important topic in enterprise management. The information technology development stage theory laid the foundation for research on digital cost control. Digital cost control capability refers to an enterprise's ability to comprehensively, in real-time, and accurately control costs using digital technologies. It not only includes the collection and analysis of cost data but also involves various links such as cost prediction, decision-making, and control. Through digital means, it achieves intelligent and automated cost management, improving the efficiency and effectiveness of cost management (Apilux et al., 2013; De Vass et al., 2018).

The realization of digital cost control capability relies on advanced technological support. Apilux et al. (2013) pointed out those digital technologies such as big data, cloud computing, and artificial intelligence provide powerful tools for cost control. Big data technology can collect and integrate massive amounts of cost data within and outside an enterprise, providing rich information for cost analysis. Cloud computing technology offers strong computing power and storage space, supporting real-time processing and analysis of cost data. Artificial intelligence technology can mine and predict cost data through machine learning and deep learning algorithms, providing a scientific basis for enterprise cost decision-making.

Compared with traditional cost control, digital cost control has significant advantages. The activity-based costing method proposed by Wu & Zhang (2020) is an important method in traditional cost control, but it is mainly based on post-event cost accounting and is difficult to achieve real-time cost control and prediction. Digital cost control, on the other hand, can achieve real-time monitoring and dynamic adjustment of costs. Enterprises can promptly understand cost changes and take corresponding measures for control. Digital cost control can also break down information barriers among departments, achieve cost information sharing and collaboration, and improve the overall efficiency of cost management.

Digital cost control capability has a positive impact on enterprise performance. Bordeleau et al. (2019), through empirical research on multiple enterprises, found that enterprises with strong digital cost control capabilities can reduce production costs, improve production efficiency, and thus increase profits. Digital cost control can optimize an enterprise's resource allocation, reduce waste and redundancy, and improve resource utilization efficiency. Through accurate cost prediction and decision-making, enterprises can better formulate pricing strategies and product

strategies, enhance market competitiveness, and ultimately improve enterprise performance (Connolly et al., 2005; Tomar et al., 2024).

Numerous factors influence an enterprise's digital cost control capability. Internal factors within an enterprise include the management's emphasis on digitalization and employees' digital skill levels. If the management recognizes the importance of digital cost control and provides sufficient support and investment, the enterprise is more likely to promote digital cost control work. Employees with high digital skill levels can better operate and apply digital cost control tools. External factors include the development level of digital technology and the degree of industry competition. The rapid development of digital technology provides enterprises with more choices and opportunities, but also requires enterprises to learn and update their knowledge. Fierce industry competition prompts enterprises to strengthen cost control and improve digital cost control capabilities to gain a competitive edge (Bordeleau et al., 2019; Duq, 2021).

2.3 Introduction to TCL Group

TCL Group was founded in 1981 and has gradually developed into a globally influential smart technology industry group from a small factory. In its early days, it started with magnetic tape production. With keen insight into market trends, it continuously adjusted its business direction and gradually ventured into fields such as telephones and color TVs. In each transformation, it seized opportunities and laid a solid foundation for subsequent development.

TCL Group has a wide and diversified business scope, covering multiple fields such as smart terminals, semiconductor displays, new energy photovoltaics, and semiconductor materials. In the smart terminal segment, its TVs and mobile phones are sold worldwide with excellent quality and innovative technologies. Its TV business has long ranked among the top in the world, and its products are deeply loved by consumers for features such as high-definition picture quality and smart interaction. In the semiconductor display field, TCL Huaxing Optoelectronics has become a global leading display panel supplier, with strong technical strength and production capacity in large-size TV panels and small- and medium-size mobile terminal panels. The new energy photovoltaic and semiconductor material businesses are emerging industries that TCL has actively deployed in response to the development trend of the times, showing strong growth momentum.

Technological innovation is the core driving force for the development of TCL Group. The group attaches great importance to R&D investment and has numerous professional R&D teams and advanced R&D facilities. In display technology, it continuously breaks through traditions and has launched cutting-edge display technologies such as Mini LED and QLED, leading industry development trends. In the

smart terminal field, it actively integrates new technologies such as artificial intelligence and the Internet of Things to create smarter and more convenient product and service experiences. Through continuous technological innovation, TCL has not only enhanced the competitiveness of its products but also brought higher-quality lives to users.

TCL Group has a broad global vision and strong market expansion capabilities. Its products and services are available in more than 160 countries and regions worldwide, and it has established a complete sales network and after-sales service system in multiple markets. In the international market, TCL adopts a localization operation strategy, deeply understands local consumer needs, and launches products and marketing plans tailored to local market characteristics, successfully establishing an internationally influential brand image. TCL also actively participates in international industrial cooperation and competition, continuously improving its position in the global industrial chain.

As a socially responsible enterprise, TCL Group actively fulfills its social responsibilities and has made positive contributions in promoting industry development, promoting employment, and environmental protection. In terms of industry development, TCL drives the development of upstream and downstream industrial chains through technological innovation and industrial upgrading, promoting the formation of industrial clusters. In terms of employment, TCL provides a large number of high-quality jobs for society and pays attention to employee training and development. In terms of environmental protection, TCL actively promotes green manufacturing and sustainable development concepts, reducing energy consumption and environmental pollution during the production process and striving to achieve a win-win situation between economic and environmental benefits.

2.4 Conceptual Framework

Based on the analysis of relevant research results, this study combining Strategic Cost Management Theory and Porter's Value Chain Theory, this study proposed a model of influencing factors for strategic cost management. This model identifies the influencing factors of strategic cost management in four dimensions: supply chain integration capability, technological innovation capability, market response speed, and digital cost control capability. The model is shown in Figure 2.1.

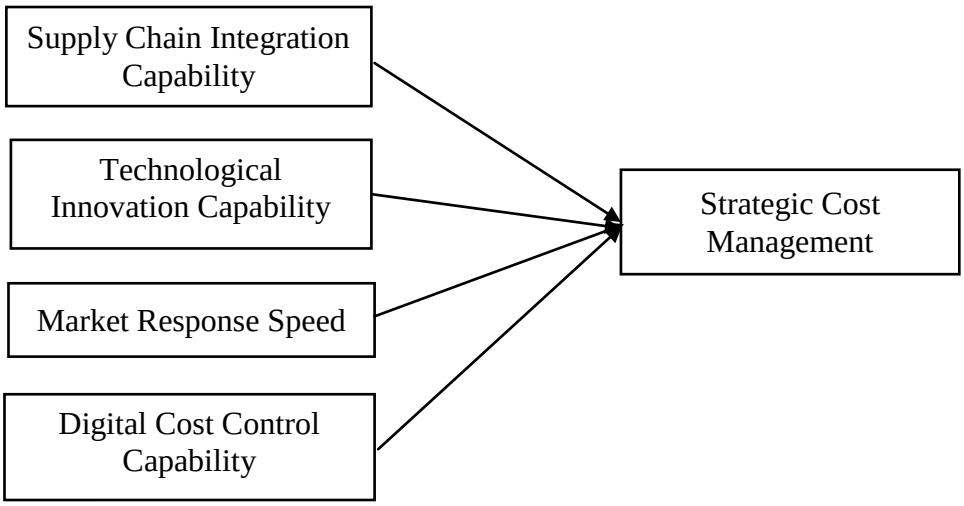

Figure 2.1 Conceptual Framework

Chapter 3 Research Methodology

3.1 Research Design

The optimization of enterprise strategic cost management plays a crucial role in enhancing core competitiveness and achieving sustainable development. Against this backdrop, this study employed a quantitative research method to delve into the influencing factors of TCL Group's strategic cost management. To ensure the comprehensiveness and accuracy of the research, the questionnaire survey method was selected as the primary means of data collection.

This study designed a questionnaire based on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). The scale design drew extensively on the rich research findings of predecessors in related fields and centered around four core variables: supply chain integration capability, technological innovation capability, market response speed, and digital cost control capability. By comprehensively covering the core dimensions of each variable through the scale, the study provided abundant and reliable data support for subsequent research.

To ensure the scientific nature of the entire research method and the reliability of the data, before data analysis, SPSS software was fully utilized to conduct reliability and validity tests on the questionnaire. Reliability testing assessed the internal consistency of each dimension of the questionnaire by calculating Cronbach's α coefficient, ensuring the stability and reliability of the questionnaire measurement results. Only by-passing strict reliability and validity tests can the reliability and validity of the measurement tool be guaranteed, thereby ensuring the accuracy and credibility of the research results. The entire research design is interconnected and systematically rigorous, aiming to objectively and in-depth reveal the driving factors for the improvement of TCL Group's strategic cost management and provide valuable references and guidance for the practice of enterprise strategic cost management.

3.2 Population and Sample

This study focused on all employees of TCL Group. Taking all employees as the research population enabled a comprehensive and systematic capture of various factors influencing TCL Group's strategic cost management, ensuring the completeness and accuracy of the research results. In this study, 400 employees were selected as the research sample. The determination of the sample size was based on a comprehensive consideration of statistical precision, resource constraints, and practical feasibility.

From the perspective of statistical precision, the sample size directly affects the accuracy and reliability of the research results. According to statistical principles, a

larger sample size can more precisely reflect the characteristics and parameters of the population, reducing sampling errors. Through preliminary pre-survey and data analysis, combined with relevant statistical formulas and rules of thumb, the study found that when the sample size reached 400, it could ensure that the research results had sufficient precision to a certain extent. With this sample size, the study could more accurately estimate population parameters, such as the correlation coefficients and regression coefficients between each influencing factor and strategic cost management, enabling the research conclusions to be better generalized to all employees of TCL Group.

Resource constraints are also an important factor in determining the sample size. Conducting a research project requires the investment of certain human, material, and financial resources. In this study, questionnaire surveys involved tasks such as questionnaire design, distribution, collection, and subsequent data analysis, all of which consumed a significant amount of time and effort. If the sample size was too large, the survey costs would increase substantially. At the same time, an excessively large sample size would also place enormous pressure on data collection and collation, potentially affecting data quality and research progress. Considering the actual situation of TCL Group and the research resource status, a sample size of 400 employees achieved a good balance between resource utilization and research effectiveness while meeting statistical precision requirements.

Practical feasibility is also an aspect that cannot be ignored. In actual operations, it is essential to ensure the smooth progress of sample selection and investigation. TCL Group has a large number of employees distributed in different regions, departments, and positions, making a comprehensive survey almost impossible. Randomly selecting 400 employees as the sample was highly feasible in terms of technology and operation. By communicating and coordinating with TCL Group's Human Resources Department and relevant management departments, employee basic information could be obtained, and a computer-generated random selection method could be used to randomly select 400 employees from all employees as the research sample. Throughout the sampling process, each employee had an equal chance of being selected, ensuring the randomness and objectivity of the sample. This random sampling method could reduce the impact of human factors on sample selection to a certain extent, enabling the sample to better reflect the characteristics and distribution of the population, thereby enhancing the reliability of the research results.

To ensure sample representativeness, this study adopted a random sampling method. A total of 400 employees were randomly selected from all employees as the research sample. Throughout the sampling process, the random principle was strictly followed to ensure that each employee had an equal chance of being selected. This sampling method avoided human interference, enabling the sample to more authentically represent the characteristics and situations of all employees of TCL

Group. Through the investigation and analysis of these 400 employees, we can infer the overall situation of all employees of TCL Group regarding factors related to strategic cost management, providing a strong basis for further optimizing TCL Group's strategic cost management.

3.3 Hypothesis

This study aims to verify, through factor analysis, the specific impacts of supply chain integration capability, technological innovation capability, market response speed, and digital cost control capability on strategic cost management, providing theoretical support and practical guidance for improving strategic cost management. Therefore, this study proposes the following hypotheses:

H1: Supply chain integration capability has a significant impact on strategic cost management.

H2: Technological innovation capability has a significant impact on strategic cost management.

H3: Market response speed has a significant impact on strategic cost management.

H4: Digital cost control capability has a significant impact on strategic cost management.

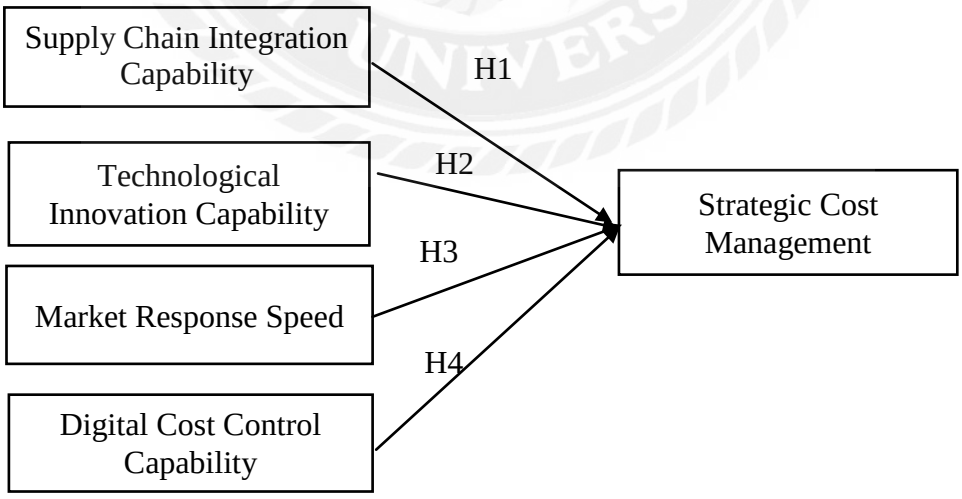

Figure 3.1 Hypotheses

3.4 Research Instrument

Exploring the influencing factors of TCL Group's strategic cost management from the perspective of the value chain is of great significance for enhancing enterprise competitiveness and optimizing cost structures. A questionnaire was designed to accurately measure the independent variables "supply chain integration capability, technological innovation capability, market response speed, and digital cost control capability" as well as the dependent variable "strategic cost management." It adopted a 5-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree), with each factor having 5 possible measurement items.

The questionnaire survey consists of 29 items and is divided into two main parts:

The first part contains 4 questions, mainly focusing on the personal basic information of the respondents, including gender, age, educational background, and work experience.

The second part contains 25 questions, mainly targeting the influencing factors of strategic cost management. Corresponding items are set for supply chain integration capability, technological innovation capability, market response speed, digital cost control capability, and strategic cost management.

Table 3.1 Measurement Items of Supply Chain Integration Capability

Influencing Factor	Measurement Item	NO.
Supply Chain Integration Capability	TCL Group has established long-term, stable, and in-depth cooperative relationships with its major suppliers.	1
	In each link of the supply chain, TCL Group achieves a high level of transparent information sharing with its partners.	2
	TCL Group's logistics and distribution system can swiftly and accurately deliver products to customers.	3
	TCL Group can closely collaborate with manufacturing enterprises in the supply chain to realize seamless alignment of production plans.	4
	When unexpected situations arise in the supply chain, TCL Group can promptly formulate response strategies to ensure the stable operation of the supply chain.	5

Supply chain integration capability is a key factor for TCL Group to achieve efficient operations and cost reduction in the value chain. It encompasses the level of collaborative cooperation with suppliers, manufacturers, distributors, and other links, directly affecting the costs and efficiency of raw material procurement, production and manufacturing, and product distribution. The five measurement items include the

closeness of supplier cooperation, the degree of information sharing, logistics and distribution efficiency, collaborative production capability, and supply chain risk response.

Table 3.2 Measurement Items of Technological Innovation Capability

Influencing Factor	Measurement Item	NO.
Technological Innovation Capability	TCL Group allocates a relatively high proportion of its annual revenue to R&D, and this proportion continues to grow steadily.	6
	TCL Group boasts a high-caliber and innovative R&D team.	7
	TCL Group holds a substantial number of patented technologies and innovative achievements in core technological fields.	8
	TCL Group actively engages in technological cooperation and exchanges with domestic and international research institutions and universities, introducing advanced technologies and concepts.	9
	TCL Group can rapidly transform R&D results into new products and launch them into the market to meet the ever-changing demands of consumers.	10

Technological innovation capability serves as the core driving force for TCL Group to maintain a leading position and achieve cost optimization in the fierce market competition. The five measurement items of technological innovation capability include R&D investment intensity, R&D team strength, patented technologies and achievements, technological cooperation and exchanges, and the speed of new product launches.

Table 3.3 Measurement Items of Market Response Speed

Influencing Factor	Measurement Item	NO.
Market Response Speed	TCL Group can accurately and promptly discern trends in market demand changes.	11
	When market demands shift, TCL Group can swiftly adjust product designs and production plans to introduce new products that align with market needs.	12
	TCL Group's marketing team can promptly adjust marketing strategies in response to market changes.	13
	TCL Group can rapidly respond to customer inquiries, complaints, and suggestions and provide satisfactory solutions.	14
	TCL Group closely monitors competitors' activities and promptly formulates response strategies.	15

Market responsiveness reflects TCL Group's sensitivity to market changes and its ability to make rapid adjustments. The five measurement items of market responsiveness include market demand insight, product adjustment flexibility, marketing strategy adaptability, customer service responsiveness, and competitor monitoring.

Table 3.4 Measurement Items of Digital Cost Control Capability

Influencing Factor	Measurement Item	NO.
Digital Cost Control Capability	TCL Group has established a comprehensive cost management information system that enables automated collection, storage, and analysis of cost data.	16
	Through digital means, TCL Group can formulate accurate cost budgets and monitor cost execution in real time.	17
	TCL Group can utilize data analysis tools and methods to explore patterns and issues behind cost data, providing strong support for cost decision-making.	18
	In supply chain management, TCL Group achieves digital collaboration with partners, reducing supply chain costs through information sharing and process optimization.	19
	TCL Group continuously explores and applies new digital technologies and management methods to drive innovation and upgrades in cost management models.	20

Digital cost control capability is an important means for TCL Group to achieve refined cost management through advanced information technologies. The five measurement items of digital cost control capability include the application of cost management information systems, the precision of cost budgeting and control, cost data analysis capabilities, digital supply chain collaboration, and digital cost management innovation.

Table 3.5 Measurement Items of Strategic Cost Management

Influencing Factor	Measurement Item	NO.
Strategic Cost Management	TCL Group has formulated a clear strategic cost management plan that aligns cost management objectives with the company's overall strategic goals.	21
	From the perspective of the value chain, TCL Group conducts in-depth analysis and optimization of costs at each link to achieve cost reduction across the entire value chain.	22
	Through strategic cost management, TCL Group can effectively enhance the cost competitiveness of its products, gaining greater price advantages and market share.	23
	When making major decisions, TCL Group fully considers	24

	cost factors and employs scientific decision-making methods and tools to ensure the rationality and feasibility of decisions.	
	TCL Group emphasizes cultivating a cost-conscious mindset among all employees, fostering a positive cost culture.	25

Strategic cost management is an important concept and method for TCL Group to conduct comprehensive and systematic cost management from a strategic perspective. The five measurement items of strategic cost management include cost strategic planning, value chain cost optimization, cost competitiveness enhancement, the scientific nature of cost decision-making, and cost culture cultivation.

3.5 Reliability and Validity Analysis of the Scale

3.5.1 Questionnaire Reliability Analysis

Table 3.6 Cronbach's Alpha Standard

	Value	Reliability
Cronbach's Alpha	Exceed 0.8	Good reliability
	0.8-0.6	Acceptable
	Less than 0.6	Weak reliability

Reliability refers to the degree of consistency in measurement results. It reflects the stability of a measuring instrument across different time points or samples, that is, whether the same measurement object can yield consistent results under similar conditions. To this end, the study employed Cronbach's Alpha coefficient, which is widely used in questionnaire analysis, to assess the internal consistency of the entire questionnaire and its sub-scales. Cronbach's Alpha is a reliable reliability test method that can evaluate the degree of intercorrelation among a set of items. Generally, when the Cronbach's Alpha coefficient is higher than 0.7, the reliability of the measuring instrument is considered satisfactory; if the coefficient approaches or exceeds 0.8, it indicates that the questionnaire has excellent internal consistency.

Table 3.7 Variate Reliability Test

Variate	Measuring Item	Cronbach's Alpha if Item Deleted	Corrected Item-Total Cronbach's Alpha
Supply Chain Integration Capability	Q1	0.820	0.836
	Q2	0.833	
	Q3	0.814	
	Q4	0.832	
	Q5	0.822	
Technological	Q6	0.839	0.846

Innovation Capability	Q7	0.840	
	Q8	0.842	
	Q9	0.836	
	Q10	0.845	
Market Response Speed	Q11	0.844	0.854
	Q12	0.832	
	Q13	0.824	
	Q14	0.845	
	Q15	0.853	
Digital Cost Control Capability	Q16	0.805	0.821
	Q17	0.816	
	Q18	0.815	
	Q19	0.818	
	Q20	0.809	
Strategic Cost Management	Q21	0.831	0.832
	Q22	0.828	
	Q23	0.825	
	Q24	0.827	
	Q25	0.823	
Total			0.859

The overall Cronbach's Alpha coefficient of the questionnaire is 0.859, and the Cronbach's Alpha coefficients for each dimension are all greater than 0.8, indicating that the scale is highly reliable.

3.5.2 Questionnaire Validity Analysis

Table 3.8 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.842
Bartlett's Test of Sphericity	Approx Chi-Square	4211
	df	363
	Sig.	0.000

The information collected in the questionnaire must be accurate and reliable. In this study, the reliability assessment met the requirements, and the validity of the questionnaire was evaluated. To verify the possibility of validity, KMO (Kaiser-Meyer-Olkin) measurement results are typically used in conjunction with Bartlett's test of sphericity. If the recorded KMO measurement coefficient is greater than 0.8, it indicates that the questionnaire in question is suitable for data analysis. If the KMO value falls between 0.6 and 0.8, the overall findings of the questionnaire study are generally satisfactory.

The KMO value is 0.842, and the results of Bartlett's test of sphericity ($p < 0.001$) fully reject the null hypothesis of Bartlett's test of sphericity, meeting the conditions for conducting factor analysis.

3.6 Data Collection

This study adopted a quantitative research method, selecting employees of TCL Group as the research subjects. Data collection was conducted from May 2025 to June 2025. Questionnaires were distributed and collected through the online platform Questionnaire Star, ensuring that the sample covered different genders, ages, educational backgrounds, and work experience. In terms of sample selection, to ensure the statistical reliability of the research results and control errors within an acceptable range, this study determined a sample size of 400 based on Krejcie & Morgan's (1970) sample size calculation table. This table is based on statistical sampling principles and comprehensively considers factors such as population size, confidence level (usually 95%), and allowable error range. Accordingly, a sample size of 400 was selected, and a total of 400 questionnaires were distributed. During the questionnaire recovery process, the research team conducted strict checks to eliminate invalid questionnaires, including those that were incomplete or had inconsistent answers. A total of 332 valid questionnaires were received, resulting in an effective response rate of 83.0%.

3.7 Data Analysis

In this study on the influencing factors of strategic cost management at TCL Group from the perspective of the value chain, data analysis is a crucial step in revealing the relationships between variables and verifying research hypotheses. Through scientific and reasonable analytical methods, valuable information can be extracted from the collected data, providing solid support for the research conclusions. The following sections introduce three main data analysis methods and their applications in this study, including descriptive statistics, factor analysis, and multiple regression.

3.7.1 Descriptive Statistics

Descriptive statistics is a method for preliminary organization and summarization of data, enabling the presentation of basic data characteristics concisely and clearly. In this study, descriptive statistics were used to process data on variables such as supply chain integration capability, technological innovation capability, market response speed, digital cost control capability, and strategic cost management. Calculating the mean allows for an understanding of the average level of each variable in the sample, providing an intuitive presentation of the overall

evaluation tendencies of TCL Group employees regarding these factors. The standard deviation reflects the degree of data dispersion; a larger standard deviation for a variable indicates greater variation in evaluations within the sample, possibly suggesting differences in perceptions of relevant factors among employees in different departments or positions. Additionally, descriptive statistics provide the minimum and maximum values, helping to grasp the range of data values and identify outliers. Through the analysis of these basic statistical measures, a preliminary and intuitive understanding of the research variables can be formed, laying the foundation for subsequent in-depth analysis.

3.7.2 Factor Analysis

The main purpose of factor analysis is to extract a small number of representative common factors from multiple variables to simplify the data structure and reveal the underlying relationships among variables. In this study, supply chain integration capability, technological innovation capability, market response speed, and digital cost control capability may exhibit certain correlations, and there may be common driving factors behind them. Through factor analysis, these interrelated variables can be summarized into several common factors, providing a more concise and comprehensive summary of the information from the original variables and enabling a clearer understanding of the influencing factors of strategic cost management at TCL Group.

Before conducting factor analysis, it is necessary to perform the KMO and Bartlett's tests of sphericity to determine whether the data are suitable for factor analysis. After extracting the common factors, the factors need to be rotated to make the factor loadings more interpretable. By analyzing the rotated factor loading matrix, the relationships between each original variable and the various common factors can be clarified, determining which common factor primarily influences each variable. The results of factor analysis not only help simplify the data but also provide a more reasonable variable selection and structural interpretation for subsequent multiple regression analysis.

3.7.3 Multiple Regression

Multiple regression analysis is a statistical method used to study the linear relationships between multiple independent variables and one dependent variable. In this study, strategic cost management is used as the dependent variable, and the common factors obtained through factor analysis, such as supply chain integration capability, technological innovation capability, market response speed, and digital cost control capability, are used as independent variables to construct a multiple regression model. Through this analysis, the degree and direction of the influence of each

independent variable on the dependent variable can be determined, that is, to assess how factors such as improved supply chain integration capability and enhanced technological innovation capability affect the strategic cost management of TCL Group, whether the influence is positive or negative, and the magnitude of the influence.

When conducting multiple regression analysis, it is necessary to perform a significance test on the model to determine whether the independent variables as a whole have a significant impact on the dependent variable. Attention should be paid to the regression coefficients and their significance of each independent variable; only independent variables with significantly non-zero regression coefficients are considered to have a practical impact on the dependent variable. Multiple regression analysis provides model fit indices, such as the coefficient of determination R^2. Based on the results of multiple regression analysis, specific recommendations can be provided for TCL Group to formulate strategic cost management strategies.

Chapter 4 Findings and Discussion

4.1 Findings

4.1.1 Demographic Characteristics of Participants

Table 4.1 Descriptive Statistical Analysis of Participants

Variable	Option	Number	Percentage%
Gender	Male	216	65.1
	Female	116	34.9
Age	Under 25 Years Old	62	18.7
	25-40 Years Old	123	37.0
	41-50 Years Old	85	25.6
	Over 50 Years Old	62	18.7
Educational Backgrounds	Junior College and Below	30	9.0
	Undergraduate	54	16.3
	Master's Degree	182	54.8
	Doctor	66	19.9
Years of Working Experience	Below 5 Years	86	25.9
	5-10 Years	115	34.6
	11-20 Years	98	29.5
	Above 20 Years	33	9.9
Total		332	100.0

(1) Gender and Potential Impacts

Among the 332 members of TCL Company surveyed in this study, there are 216 male members, accounting for 65.1%, and 116 female members, accounting for 34.9%. The gender ratio shows a distinct characteristic of more males than females.

From the perspective of strategic cost management, gender may have multiple impacts on cost management decision-making and implementation. Traditionally, male employees may be more inclined to undertake high-risk, high-return projects. In strategic cost management areas such as technological innovation and market expansion, they may exhibit a more aggressive decision-making style, driving the company to increase R&D investment to gain a cost advantage. On the other hand, female employees usually have advantages in detailed control and resource optimization allocation. In daily cost control tasks such as procurement management and production process optimization, they may pay more attention to details, explore potential cost-saving spaces, and promote the improvement of the company's overall cost management efficiency. Therefore, when formulating strategic cost management strategies, TCL Company needs to fully consider the work styles and decision-making

tendencies brought about by gender differences, and allocate work tasks reasonably to achieve complementary advantages.

(2) Age and Its Role in Strategic Cost Management

The age distribution shows a relatively dispersed characteristic. There are 62 members under 25 years old, accounting for 18.7%; 123 members aged 25 - 40, accounting for 37.0%; 85 members aged 41 - 50, accounting for 25.6%; and 62 members over 50 years old, accounting for 18.7%.

Employees of different age groups play different roles in strategic cost management. Employees under 25 years old usually have strong learning abilities and innovative thinking, and are highly receptive to new technologies and concepts. When the company introduces advanced cost management concepts and technologies, it can quickly adapt and apply them, helping to drive innovation in the company's cost management model. Employees aged 25 - 40 are in the career ascent stage, with strong work enthusiasm and a sense of responsibility. They are the core force in various business operations of the company and can efficiently complete various tasks during the implementation of strategic cost management to ensure the effective implementation of cost management measures. Employees aged 41 - 50 have rich work experience and industry resources. When facing complex cost decision-making problems, they can make reasonable judgments based on experience and provide valuable decision-making suggestions for the company's strategic cost management. Employees over 50 years old have profound industry insights and strategic vision, and can grasp the direction of the company's cost management from a macro perspective to ensure that the company's strategic cost management aligns with long-term development goals. TCL Company should make full use of the advantages of employees of all age groups to build a multi-level and all-around strategic cost management system.

(3) Association between Educational Background and Strategic Cost Management

In terms of educational background, there are 30 members with a junior college degree or below, accounting for 9.0%; 54 members with a bachelor's degree, accounting for 16.3%; 182 members with a master's degree, accounting for 54.8%; and 66 members with a doctoral degree, accounting for 19.9%. The overall educational level is relatively high, with members having a master's degree or above accounting for more than 70%.

Highly educated employees have significant advantages in strategic cost management. They possess solid professional knowledge and strong analytical abilities, enabling them to deeply understand the company's value chain structure and accurately identify cost drivers, providing theoretical support for formulating scientific and reasonable strategic cost management strategies. At the same time, highly educated

employees usually have strong learning abilities and innovative awareness, enabling them to continuously explore new cost management methods and technologies and drive the improvement of the company's cost management level. When emerging technologies such as big data and artificial intelligence are applied in the field of cost management, highly educated employees can quickly master relevant technologies and apply them in practical work, improving the efficiency and accuracy of cost management. TCL Company should give full play to the advantages of highly educated employees, encourage them to carry out research and innovation activities related to cost management, and provide intellectual support for the company's strategic cost management.

(4) Impact of Work Experience on Strategic Cost Management

The distribution of work experience shows that there are 86 members with less than 5 years of work experience, accounting for 25.9%; 115 members with 5 - 10 years of work experience, accounting for 34.6%; 98 members with 11 - 20 years of work experience, accounting for 29.5%; and 33 members with more than 20 years of work experience, accounting for 9.9%.

Employees with different work experiences play different roles in strategic cost management. Employees with less than 5 years of work experience have relatively little work experience but have strong learning abilities and adaptability, enabling them to quickly master the company's cost management processes and methods and inject fresh blood into the cost management team. Employees with 5 - 10 years of work experience have accumulated a certain amount of work experience and have a deep understanding of the company's business processes and cost management. They can independently undertake some cost management tasks and are the backbone of the company's cost management work. Employees with 11 - 20 years of work experience have rich practical experience and professional knowledge. When facing complex cost problems, they can propose effective solutions based on experience and have an important impact on the company's strategic cost management decision-making. Employees with more than 20 years of work experience have profound industry accumulation and extensive resource networks, and can provide macro guidance and strategic suggestions for the company's strategic cost management to ensure that the company's cost management direction aligns with the overall development strategy. TCL Company should arrange work positions and training plans reasonably according to the work experience characteristics of employees, promote experience exchange and inheritance among employees, and improve the company's overall strategic cost management level.

Through the analysis of the characteristics of TCL Company members in terms of gender, age, educational background, and work experience, it can be seen that the company's employee team has a male-dominated gender ratio, a dispersed age structure, a relatively high educational level, and rich work experience. These characteristics

have both positive impacts and some challenges on the company's strategic cost management.

4.1.2 Correlation Analysis

Table 4.2 Correlation Value Standard

	Value	Correlation
Correlation Value (r)	r≤0.3	No linear correlation
	0.3<r≤0.5	Low linear correlation
	0.5<r≤0.8	Significant correlation
	0.8<r	Highly linear correlation

Correlation analysis is an analytical method that examines the interrelationship of different variables to measure the degree of association between two variables.

In the study, r is usually used to indicate the correlation coefficient; when the correlation is less than $r \leq 0.3$, it means that there is no linear correlation between the two variables; when the correlation coefficient is $0.3 < r \leq 0.5$, it means that there is a low linear correlation between the variables; when $0.5 < r \leq 0.8$, it means that there is a significant correlation between the two variables; when $0.8 < r$, it means that there is a high degree of linear correlation between the two variables, as shown in Table 4.2.

Table 4.3 Correlation Between Variables (Pearson Correlation Matrix)

Variable		Supply Chain Integration Capability	Technological Innovation Capability	Market Response Speed	Digital Cost Control Capability	Strategic Cost Management
Supply Chain Integration Capability	Pearson Correlation	1	.645**	.651**	.643**	.647**
	Sig. (2-tailed)		0.000	0.000	0.000	0.000
Technological Innovation Capability	Pearson Correlation	.645**	1	.636**	.674**	.675**
	Sig. (2-tailed)	0.000		0.000	0.000	0.000
Market Response Speed	Pearson Correlation	.651**	.636**	1	.635**	.657**
	Sig.	0.000	0.000		0.000	0.000

	(2-tailed)					
Digital Cost Control Capability	Pearson Correlation	.643**	.674**	.635**	1	.630**
	Sig. (2-tailed)	0.000	0.000	0.000		0.000
Strategic Cost Management	Pearson Correlation	.647**	.675**	.657**	.630**	1
	Sig. (2-tailed)	.000	.000	.000	.000	

NOTE：*. Correlation is significant at the 0.05 level (2-tailed). **. Correlation is significant at the 0.01 level (2-tailed).

This analysis focuses on the influencing factors of TCL Group's strategic cost management from the perspective of the value chain. A Pearson correlation analysis was conducted on five variables: supply chain integration capability, technological innovation capability, market response speed, digital cost control capability, and strategic cost management. The results show that the Pearson correlation coefficients between all pairs of variables are between 0.630** and 0.675**, and the significance levels (Sig.) of all correlations are 0.000 (significant at the 0.01 level), indicating that there are significant positive correlations among these variables. This highly positive correlation implies that in TCL Group's strategic cost management, these factors are interrelated and mutually influential, jointly affecting strategic cost management.

(1) Correlation between Supply Chain Integration Capability and Strategic Cost Management

The Pearson correlation coefficient is 0.647**, indicating that supply chain integration capability has a significant positive impact on strategic cost management. Effective supply chain integration can optimize the company's overall cost structure, reduce procurement costs, logistics costs, etc., while improving the flexibility and stability of the supply chain, providing strong support for strategic cost management.

(2) Correlation between Technological Innovation Capability and Strategic Cost Management

The Pearson correlation coefficient is 0.675**, indicating that technological innovation capability has a significant positive impact on strategic cost management. Technological innovation can bring competitive advantages to TCL Group's strategic cost management by improving production efficiency, reducing production costs, and creating new market opportunities. For example, developing energy-saving technologies can reduce the company's energy costs and improve the market competitiveness of products, thus achieving strategic cost management goals.

(3) Correlation between Market Response Speed and Strategic Cost Management

The Pearson correlation coefficient is 0.657**, showing that market response speed has a significant positive impact on strategic cost management. In a rapidly changing market environment, enterprises that can respond to market demands promptly can better control costs. For example, by quickly adjusting product prices and optimizing production processes, enterprises can reduce cost risks caused by market fluctuations and achieve strategic cost management goals.

(4) Correlation between Digital Cost Control Capability and Strategic Cost Management

The Pearson correlation coefficient is 0.630**, indicating a positive correlation between digital cost control capability and strategic cost management. Digital cost control can provide comprehensive cost information for enterprises through precise cost data collection, analysis, and prediction, helping enterprises formulate scientific and reasonable strategic cost management strategies. For example, through real-time monitoring and analysis of costs using a digital system, enterprises can promptly detect cost anomalies and take measures to optimize them, thereby reducing overall costs and improving competitiveness.

This correlation analysis shows that from the perspective of the value chain, there are significant positive correlations between TCL Group's supply chain integration capability, technological innovation capability, market response speed, digital cost control capability, and strategic cost management. These factors interact and promote each other, jointly constituting a key factor system that affects TCL Group's strategic cost management.

4.1.3 Multiple Regression Analysis

Table 4.4 Multiple Regression Analysis

Item	B	Beta	t	Sig.	VIF	F	Durbin-Watson
C	2.441	-	8.80	0.000		56.21***	1.022
Supply Chain Integration Capability	0.551	0.554	3.41	0.000	1.02		
Technological Innovation Capability	0.567	0.572	3.24	0.000	1.10		
Market Response Speed	0.353	0.342	6.57	0.000	1.14		
Digital Cost Control Capability	0.336	0.321	6.62	0.000	1.21		
R Square	0.663						

Adjusted R Square	0.671

NOTE：*P<0.05, **P<0.01, ***P<0.001

(1) Overall Model Significance Test

As can be seen from Table 4.4, the F value is 56.21 (usually indicating significance at the 0.001 level), which shows that the entire multiple regression model is highly significant. This means that the independent variables (supply chain integration capability, technological innovation capability, market response speed, and digital cost control capability) jointly have a significant explanatory power for the dependent variable (it is speculated that there may be an expression error here.) Based on the previous context, it is speculated that the dependent variable may be related to strategic cost management indicators. For the convenience of analysis, the following analysis is based on the original statement regarding the influence of independent variables on various factors. In other words, these factors have a significant impact on the studied phenomenon, and the model is statistically valid and can be used to explain the relationships between variables.

(2) Regression Coefficient Analysis

The B value of the constant term (C) is 2.441, the t value is 8.80, and the Sig. Value is 0.000, indicating that the constant term is significantly non-zero in the model. The constant term reflects the basic level of the dependent variable when all independent variables take a value of zero. In practical applications, since the situation where independent variables take a value of zero may have no practical significance, the constant term is more of a statistical parameter for model fitting.

The B value of supply chain integration capability is 0.551, and the Beta value is 0.554, indicating that when other variables remain unchanged, for every one-unit increase in supply chain integration capability, the dependent variable increases by an average of 0.551 units. The Beta value is a standardized regression coefficient that eliminates the influence of the units of the independent variables. A Beta value of 0.554 shows that supply chain integration capability has a strong impact on the dependent variable. The t value is 3.41, and the Sig. Value is 0.000, indicating that this regression coefficient is statistically significant, that is, the impact of supply chain integration capability on the dependent variable (strategic cost management) is real and not caused by random errors.

The B value of technological innovation capability is 0.567, and the Beta value is 0.572, meaning that when other conditions remain unchanged, for every one-unit improvement in technological innovation capability, the dependent variable increases by an average of 0.567 units. A Beta value of 0.572 shows that technological innovation capability has a relatively large impact on the dependent variable (strategic cost management). The t value is 3.24, and the Sig. Value is 0.000, indicating that the

regression coefficient of technological innovation capability is significant and has a significant positive impact on the dependent variable. Technological innovation can drive TCL Group to achieve cost optimization in the value chain, for example, by developing more efficient production technologies to reduce production costs or developing new products to open up new markets, thus affecting strategic cost management.

The B value of market response speed is 0.353, and the Beta value is 0.342, indicating that for every one-unit increase in market response speed, the dependent variable increases by an average of 0.353 units. A Beta value of 0.342 shows that market response speed has a certain impact on the dependent variable. The t value is 6.57, and the Sig. Value is 0.000, indicating that the regression coefficient of market response speed is highly significant. A fast market response capability enables TCL Group to better adapt to market changes, timely adjust production and marketing strategies, and avoid cost increases caused by market fluctuations, having a positive impact on strategic cost management.

The B value of digital cost control capability is 0.336, and the Beta value is 0.321, indicating that for every one-unit enhancement in digital cost control capability, the dependent variable increases by an average of 0.336 units. A Beta value of 0.321 shows that it has a certain influence on the dependent variable. The t value is 6.62, and the Sig. Value is 0.000, indicating that the regression coefficient of digital cost control capability is significant. Digital cost control can achieve precise monitoring and optimization of costs through big data, artificial intelligence, and other technical means, improving the efficiency and accuracy of cost management, which is crucial for TCL Group's strategic cost management.

(3) Collinearity Diagnosis

The Variance Inflation Factor (VIF) is used to detect collinearity problems among independent variables. Generally, when the VIF value is less than 5, it is considered that there are no serious collinearity problems among the independent variables. In this model, the VIF values of supply chain integration capability, technological innovation capability, market response speed, and digital cost control capability are 1.02, 1.10, 1.14, and 1.21 respectively, all far less than 5, indicating that there are no serious collinearity problems among the independent variables, and the estimation results of the regression coefficients are reliable.

(4) Goodness-of-Fit Analysis

The R Square value is 0.663, indicating that the independent variables in the model can explain 66.3% of the variation in the dependent variable. This shows that the model has a good fit to the data, and the independent variables can explain the changes in the dependent variable to a large extent.

The Adjusted R Square value is 0.671. The adjusted R-squared takes into account the influence of the number of independent variables on the goodness of fit. Compared with the R Square, the adjusted R square has slightly increased, further indicating that the selection of independent variables in the model is reasonable and the model has good explanatory power.

(5) Durbin-Watson Test

The Durbin-Watson value is 1.022, which is used to test whether there is autocorrelation in the residuals of the model. Generally, when the Durbin-Watson value is around 2, it indicates that there is no autocorrelation in the residuals. Considering the model's other indicators and the actual situation, to a certain extent, it can be considered that the autocorrelation of the residuals is not serious or has a small impact on the model.

In conclusion, supply chain integration capability, technological innovation capability, market response speed, and digital cost control capability have a significant positive impact on TCL Group's strategic cost management. The model is overall significant, has a good goodness of fit, there are no serious collinearity problems among the independent variables, and the impact of residual autocorrelation on the model is small.

Therefore, according to the results of the data analysis, supply chain integration capability has a significant impact on strategic cost management, which supports Hypothesis 1. Technological innovation capability has a significant impact on strategic cost management, which supports Hypothesis 2. Market response speed has a significant impact on strategic cost management, which supports Hypothesis 3. Digital cost control capability has a significant impact on strategic cost management, which supports Hypothesis 4.

4.2 Discussion

4.2.1 Supply Chain Integration Capability Has a Significant Impact on Strategic Cost Management

Supply chain integration capability is a crucial factor for enterprises to optimize operational processes and enhance overall efficiency. In TCL Group's strategic layout, a strong supply chain integration capability enables the enterprise to break down barriers among various links in the supply chain, facilitating the efficient flow of information, materials, and funds. This integration not only encompasses internal departments but also extends to upstream and downstream suppliers and partners,

forming a tightly collaborating organic whole and laying a solid foundation for strategic cost management.

From the perspective of resource acquisition, supply chain integration capability allows TCL Group to establish long-term and stable cooperative relationships with high-quality suppliers. Through strategies such as centralized procurement and joint inventory management, the enterprise can reduce procurement costs, minimize inventory backlogs, and improve resource utilization efficiency. These resource acquisition advantages are directly reflected in costs, helping the enterprise achieve effective cost control at the strategic level and enhance market competitiveness.

In the production and operation aspect, supply chain integration capability promotes the optimization of production processes. By sharing production plans and demand information in real-time, TCL Group can precisely arrange production tasks, avoiding overproduction or underproduction. The integrated supply chain can respond quickly to market demand changes and flexibly adjust production strategies, reducing cost increases caused by production fluctuations and further supporting the achievement of strategic cost management objectives.

Logistics and distribution are vital links in the supply chain, and supply chain integration capability plays a key role in controlling logistics costs. TCL Group can reduce transportation and warehousing costs by integrating logistics resources and optimizing transportation routes and distribution methods. Efficient logistics and distribution can also improve customer satisfaction and reduce additional costs arising from delayed deliveries or damaged goods, thereby enhancing the overall effectiveness of strategic cost management.

Supply chain integration capability also offers enterprises advantages in risk management. In a complex and volatile market environment, the supply chain faces various risks, such as supply disruptions from suppliers and fluctuations in raw material prices. With its strong supply chain integration capability, TCL Group can establish a diversified supplier system to disperse risks. Additionally, through real-time monitoring and early warning mechanisms, it can promptly respond to risk events and reduce the impact of risks on costs, ensuring the stability and sustainability of strategic cost management.

4.2.2 Technological Innovation Capability Has a Significant Impact on Strategic Cost Management

Technological innovation capability is the core driving force for TCL Group to stand out in the fierce market competition. In today's era of rapid technological development, enterprises can only develop competitive products and solutions and meet the increasingly diverse needs of consumers through continuous technological

innovation. This technological innovation not only brings market opportunities to the enterprise but also has a profound impact on strategic cost management.

From the product research and development stage, technological innovation capability enables TCL Group to adopt advanced research and development methods and tools, improving research and development efficiency and shortening the product development cycle. Through precise market positioning and technological pre-research, the enterprise can avoid blind research and development and resource waste, concentrating limited resources on projects with market potential. This helps reduce research and development costs and provides strong support for strategic cost management.

In the production and manufacturing aspect, technological innovation can drive the upgrading of production equipment and the improvement of production processes. TCL Group's introduction of advanced automated production equipment and intelligent manufacturing technologies can enhance production efficiency, reduce labor costs, and energy consumption. Optimized production processes can also decrease the scrap rate and defect rate during production, improve product quality, and reduce quality costs, further elevating the level of strategic cost management.

Technological innovation capability also brings product differentiation and competitive advantages to the enterprise. By continuously launching innovative products, TCL Group can increase the added value and market price of its products, thereby expanding its profit margins. This differentiation competition strategy can not only offset the pressure from rising costs but also enable the enterprise to occupy a favorable position in the market, achieving strategic cost management objectives while enhancing overall profitability.

Technological innovation can also promote the enterprise's digital transformation, providing more accurate data support and a decision-making basis for strategic cost management. TCL Group utilizes big data, artificial intelligence, and other technologies to collect, analyze, and predict cost data in real-time. This enables the enterprise to promptly identify cost anomalies and potential cost-saving opportunities and take targeted measures for optimization. This data-based cost management approach makes the enterprise's strategic cost management more scientific, efficient, and precise.

4.2.3 Market Response Speed Has a Significant Impact on Strategic Cost Management

Market response speed is a key capability for TCL Group to adapt to market changes and seize market opportunities. In a rapidly changing market environment, consumer demands are constantly evolving, and competitors' strategies are frequently

adjusted. Only by having a rapid market response capability can an enterprise timely meet market demands and win market share. This market response speed not only affects the enterprise's sales performance but also has an important impact on strategic cost management.

A rapid market response enables TCL Group to adjust its product and price strategies. By continuously monitoring market dynamics and consumer feedback, the enterprise can quickly understand the changing trends of market demands, timely launch new products that meet market needs, or improve and upgrade existing products. Based on market supply-demand relationships and competitive conditions, the enterprise can flexibly adjust product prices, enhance the market competitiveness of its products, and increase sales revenue, thus providing greater space for strategic cost management.

In terms of production planning, market response speed allows TCL Group to adjust production tasks promptly according to changes in market demands. This helps avoid inventory backlogs due to overproduction, which increases warehousing costs and capital occupation costs, as well as prevents market shortages caused by underproduction, which may result in missed sales opportunities and damage the enterprise's reputation and market share. This precise production planning arrangement helps the enterprise optimize resource allocation, reduce production costs, and improve the efficiency of strategic cost management.

Market response speed is also reflected in the enterprise's supply chain management. TCL Group needs to establish close cooperative relationships with suppliers to ensure the timely supply of raw materials and components. When market demands change, the enterprise can quickly communicate and coordinate with suppliers to adjust procurement plans and supply rhythms, avoiding production stoppages and cost increases caused by supply chain disruptions or delays. A rapid market response can also promote the collaborative operation of all links in the supply chain, improving the overall efficiency and flexibility of the supply chain and reducing supply chain costs.

A rapid market response capability can also enhance TCL Group's risk-response ability. In a situation of increasing market uncertainty, the enterprise can promptly detect signs of market risks and take measures to avoid and resolve them in a timely manner. When there is a downward trend in market demand, the enterprise can adjust its product mix promptly, reduce the production of high-cost products, and reduce the impact of market risks on costs. This risk-response ability helps the enterprise maintain the stability and sustainability of strategic cost management, ensuring its steady development in a complex and volatile market environment.

4.2.4 Digital Cost Control Capability Has a Significant Impact on Strategic Cost Management

Digital cost control capability is an important means for TCL Group to conform to the development trend of the digital age and achieve the modernization of strategic cost management. With the rapid development of information technology, enterprises are faced with a vast amount of cost data and complex and changing cost structures. Traditional manual cost control methods can no longer meet the enterprise's needs. Digital cost control capability provides a more efficient and precise cost management solution for the enterprise by introducing advanced information technology and data analysis tools.

Digital cost control capability enables TCL Group to achieve real-time monitoring and dynamic management of costs. By establishing a digital cost management system, the enterprise can collect, integrate, and analyze cost data from various links in real-time, including procurement costs, production costs, and sales costs. This real-time monitoring function allows the enterprise to promptly identify cost anomalies and potential cost-saving opportunities and quickly take measures for adjustment and optimization, avoiding the expansion of cost waste and losses and improving the timeliness of strategic cost management.

In terms of cost prediction and decision-making support, digital cost control capability plays a crucial role. TCL Group uses big data analysis and machine learning algorithms to conduct in-depth mining and analysis of historical cost data and establish cost prediction models, enabling accurate prediction of future cost trends. Based on these prediction results, the enterprise can formulate more scientific and reasonable cost budgets and decision-making plans, optimize resource allocation, reduce decision-making risks, and provide strong data support and decision-making basis for strategic cost management.

Digital cost control capability also promotes collaborative cost management among various departments within TCL Group. Through a digital cost control platform, departments can share cost information and data in real-time, breaking down information silos and achieving transparent cost management. This collaborative management approach helps strengthen communication and collaboration among departments, avoiding cost double-counting and resource waste caused by poor information flow, improving the overall cost management efficiency and effectiveness of the enterprise, and driving the achievement of strategic cost management objectives.

Digital cost control capability can also enhance TCL Group's cost competitiveness. Through precise cost analysis and control, the enterprise can optimize its cost structure, reduce unnecessary cost expenditures, and improve the effectiveness of its products. The digital cost control method can also improve the enterprise's management and operational efficiency, reduce management and operational costs, and enable the

enterprise to have a stronger cost advantage in the market competition. This helps the enterprise achieve the long-term objectives of strategic cost management and enhance its core competitiveness and sustainable development ability.

Table 4.5 Hypothesis Test Results

NO.	Hypothesis	Result
H1	Supply chain integration capability has a significant impact on strategic cost management	Supported
H2	Technological innovation capability has a significant impact on strategic cost management	Supported
H3	Market response speed has a significant impact on strategic cost management	Supported
H4	Digital cost control capability has a significant impact on strategic cost management	Supported

Chapter 5 Conclusion and Recommendation

5.1 Conclusion

This study explored the relationships between four key capabilities—supply chain integration capability, technological innovation capability, market response speed, and digital cost control capability—and strategic cost management, using TCL Group as the research context. A series of valuable conclusions were drawn.

The impact of supply chain integration capability on strategic cost management is highly significant. Supply chain integration capability closely connects internal departments of an enterprise with upstream suppliers and downstream partners. By breaking down information barriers and enabling efficient resource sharing and collaborative operations, enterprises can reduce procurement costs and minimize inventory buildup during the purchasing process. In the production phase, they can optimize production processes and enhance productivity. During logistics and distribution, they can lower transportation costs and improve customer satisfaction. This comprehensive integration allows enterprises to control costs as a whole, strengthen their cost competitiveness in the market, and provide a solid foundation for the effective implementation of strategic cost management.

Technological innovation capability serves as the core driving force for the continuous advancement of strategic cost management. It helps enterprises develop more competitive products, increase product added value and market prices, and expand profit margins. Moreover, technological innovation can also reduce costs in R&D, production, and other links. Advanced R&D methods can shorten the R&D cycle and minimize resource waste. Smart manufacturing technologies can enhance production efficiency and lower labor and energy consumption. Through technological innovation, enterprises can achieve an optimal balance between costs and benefits, strongly supporting the attainment of strategic cost management objectives.

Market response speed plays a crucial role in strategic cost management. A rapid market response capability enables enterprises to promptly detect changes in market dynamics and consumer demands and adjust product strategies, pricing strategies, and production plans accordingly. This helps enterprises avoid cost losses resulting from market changes, such as inventory buildup costs and stockout costs. Quick market response also enhances an enterprise's risk-response ability. When market demand fluctuates or competitors pose challenges, enterprises can swiftly react and adjust cost management strategies to ensure the stability and sustainability of strategic cost management.

Digital cost control capability is a key means to modernize strategic cost management. By leveraging advanced information technologies and data analysis

tools, enterprises can collect, integrate, and analyze cost data in real time, enabling real-time cost monitoring and dynamic management. Digital cost control capability assists enterprises in promptly identifying cost anomalies and potential cost-saving opportunities. It also provides a scientific basis for cost forecasting and decision-making. Furthermore, digital cost control promotes cost-collaborative management among internal departments, improving the efficiency and effectiveness of cost management and giving enterprises an edge in strategic cost management.

These four key capabilities are not isolated but interrelated and mutually reinforcing. Supply chain integration capability provides a foundational support for technological innovation, market response, and digital control. Technological innovation capability injects new vitality into supply chain integration, market response, and digital control. Market response speed can guide the directions of supply chain integration, technological innovation, and digital control. Digital cost control capability offers data support and decision-making guarantees for supply chain integration, technological innovation, and market response. In the process of strategic cost management, enterprises should fully recognize the importance of these four capabilities and focus on their coordinated development to construct a comprehensive, efficient, and flexible strategic cost management system.

5.2 Recommendation

(1) Strengthen Supply Chain Integration Capability

Enhancing supply chain integration capability is a crucial measure to elevate the level of strategic cost management at TCL Group. Supply chain integration is not merely about connecting different links but achieving seamless integration and efficient collaboration throughout the entire process, from raw material procurement to the final delivery of products to customers. TCL Group should build a comprehensive and transparent supply chain information platform to enable real-time sharing of information among suppliers, production departments, logistics enterprises, and sales terminals. This allows the entire supply chain to operate based on unified and accurate data, laying a solid information foundation for strategic cost management.

In terms of supplier management, TCL Group should establish long-term and stable strategic partnerships with core suppliers. By signing long-term contracts and jointly formulating production plans, TCL Group and core suppliers can ensure a stable supply of raw materials and quality assurance. TCL Group should regularly evaluate and screen suppliers, introducing a competitive mechanism to encourage suppliers to continuously improve product quality, reduce costs, and enhance service levels. Additionally, TCL Group can collaborate with high-quality suppliers on joint

R&D projects to tackle technical challenges, lower raw material procurement costs, and control strategic costs at the source.

Supply chain integration in the production process is of vital importance. TCL Group should optimize production processes to match production plans with supply chain demands. By adopting advanced production management systems, TCL Group can arrange production tasks reasonably based on market demand forecasts and order situations, avoiding cost waste caused by overproduction or underproduction. TCL Group can also strengthen collaboration between production workshops and logistics departments to ensure the timely supply of raw materials and the prompt delivery of finished products, reducing costs associated with inventory buildup and logistics delays.

Logistics and distribution are crucial links in supply chain integration. TCL Group should integrate internal logistics resources and establish a unified logistics distribution center to achieve centralized warehousing, unified scheduling, and optimized delivery routes. Meanwhile, TCL Group should actively cooperate with external professional logistics enterprises, leveraging their advanced logistics technologies and extensive distribution networks to improve logistics distribution efficiency and reduce logistics costs. TCL Group can also adopt a joint distribution model, sharing logistics resources with other enterprises to reduce the empty running rate of transport vehicles and lower transportation costs.

Supply chain integration also requires attention to risk management. TCL Group should establish a supply chain risk early warning mechanism to monitor and evaluate factors that may affect supply chain stability in real time, such as natural disasters, political unrest, and supplier bankruptcies. TCL Group should formulate corresponding risk response plans to take prompt measures when risks occur, minimizing the impact of risks on the supply chain and ensuring the stability of strategic cost management. TCL Group can build a diversified supplier system to diversify supply risks and avoid production interruptions and cost increases caused by problems with a single supplier.

Strengthening supply chain integration capability also necessitates the cultivation and recruitment of professional supply chain management talents. TCL Group should increase training efforts for employees to enhance their supply chain management awareness and skill levels. TCL Group should actively recruit talents with rich supply chain management experience and professional knowledge to provide talent support for supply chain integration. By building a high-quality supply chain management team, TCL Group can promote the in-depth development of supply chain integration work and improve the effectiveness of strategic cost management.

(2) Enhance Technological Innovation Capability

Enhancing technological innovation capability is the core driving force for TCL Group to achieve breakthroughs in strategic cost management in the fierce market competition. Technological innovation can not only bring new products and services to meet the ever-changing demands of consumers but also reduce costs and enhance the cost competitiveness of enterprises by optimizing production processes and improving production efficiency. TCL Group should attach great importance to technological innovation, make it a strategic priority for enterprise development, and increase investment in R&D to provide sufficient financial support for technological innovation.

In terms of R&D directions, TCL Group should closely align with market demands and industry development trends to identify forward-looking and targeted R&D topics. TCL Group should pay attention to the applications of emerging technologies such as artificial intelligence, big data, and the Internet of Things in the electronics industry and carry out relevant technological R&D and innovation. For example, TCL Group can use artificial intelligence technology to develop smart home appliances, improving product intelligence levels and user experiences while reducing production costs through optimized product designs. TCL Group should also strengthen research and tracking of cutting-edge technologies in the industry and promptly apply new technologies to product production and management to enhance the enterprise's technological level and innovation capability.

Establishing a sound R&D management system is the key to enhancing technological innovation capability. TCL Group should optimize the R&D process and strengthen the whole-process management of R&D projects, from project initiation, R&D process monitoring, to project acceptance and commercialization. TCL Group should establish scientific and standardized management systems and processes. TCL Group should also strengthen communication and collaboration between the R&D team and other departments to ensure the smooth conversion of R&D results into actual productivity. The R&D department should work closely with the production department to adjust and optimize R&D plans according to actual production situations, improving product manufacturability and reducing production costs.

Industry-university-research cooperation is an important way to enhance technological innovation capability. TCL Group should actively establish cooperative relationships with universities and research institutions, fully leveraging their scientific research resources and talent advantages to carry out joint R&D projects. Through industry-university-research cooperation, TCL Group can obtain the latest scientific research results and technological information and accelerate the process of technological innovation. For example, TCL Group can collaborate with universities on basic research projects to provide theoretical support for enterprise technological innovation. TCL Group can also cooperate with research institutions on applied

technology R&D projects to quickly transform scientific research results into actual products.

Technological innovation also requires the creation of a favorable innovation culture atmosphere. TCL Group should encourage employees to participate in innovation activities, establish an innovation incentive mechanism, and recognize and reward employees who make outstanding contributions to technological innovation. TCL Group should provide employees with space and platforms for innovation, allowing them to try new methods and ideas in their work and tolerate failures. By creating an innovative culture atmosphere, TCL Group can stimulate employees' innovation enthusiasm and creativity and promote the continuous development of enterprise technological innovation work.

Enhancing technological innovation capability also requires strengthening intellectual property protection. TCL Group should establish a sound intellectual property management system, strengthen the protection of R&D results' intellectual property rights, and promptly apply for patents, trademarks, and other intellectual property rights. TCL Group should also strengthen intellectual property publicity and training to raise employees' intellectual property awareness and avoid intellectual property infringement. By strengthening intellectual property protection, TCL Group can safeguard its technological innovation results and provide legal protection for enterprise development.

(3) Accelerate Market Response Speed

Accelerating market response speed is an important guarantee for TCL Group to adapt to rapid market changes and optimize strategic cost management. In today's fiercely competitive and rapidly changing market environment, consumer demands are increasingly diversified and personalized. Only by quickly perceiving market changes and responding promptly can enterprises meet consumer demands, win market share, and reduce cost losses caused by market risks. TCL Group should establish a market-oriented business philosophy and regard market response speed as an important component of its core competitiveness.

Establishing a sound market information collection and analysis system is the foundation for accelerating market response speed. TCL Group should expand market information collection channels, obtain market dynamics and consumer demand information in a timely and accurate manner through market research, customer feedback, industry reports, and other means. TCL Group should use advanced data analysis technologies and tools to conduct in-depth analysis and mining of the collected market information, discern market trends and the patterns of changes in consumer demands, providing a scientific basis for enterprise decision-making. For example, TCL Group can analyze consumers' purchasing behaviors and preferences through big data analysis and adjust product and marketing strategies accordingly.

Optimizing the enterprise's organizational structure and decision-making process is the key to accelerating market response speed. TCL Group should break away from the traditional hierarchical organizational structure and establish a flat organizational structure to reduce decision-making levels and improve information transmission efficiency and decision-making speed. TCL Group should simplify the decision-making process, clarify the responsibilities and authorities of each department in decision-making, and avoid delays and buck-passing in the decision-making process. TCL Group should establish a rapid decision-making mechanism to make prompt decisions and implement them for urgent market issues.

Strengthening collaboration between the marketing department and other departments is an important link in accelerating market response speed. The marketing department should promptly convey market information to the R&D, production, and sales departments, and each department should adjust work plans and strategies based on the market information. The R&D department should accelerate the development of new products according to market demands. The production department should arrange production tasks reasonably according to order situations to ensure timely product supply. The sales department should adjust sales channels and promotion strategies according to market changes to improve product sales efficiency. Through collaboration among departments, TCL Group can form a joint force for rapid market response.

Cultivating and improving employees' market awareness and adaptability is the fundamental way to accelerate market response speed. TCL Group should strengthen training for employees to enhance their sensitivity and insight into market changes, enabling them to identify market opportunities and threats. TCL Group should conduct emergency drills and simulation training to improve employees' adaptability and problem-solving abilities in the face of sudden market situations. TCL Group should also encourage employees to participate in market decision-making and innovation activities, stimulating their initiative and creativity, and providing talent support for accelerating market response speed.

Accelerating market response speed also requires the establishment of a flexible supply chain and production system. TCL Group should establish close cooperative relationships with suppliers to ensure the timely supply of raw materials and establish a safety stock mechanism to cope with sudden changes in market demand. TCL Group should adopt flexible production technologies to improve the flexibility and adaptability of production lines and adjust product types and production quantities promptly according to market demands. By establishing a flexible supply chain and production system, enterprises can better meet market demands and reduce the impact of market risks on costs.

(4) Optimize Digital Cost Control Capability

Optimizing digital cost control capability is an inevitable choice for TCL Group to modernize and refine strategic cost management. With the rapid development of information technology, digital cost control can provide enterprises with more accurate and timely cost information, helping them achieve real-time cost monitoring, dynamic analysis, and precise control, and improving the efficiency and effectiveness of cost management. TCL Group should fully recognize the importance of digital cost control, increase investment in digital cost control, and promote the development of enterprise cost management towards digitization and intelligence.

Establishing a sound digital cost management system is the foundation for optimizing digital cost control capability. TCL Group should integrate various internal cost data sources and incorporate procurement costs, production costs, sales costs, management costs, and other types of cost data into a unified digital management platform. Through the digital cost management system, TCL Group should achieve automated collection, storage, analysis, and presentation of cost data, improving the accuracy and timeliness of cost data. For example, TCL Group can use the Internet of Things technology to achieve real-time collection of production equipment operation data, providing detailed data support for cost accounting and analysis.

Utilizing big data analysis and artificial intelligence technologies is the key to optimizing digital cost control capability. TCL Group should use big data analysis technologies to conduct in-depth mining and analysis of massive cost data, discover the patterns and trends of cost changes, and identify key points and difficulties in cost control. TCL Group should establish cost forecasting models and cost control models through artificial intelligence technologies to achieve precise cost forecasting and dynamic control. For example, TCL Group can use machine learning algorithms to analyze historical cost data and predict future cost trends, providing a scientific basis for enterprise cost budgeting and decision-making.

Strengthening the integration of digital cost control and business processes is an important link in optimizing digital cost control capability. TCL Group should integrate digital cost control throughout various business links of the enterprise, such as procurement, production, and sales, achieving seamless integration between cost management and business processes. In the procurement process, TCL Group should comprehensively evaluate suppliers' prices, quality, and delivery times through the digital cost control system to select the optimal suppliers and reduce procurement costs. In the production process, TCL Group should monitor cost consumption in real time and promptly identify cost anomalies and take measures to adjust them, improving production efficiency and reducing production costs.

Cultivating and recruiting digital cost control talents is the guarantee for optimizing digital cost control capability. TCL Group should strengthen information technology training for existing cost management personnel to improve their digital

cost control awareness and skill levels. TCL Group should actively recruit talents with digital cost control experience and professional knowledge to enrich the enterprise's cost control team. TCL Group should also establish an incentive mechanism for digital cost control talents to encourage employees to actively participate in digital cost control work and provide talent support for optimizing digital cost control capability.

Optimizing digital cost control capability also requires strengthening data security management. TCL Group should establish a sound data security management system to protect confidential data and prevent data leakage and tampering. TCL Group should adopt advanced data encryption technologies and access control technologies to ensure the security and integrity of cost data. TCL Group should also regularly evaluate and inspect data security to promptly identify and resolve data security risks, providing security guarantees for the smooth implementation of digital cost control.

5.3 Further Study

(1) Expansion of Research Scope

This study mainly focused on TCL Group, which allowed for an in-depth analysis of its strategic cost management-related capabilities and strategies. However, enterprises in different industries and of different sizes exhibit differences in supply chain integration, technological innovation, market response, and digital cost control. Future research can expand the sample scope to include more industries and enterprises of different sizes, such as small and medium-sized enterprises in the manufacturing industry and service enterprises. Through comparative analysis, it can explore the commonalities and characteristics of different types of enterprises in improving strategic cost management capabilities and summarize more universal strategic cost management methods and models to provide more targeted references for different enterprises.

(2) Deepening of Influencing Factors

During the research process, although the important impacts of supply chain integration capability, technological innovation capability, market response speed, and digital cost control capability on strategic cost management were identified, there may be other potential factors. For example, corporate culture has a non-negligible impact on strategic cost management. An innovative and cost-conscious corporate culture may promote the improvement of various cost management capabilities. Changes in policies and regulations can also affect enterprise strategic cost management. For instance, environmental protection policies may prompt enterprises

to increase investment in green production technologies, thereby affecting the cost structure. Future research can further explore these potential factors, analyze their interaction mechanisms with known influencing factors, and more comprehensively reveal the factor system affecting strategic cost management.

(3) Tracking of Dynamic Changes

The market environment and the enterprise's situation are constantly changing, and strategic cost management capabilities also need to be dynamically adjusted accordingly. This study was mainly based on data and situations from a specific period, lacking long-term dynamic tracking research. Future research can adopt a longitudinal research method to conduct long-term tracking of enterprises' strategic cost management capabilities at different development stages and under different market environments. By analyzing enterprises' strategic cost management strategy adjustments and their effects at different periods, it can summarize the rules and experiences for enterprises to improve strategic cost management capabilities in dynamic changing environments and provide more effective guidance for enterprises to cope with uncertainties.

(4) Innovation of Research Methods

This study mainly used case analysis and empirical research methods, which can provide relatively in-depth insights into the issues. However, each method has its limitations. Future research can attempt to introduce new research methods, such as computer simulation technology. By building a computer simulation model of enterprise strategic cost management, it can simulate the impacts of different factor changes on enterprise strategic cost management and more intuitively demonstrate the complex relationships and dynamic change processes among various factors. In addition, big data analysis methods can also be combined to mine the strategic cost management rules hidden in massive enterprise data, providing richer and more accurate information support for research and improving the scientificity and reliability of research.

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Appendix

Dear Sir/Madam,

Thank you for your participation in this questionnaire survey. The survey will be conducted anonymously, and your relevant information will be kept confidential. Thank you again for your cooperation.

Part Ⅰ:

Please fill in the following basic information:
1. Your Gender
A Male
B Female
2. Your Age
A. Under 25 Years Old
B. 25-40 Years Old
C. 41-50 Years Old
D. Over 50 Years Old
3. Your Educational Backgrounds
A Junior College and Below
B Undergraduate
C Master's Degree
D Doctor
4. Your Years of Working Experience
A. Below 5 Years
B. 5-10 Years
C. 11-20 Years
D. Above 20 Years

Part Ⅱ:

Please judge to what extent you agree with the following statement; choose the most appropriate option, and mark the corresponding number "√." The questionnaire used a Likert scale, ranging from 1 to 5 in which one indicates strongly disagree, two indicates relatively disagree, three indicates neutral, four indicates relatively agree, and five indicates strongly agree

Measuring Item	Strongly Disagree	Relatively Disagree	Neutral	Relatively Agree	Strongly Agree
Supply Chain Integration Capability					
TCL Group has established long-term, stable, and					

in-depth cooperative relationships with its major suppliers.					
In each link of the supply chain, TCL Group achieves a high level of transparent information sharing with its partners.					
TCL Group's logistics and distribution system can swiftly and accurately deliver products to customers.					
TCL Group can closely collaborate with manufacturing enterprises in the supply chain to realize seamless alignment of production plans.					
When unexpected situations arise in the supply chain, TCL Group can promptly formulate response strategies to ensure the stable operation of the supply chain.					
Technological Innovation Capability					
TCL Group allocates a relatively high proportion of its annual revenue to R&D, and this proportion continues to grow steadily.					
TCL Group boasts a high-caliber and innovative R&D team.					
TCL Group holds a substantial number of patented technologies and innovative achievements in core technological fields.					
TCL Group actively engages in technological cooperation and exchanges					

with domestic and international research institutions and universities, introducing advanced technologies and concepts.					
TCL Group can rapidly transform R&D results into new products and launch them into the market to meet the ever-changing demands of consumers.					
Market Response Speed					
TCL Group can accurately and promptly discern trends in market demand changes.					
When market demands shift, TCL Group can swiftly adjust product designs and production plans to introduce new products that align with market needs.					
TCL Group's marketing team can promptly adjust marketing strategies in response to market changes.					
TCL Group can rapidly respond to customer inquiries, complaints, and suggestions and provide satisfactory solutions.					
TCL Group closely monitors competitors' activities and promptly formulates response strategies.					
Digital Cost Control Capability					
TCL Group has established a comprehensive cost management information					

system that enables automated collection, storage, and analysis of cost data.					
Through digital means, TCL Group can formulate accurate cost budgets and monitor cost execution in real time.					
TCL Group can utilize data analysis tools and methods to explore patterns and issues behind cost data, providing strong support for cost decision-making.					
In supply chain management, TCL Group achieves digital collaboration with partners, reducing supply chain costs through information sharing and process optimization.					
TCL Group continuously explores and applies new digital technologies and management methods to drive innovation and upgrades in cost management models.					
Strategic Cost Management					
TCL Group has formulated a clear strategic cost management plan that aligns cost management objectives with the company's overall strategic goals.					
From the perspective of the value chain, TCL Group conducts in-depth analysis and optimization of costs at each link to achieve cost					

reduction across the entire value chain.					
Through strategic cost management, TCL Group can effectively enhance the cost competitiveness of its products, gaining greater price advantages and market share.					
When making major decisions, TCL Group fully considers cost factors and employs scientific decision-making methods and tools to ensure the rationality and feasibility of decisions.					
TCL Group emphasizes cultivating a cost-conscious mindset among all employees, fostering a positive cost culture.					