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Data-Driven Supply Chain Cost Synergistic Optimization for Small and Medium-Sized Manufacturing Enterprises

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ABSTRACT

Small and medium-sized enterprises (SMEs) constitute over 99% of all enterprises in China and serve as the fundamental backbone of the national economy. However, they face persistent challenges in supply chain management characterized by information silos, Cost out of control, rigid processes, and heavy reliance on manual labor—a predicament succinctly described as "no money, no personnel, and no technology." While commercial integrated software products have proliferated in the market, they predominantly offer feature-stacked solutions that require users to self-filter, failing to address the specific pain points of SMEs. This paper proposes a data-driven collaborative optimization framework tailored to the resource-constrained context of SMEs. Drawing on cloud-native architecture, mixed-integer linear programming, heuristic algorithms, and Robotic Process Automation (RPA), the framework addresses four core dimensions: information synergy, cost optimization, process reengineering, and intelligent decision-making. The research identifies that the primary competitive advantage of SMEs lies in their organizational agility—"small boats turn around easily" —which enables rapid adoption of lightweight, SaaS-based solutions without the complex system integration required by large enterprises. By focusing on the "inventory-routing" joint optimization problem and automated quotation systems as core algorithmic breakthroughs, this study demonstrates that significant cost reductions can be achieved through targeted, algorithm-centric interventions rather than comprehensive ERP overhauls. The findings contribute to both the academic literature on SME supply chain management and practical guidance for technology adoption strategies in developing economies.

KEYWORDS

Supply Chain Management; Small and Medium-Sized Enterprises; Cost Optimization; Mixed-Integer Linear Programming; Digital Transformation

1. INTRODUCTION

In the context of global economic integration and intensifying market competition, the competitive landscape has gradually shifted from competition among individual enterprises to competition among supply chains. Supply chain management (SCM) has thus become a key factor in enhancing the long-term performance of both individual firms and the entire supply chain network. Small and medium-sized enterprises (SMEs), which account for more than 99% of all enterprises in China and contribute significantly to employment and GDP growth, are particularly in urgent need of implementing effective SCM practices. However, SMEs in developing countries face serious challenges, including limited access to information and communication technology, financial constraints, and a lack of adequate resources. These limitations significantly hinder their innovation capacity and operational efficiency.

The digital transformation of supply chains presents both opportunities and challenges for SMEs. On one hand, advancements in cloud computing, artificial intelligence, and low-code platforms have dramatically lowered the barriers to technology adoption. On the other hand, the proliferation of commercial software products—ranging from integrated ERP systems to specialized SCM modules—has created a paradox of choice: most products offer "feature stacking" that forces users to self-filter, rather than providing targeted solutions to specific business problems. This mismatch between technological supply and SME demand represents a critical research gap.

This paper addresses the following research questions: (1) What are the core pain points faced by SMEs in supply chain cost management? (2) How can a data-driven optimization framework be designed to address these pain points within the resource constraints of SMEs? (3) What is the appropriate scope and focus for academic research on this topic that balances theoretical rigor with practical relevance?

The remainder of this paper is organized as follows. Section 2 reviews the relevant literature on SME supply chain management, cost optimization models, and digital transformation enablers. Section 3 presents the conceptual framework and problem definition. Section 4 discusses the methodological approaches, including mathematical programming, heuristic algorithms, and simulation techniques. Section 5 proposes a focused research agenda with specific recommendations for algorithmic depth. Section 6 concludes with implications for both research and practice.

2. LITERATURE REVIEW

2.1. SME Supply Chain Management: Challenges and Constraints

The academic literature has consistently identified resource constraints as the defining characteristic of SME supply chain management. A comprehensive bibliometric review by Alam et al. (2025) found that SMEs in developing countries struggle with limited ICT access, financial constraints, and inadequate resources, which collectively hinder innovation and operational efficiency. These challenges are compounded by regional disparities: Asian SMEs often benefit from relatively more government support and infrastructure, while African SMEs face major logistical challenges due to infrastructure deficits.

Zaridis et al. (2021) and Alshahrani and Salam (2022) emphasized that trade barriers and distribution network inefficiencies exacerbate difficulties in accessing global markets. Furthermore, adhering to local and international regulations is often a costly affair that most SMEs struggle to overcome. The World Economic Forum (2025) identified five critical gaps in existing digitalization support programs for SMEs: knowledge and skill gaps, unclear business cases for technology investment, lack of sustained post-adoption support, limited access in underserved regions, and insufficient alignment between government and corporate programs. These findings underscore that SME digitalization cannot be addressed by technology alone; it requires complementary institutional and organizational support.

A study on supply chain collaboration optimization for SMEs revealed alarming empirical evidence: 82% of SMEs experience information barriers with their partners, with logistics order processing times extending to 48 hours in Q2 2024 and customer complaint rates reaching 18%—significantly higher than the 8% level for large enterprises. Additionally, 78% of SMEs have logistics costs accounting for more than 15% of their revenue, and inventory turnover is only 3 times per year, far below the industry average of 6 times. These statistics highlight the magnitude of inefficiency that can be addressed through targeted optimization.

2.2. Cost Optimization Models for Supply Chains

The literature on supply chain cost optimization has evolved from traditional cost accounting to sophisticated mathematical programming approaches. L. Li (2025) constructed a "technology-organization-ecosystem" three-dimensional theoretical framework for supply chain cost management in the digital economy era, analyzing how these three dimensions enable cost management innovation. This framework provides a useful lens for understanding the multiple levels at which optimization interventions can operate.

At the operational level, integrated production-inventory-distribution-routing models have demonstrated significant potential. Miranda, Morabito, and Ferreira (2018) proposed a mixed-integer programming model integrating production, inventory, distribution, and routing decisions for small Brazilian furniture companies. Their computational tests on randomly generated instances demonstrated that relax-and-fix heuristics and hybrid heuristics performed better than commercial solvers on the largest instances, highlighting the importance of tailored heuristic approaches for SME contexts. Similarly, research on food supply sourcing using heuristic algorithms in Latin American SMEs showed cost reductions of 30% to 45% and service level improvements of 25% to 35%. These results confirm that even small organizations with limited financial budgets can effectively apply optimization models.

Chiapa Tellez et al. (2026) further demonstrated that periodic review policies combined with adaptive heuristics can maximize packaging efficiency while keeping operators within capacity limits, with dynamic approaches significantly reducing inventory costs and improving response times compared to conventional policies. The Thai Generic Decision Support System (GLE) developed by researchers at Thammasat University identified supply chain cost per sales and average order cycle time as two critical, interrelated, and contradictory supply chain measures, resolving their trade-offs through fuzzy goal programming to achieve Pareto-optimal solutions.

2.3. Digital Enablers and Decision Support

The digital transformation literature has increasingly focused on how emerging technologies can address SME constraints. Bejlegaard et al. (2021) examined how digital technologies influence supply chain coordination strategies, while Kamariotou et al. (2022) emphasized that adopting technology-based systems can optimize business processes, reduce costs, and increase service quality. The World Economic Forum (2025) noted that SMEs require sustained support and knowledge-sharing activities from larger companies, as well as partnerships with government programs and local technical schools.

At the strategic level, recent research on organizational resilience suggests that SME resilience should be understood as a dynamic, multilevel orchestration of strategic foresight, digital infrastructure, and trust-based relational networks. This perspective aligns with the "bouncing forward" paradigm, which emphasizes adaptation, learning, and evolution through disruption rather than mere recovery. Leaders adopting boundary-spanning behaviors—those who integrate knowledge and connect diverse stakeholders—enable more robust network participation and agile decision-making.

For procurement specifically, a recent study on third-party purchasing (3PP) as a procurement outsourcing service within 3PL operations found that 3PP redefines the role of 3PL providers by transforming them from logistics facilitators to centralized procurement intermediaries. Through demand aggregation and structured procurement contracts, 3PL providers help SMEs mitigate supplier fragmentation, reduce price volatility, and improve cost control. This finding suggests that procurement outsourcing may be a viable strategy for SMEs to overcome resource constraints without building internal procurement capabilities.

2.4. Research Gap

Despite the wealth of research on supply chain optimization and digital transformation, several gaps persist. First, most optimization models are developed for large enterprises with extensive data infrastructure and IT capabilities, making them inappropriate for the resource-constrained SME context. Second, commercial software products for SMEs tend to emphasize feature completeness over algorithmic depth, offering generic solutions that fail to address specific cost optimization problems. Third, the academic literature lacks a systematic framework that integrates information synergy, cost optimization, and intelligent automation specifically tailored to SME capabilities and constraints. This paper aims to fill these gaps by proposing a focused, data-driven optimization framework for SME supply chain cost management.

3. CONCEPTUAL FRAMEWORK

3.1. Core Pain Points and Problem Definition

Based on the literature review and industry evidence, this paper identifies four core pain points in SME supply chain management:

Information Silos: Data is fragmented across departments, stored in incompatible formats (paper documents, Excel spreadsheets, isolated software systems), preventing real-time visibility and coordinated decision-making. This fragmentation leads to poor demand forecasting, excessive inventory, and delayed responsiveness to market changes.

Costs are out of control: Without systematic cost tracking and optimization mechanisms, SMEs cannot identify cost drivers, evaluate trade-offs, or implement cost reduction strategies effectively. Logistics costs often exceed 15% of revenue, and inventory turnover remains far below industry benchmarks.

Process Rigidity: Business processes are typically manual, paper-based, and dependent on specific individuals' tacit knowledge. This rigidity increases operational risk, slows response times, and prevents the systematic improvement that comes from process standardization and automation.

Manual Dependency: Data entry, order processing, reconciliation, and basic analytical tasks consume significant human resources that could be redirected to higher-value activities. This dependency also introduces errors, delays, and inconsistency.

3.2. The Competitive Advantage of SME Agility

While SMEs face significant constraints, they possess a distinctive advantage: organizational agility. As the Chinese proverb states, "small boats turn around easily". Unlike large enterprises that must navigate complex legacy systems, bureaucratic approval processes, and union constraints, SMEs can adopt new technologies and processes quickly. This agility enables them to implement lightweight, SaaS-based solutions without the complex system integration required by large enterprises. Rather than attempting to replicate large-enterprise ERP systems, SMEs can leapfrog to more advanced, algorithm-driven solutions that directly address their specific pain points.

3.3. Proposed Framework Dimensions

The proposed framework addresses four interconnected dimensions of SME supply chain cost optimization:

Dimension 1: Information Synergy (Cloud-Native Architecture). The framework adopts a cloud-native, SaaS model that provides all departments with access to a unified data platform. This approach naturally solves data silos without requiring complex system integration. Low-code platforms enable customization without dedicated IT staff. The key technical components include cloud-based data storage, real-time data synchronization, and role-based access control.

Dimension 2: Cost Optimization (Mathematical Programming). For procurement, production, and transportation decisions, the framework employs mixed-integer linear programming (MILP) to determine optimal order quantities and routing plans. When problem scale increases, heuristic algorithms such as genetic algorithms and particle swarm optimization can identify near-optimal solutions. The objective function minimizes total supply chain cost subject to constraints on capacity, demand, and service levels.

Dimension 3: Intelligent Pricing and Inventory Allocation (Machine Learning). Automated quotation systems use rule engines or regression models to generate prices based on raw material costs, inventory levels, and profit targets. Inventory allocation optimization employs time series models (e.g., ARIMA, Prophet) or machine learning models (e.g., XGBoost, LSTM) to forecast demand, informing decisions on whether to position inventory forward or adopt centralized management. This dimension requires historical data that may be limited for SMEs, making simulation-based validation particularly important.

Dimension 4: Automation of Repetitive Tasks (RPA+AI). Robotic Process Automation handles data entry, order processing, reconciliation, and other repetitive operations. AI components include OCR for document recognition, NLP for customer service email processing, and predictive algorithms that replace manual experience-based judgment for replenishment decisions. The goal is not wholesale replacement of human workers but optimal human-machine collaboration where each performs the tasks most suited to their capabilities.

4. METHODOLOGICAL APPROACH

4.1. Mathematical Programming Formulation

For the core inventory-routing problem (IRP), we propose a mixed-integer linear programming model adapted to the SME context. Following the approach of Miranda, Morabito, and Ferreira (2018), we consider integration of production, inventory, distribution, and routing decisions in a single framework. The model parameters and decision variables are defined as follows:

Let I be the set of products, T the planning horizon, K the set of vehicles (limited to one or two for typical SMEs), and N the set of customer locations. The objective function minimizes total cost:

$$\min \sum_{t\in T} \Big(\sum_{i\in I} \mathrm{h_i S_{it}} + \sum_{k\in K} \sum_{(i,\ j)\in A} \mathrm{c_{ij} x_{ijkt}} + \sum_{i\in I} p_i q_{it} \Big)$$

Where h_i is holding cost per unit of product i, s_{it} is inventory level at time t, c_{ij} is transportation cost from location i to j, x_{ijkt} is a binary variable indicating whether vehicle k travels from i to j at time t, p_i is production cost per unit, and q_{it} is production quantity at time t.

The model is subject to constraints on inventory balance, vehicle capacity, time windows, customer demand satisfaction, and production capacity. Following the assumptions in the literature, we consider demand as a random variable following a Poisson distribution and adopt joint inventory management where the core SME coordinates inventory levels of suppliers and distributors.

4.2. Heuristic Algorithms for SME-Scale Problems

For larger problem instances where exact MILP solutions become computationally intractable, we propose two complementary heuristic approaches:

Relax-and-Fix Heuristics: Following Miranda, Morabito, and Ferreira (2018), relax-and-fix heuristics partition variables into subsets and fix some variables while solving relaxed versions of the problem. This approach can be implemented with varying criteria for partitioning and fixing variables, enabling the algorithm to adapt to different problem structures.

Hybrid Heuristics: An initial feasible solution is first constructed using a greedy or constructive heuristic, then fed into the optimization software to improve the solution through local search. The computational results from Miranda et al. (2018) showed that one relax-and-fix heuristic and two hybrid heuristics performed better than the commercial solver on the largest instances.

For the specific SME context, we further propose an adaptive heuristic framework that adjusts parameters based on real-time data availability, problem scale, and solution quality requirements. This adaptability is critical given the variability in SME operational conditions.

4.3. Simulation and Data Strategy

A significant challenge for SME-focused research is data scarcity. The literature confirms that SMEs often lack historical databases or have data in chaotic formats (paper documents, Excel spreadsheets mixed inconsistently). To address this, we propose a multi-pronged strategy:

Simulation Modeling: In the early research stage, if real enterprise data is unavailable, researchers can use discrete-event simulation tools such as AnyLogic or FlexSim to "create" a virtual SME environment. This approach is academically accepted for validating optimization algorithms. The simulation environment should incorporate typical SME characteristics: limited production capacity, single vehicle, multiple products, and stochastic demand.

Public Datasets: Kaggle and other data platforms offer supply chain-related datasets that can be used for algorithm development and benchmarking. While these datasets may not precisely match SME contexts, they provide a basis for methodological development and comparative analysis.

Enterprise Collaboration: If the research advisor has connections with enterprises, researchers should attempt to obtain 1-2 months of Excel logs for small-scale prototype validation. Even limited real data can significantly strengthen the credibility of the research findings.

5. FOCUSED RESEARCH AGENDA

5.1. Principle of Focused Depth

The scope of challenges identified in this paper—information synergy, cost optimization, process reengineering, intelligent pricing, inventory allocation, and automation—constitutes a "project portfolio" that would far exceed the requirements of a master's thesis. The literature confirms that successful academic contributions require depth rather than breadth. The World Economic Forum (2025) recommendation that SMEs need "sustained support" and "knowledge-sharing activities" suggests that even industry practitioners recognize the value of focused, sustained engagement with specific problems.

Therefore, we recommend that academic researchers focus on 1-2 core algorithmic breakthroughs while positioning other elements as system modules for contextual completeness. The following sections propose two recommended research directions.

5.2. Recommended Direction 1: Joint Inventory-Routing Optimization

Research Title: Data-Driven Joint Inventory-Routing Optimization for Small Manufacturing Enterprises

Core Research Questions: (1) How can production, inventory, and distribution decisions be integrated in a single optimization framework for resource-constrained SMEs? (2) What heuristic algorithms best balance solution quality and computational tractability for SME-scale problems? (3) How does the optimal solution vary with SME characteristics such as product variety, customer concentration, and demand volatility?

Methodological Approach: Build on the MILP formulation and heuristic algorithms of Miranda, Morabito, and Ferreira (2018), adapting them to the specific characteristics of Chinese SMEs. Conduct computational experiments with simulated SME scenarios and, if possible, real data from collaborative enterprises. Incorporate time series demand forecasting using machine learning models to generate input parameters for the optimization model.

Expected Contributions: (1) A customized optimization framework for SME inventory-routing decisions that accounts for resource constraints; (2) Empirical evidence on the cost-saving potential of joint optimization compared to sequential decision-making; (3) Practical guidance on algorithm selection based on problem scale and data availability.

5.3. Recommended Direction 2: Automated Quotation and Dynamic Pricing

Research Title: Automated Quotation Systems for Small and Medium-Sized Manufacturing Enterprises: A Machine Learning Approach

Core Research Questions: (1) What factors most influence optimal quotation decisions in the SME context? (2) Can machine learning models effectively predict customer price sensitivity and optimal pricing levels using limited historical data? (3) How should automated quotation systems integrate with inventory management and cost tracking?

Methodological Approach: Develop a rule-based and regression-based quotation system that considers raw material costs, inventory levels, competitor pricing, and customer characteristics. For the predictive component, compare multiple machine learning approaches including linear regression, decision trees, and ensemble methods. Validate the system through simulation and, where possible, with historical quotation data from cooperative enterprises.

Expected Contributions: (1) A domain-specific quotation model tailored to SME constraints; (2) Empirical comparison of machine learning methods for SME pricing decisions; (3) Practical framework for integrating automated quotation with inventory and cost management systems.

5.4. Implementation Roadmap for Master's Research

Based on the three-year master's program structure common in Chinese universities, we propose the following implementation roadmap:

Phase 1: Literature Review (Year 1). Conduct systematic literature review on SME supply chain management, cost optimization models, and digital transformation enablers. Search keywords include: SME supply chain management, cost optimization in SMEs, information sharing in supply chain, inventory routing problem for small business, RPA in logistics. Identify theoretical gaps and formulate research questions.

Phase 2: Model Formulation (Year 2, Semester 1). Develop the conceptual framework and mathematical model. Map the existing process flow (manual-driven) versus the optimized process flow (system + AI-assisted). Establish the mathematical programming model for the selected core optimization problem. Begin simulation environment development if real data is unavailable.

Phase 3: Algorithm Design and Simulation (Year 2, Semester 2). Design and implement the selected optimization algorithms (MILP solver, relax-and-fix heuristics, hybrid heuristics, or machine learning models). Conduct computational experiments using simulated data and/or real enterprise data. Validate and refine the model based on experimental results.

Phase 4: Prototype Development and Thesis Writing (Year 3). If feasible, develop a simple web interface (Flask/Django) to demonstrate the automated quotation and inventory warning functions. Complete the thesis writing with emphasis on theoretical contribution, methodological rigor, and practical implications.

6. CONCLUSION AND IMPLICATIONS

6.1. Summary of Findings

This paper has presented a comprehensive framework for data-driven supply chain cost synergistic optimization for small and medium-sized manufacturing enterprises. The framework addresses four interconnected dimensions: information synergy through cloud-native architecture, cost optimization through mathematical programming, intelligent pricing and inventory allocation through machine learning, and automation of repetitive tasks through RPA+AI. While the scope of challenges is broad, we argue that academic research should focus on 1-2 core algorithmic breakthroughs, with other elements serving as contextual modules.

The key insight from this analysis is that SMEs possess a distinctive competitive advantage—organizational agility—that enables them to adopt lightweight, algorithm-driven solutions without the complex system integration required by large enterprises. This advantage suggests that commercial software products emphasizing feature completeness may be less appropriate than targeted, algorithm-centric interventions. The research gap identified in this paper—the lack of optimization models tailored to SME constraints—presents a significant opportunity for academic contribution.

6.2. Theoretical Contributions

This paper contributes to the literature in three ways. First, it synthesizes findings from supply chain management, operations research, and digital transformation to propose a framework specifically adapted to SME constraints. Second, it identifies the joint inventory-routing problem and automated quotation problem as high-impact, tractable research directions for master's-level inquiry. Third, it provides a methodological roadmap that balances theoretical rigor with practical feasibility, acknowledging the data constraints inherent in SME research.

6.3. Practical Implications

For SME practitioners, this research highlights the potential for targeted algorithm-driven interventions to significantly reduce supply chain costs. While commercial software products offer feature-rich platforms, their value proposition may be limited for SMEs that lack the resources for full-scale implementation. A more effective approach may be to identify the most critical pain points and implement focused solutions that directly address those problems.

For policymakers and industry associations, the findings underscore the importance of supporting SME digitalization through knowledge-sharing platforms, technical assistance programs, and public-private partnerships—the gaps identified by the World Economic Forum (2025). Policy support should focus not only on technology adoption but also on developing the human capabilities needed to operate and maintain digital systems effectively.

6.4. Limitations and Future Research

This study has several limitations. First, the framework remains conceptual and requires empirical validation through computational experiments and case studies. Second, the data constraints of SME research may limit the generalizability of findings. Third, the recommended research directions represent only a subset of potential approaches; other problems such as supplier selection, risk management, and sustainability integration may also merit investigation.

Future research should extend this framework in several directions. Empirical studies using real enterprise data would strengthen the evidence base. Cross-sector comparisons would reveal how optimization models need to be adapted for different industry contexts. Integration with emerging technologies such as digital twins, blockchain, and Internet of Things could further enhance the framework's capabilities. Finally, research on organizational and behavioral factors—how SME managers and employees adopt and adapt to algorithm-driven systems—would complement the technical focus of this paper.

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REFERENCES

[1] Alam, M. C., Setiawan, B., Toiba, H., Maulidah, S., & Rahman, M. S. (2025). Supply chain management practices of SMEs in developing countries: Bibliometric and systematic reviews. Agricultural Economics (Czech Republic), 71(2), 99–112.

[2] World Economic Forum. (2025). Supporting Digitalization of SMEs: The Key to Supply Chain Resilience, Sustainability and Competitiveness. World Economic Forum Reports.

[3] Miranda, P. L., Morabito, R., & Ferreira, D. (2018). Optimization model for a production, inventory, distribution and routing problem in small furniture companies. Top, 26(1), 30–67.

[4] Li, X. (2025). Research on practice and innovation of supply chain cost management. Management & Technology of SME, (6), 104–106. [In Chinese]

[5] Li, Y., & Song, S. S. (2025). Research on cost management of foundry enterprises from supply chain perspective: A case study of Company A. Financial Management Research, (3), 72–83. [In Chinese]

[6] (2025). The dynamics of procurement outsourcing in China: a case study approach. Journal of Purchasing and Supply Management.

[7] Chiapa Tellez, F. A., Marrón Ramos, D. N., & Sánchez Hernández, A., et al. (2026). Abastecimiento alimentario por algoritmos heurísticos [Food sourcing using heuristic algorithms]. Revista NeyArt, (2), 223–242.

[8] Zhou, F. (2011). Analysis of SME supply chain management from cost perspective. E-commerce, (9). [In Chinese]

[9] (2026). The metamorphosis of organizational resilience: a strategic roadmap for SMEs in the digital age. Review of Managerial Science.

[10] (2025). Research on supply chain synergy optimization model for small and medium-sized enterprises in the context of digital transformation. In ACM International Conference Proceedings.

[11] (2017). Generic decision support system to leverage supply chain performance (GLE) for SMEs in Thailand. Journal of Manufacturing Technology Management.

[12] Banomyong, R., & Supatn, N. (2011). Developing a supply chain performance tool for SMEs in Thailand. Supply Chain Management: An International Journal, 16(1), 20–31.

[13] Liu, H. X. (2002). Research on life-cycle cost management. Accounting Research. [In Chinese]

[14] Yue, R. K. (2002). Research on product cost control. [In Chinese]

[15] Sheng, J. T. (2006). Discussion on cost-effectiveness theory. [In Chinese]

[16] Du, Y., & Chen, J. Y. (2007). Research on systematic cost management methods. [In Chinese]

[17] Xu, H., Yan, X. J., et al. (2007). Research on cost control problems in SMEs. [In Chinese]

[18] Mao, H. T., & Wang, D. C. (2013). Historical evolution of cost control methods. [In Chinese]
[19] Song, X. (2017). Research on cost management system integrating business and finance. [In Chinese]
[20] Yang, Z. H. (2025). Research on procurement cost control improvement of Yuanzhong Company based on supply chain management [Master's thesis]. [In Chinese]