

Exploring the Role of Supplier Relationship Management in Enhancing Supply Chain Performance

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Abstract

In the modern competitive business landscape, managing relationships with suppliers—known as Supplier Relationship Management (SRM)—is pivotal for improving supply chain outcomes. Well-structured SRM approaches promote deeper collaboration, streamline operations, and support timely delivery of high-quality goods and services. This study investigates how SRM contributes to supply chain effectiveness by examining its role in minimizing risks and boosting organizational responsiveness. Key areas such as trust, communication, digital integration, and performance tracking are analyzed to demonstrate how robust supplier partnerships can create a strategic edge. Additionally, the paper outlines challenges businesses face in applying SRM and proposes actionable strategies to foster more resilient, ethical, and sustainable supplier interactions. The insights aim to help businesses strengthen their supply chains and build long-term competitive advantages.

Keywords: Supplier Relationship Management, Supply Chain Performance, Collaboration, Risk Reduction, Operational Efficiency, Sustainability.

Introduction

In a constantly evolving and highly competitive market, effective supply chain management is essential for organizations striving to remain efficient and successful. One of the most impactful components within this framework is Supplier Relationship Management (SRM), which has evolved into a strategic tool for enhancing supply chain operations. SRM focuses on building structured, cooperative partnerships with suppliers to improve outcomes related to cost, quality, and consistency.

Traditionally, companies engaged with suppliers primarily through transactional relationships that emphasized cost minimization. However, the current demands of global supply chains have shifted the focus toward long-term collaboration, mutual trust, and innovation.

By integrating suppliers into early stages of product and process development, businesses can reduce procurement costs, strengthen supply chain resilience, manage uncertainties, and foster creative solutions.

The increasing complexity of supply networks across borders has led to the adoption of advanced technologies like Artificial Intelligence (AI), Blockchain, and Enterprise Resource Planning (ERP) systems. These digital tools enable real-time information exchange, predictive insights, and automation in supplier evaluations, all of which contribute to more informed decision-making and streamlined procurement.

Furthermore, environmental responsibility and ethical sourcing have gained prominence as essential parts of supplier relationships. Organizations now face growing expectations to meet environmental, social, and governance (ESG) standards.

This research sets out to evaluate the role of SRM in improving supply chain effectiveness by looking at factors such as operational efficiency, cost control, risk management, and innovation. It also aims to explore the obstacles that companies encounter during SRM implementation and how technology can enhance collaboration. Through this exploration, the study seeks to offer practical recommendations for businesses aiming to refine their SRM practices and achieve sustainable supply chain success.

Review of Literature

Teller et al. (2016) explored how managing key supplier relationships—viewed as a consolidated upstream supply chain function—affects overall supply chain execution within organizations. Their findings emphasize that structured, proactive supplier engagement contributes significantly to supply chain success.

Emon, Khan, and Siam (2024) examined how specific SRM practices—such as collaborative efforts, supplier development, evaluation, and long-term partnerships—can influence cost-effectiveness in supply chains. The study underscores the measurable financial benefits of nurturing strategic supplier relationships.

Ofori Issah and Aidoo-Acquah (2024) focused on how SRM affects supply chain performance, with a particular lens on how employee commitment moderates this relationship. Their results suggest that committed staff amplify the benefits of SRM strategies, making internal alignment just as vital as external collaboration.

Miocevic and Crnjak-Karanovic (2012) analyzed the indirect role SRM plays in aligning supply chain orientation with effective purchasing decisions. They found that managing supplier relationships is a critical link in achieving procurement efficiency and strategic purchasing goals.

Jones (2025) conducted a comprehensive literature review that outlines the shifting dynamics of SRM in the context of global supply chains. Her study highlights how SRM has become indispensable in achieving resilience, operational excellence, and long-term sustainability.

Glory (2024) explored SRM through the lens of Industry 4.0, focusing on how smart technologies such as automation, IoT, and AI are reshaping supplier interactions. The research points out that digital integration is not just a trend, but a necessity for building agile, future-ready supply networks.

Schmelzle and Mukandwal (2023) investigated supplier performance in the aerospace sector, particularly when suppliers work with both a buyer and their competitors. Their work shows that these “shared relationship” models can influence supplier behavior and performance in complex ways.

Dwyer, Schurr, and Oh (2018) delved into the psychological dimensions of supplier-buyer relationships. Their research emphasized that trust and commitment are foundational to reducing conflict, improving collaboration, and maintaining stable, long-term partnerships.

Research Objective

The objectives of this research are:

1. To evaluate the influence of SRM on supply chain outcomes – This includes understanding how effective supplier relationship practices contribute to improvements in cost management, risk mitigation, and operational flexibility.
2. To assess the contribution of technology to SRM efficiency – This involves analyzing how tools like Artificial Intelligence, Blockchain, and ERP systems are used to enhance communication, supplier engagement, and process transparency.
3. To identify common obstacles in SRM implementation – The study explores the difficulties organizations encounter, including regulatory barriers, supplier reliability issues, and resource constraints.
4. To explore SRM's role in promoting sustainability and ethical practices – It aims to understand how companies are embedding environmental responsibility, compliance, and social ethics into their supplier management strategies.
5. To compare SRM adoption across industries and company sizes – The research examines how SRM practices vary between large enterprises and small or medium businesses, as well as across sectors like manufacturing, healthcare, retail, and IT.

Research Methodology

This study adopts a mixed-method approach, combining both quantitative and qualitative research techniques to examine the link between SRM and supply chain performance.

Primary Data was gathered through structured online surveys and targeted interviews with professionals from industries such as manufacturing, retail, and healthcare. The survey included 20 to 25 questions using linear scales, covering themes such as collaboration with suppliers, cost-effectiveness, risk handling, digital integration, and sustainability practices. In-depth interviews with selected experts provided further qualitative insights into the practical challenges and success factors related to SRM.

Secondary Data included an extensive literature review involving over 20 peer-reviewed journal articles, industry case studies, and supply chain research reports. This helped build a theoretical framework and identify gaps in existing knowledge.

Data Analysis Methods used in the study include:

- Descriptive statistics to analyze respondent profiles and summarize key variables.
- ANOVA tests to detect variations in SRM effectiveness across industry sectors.
- T-tests to compare SRM impact between AI-enabled and non-AI-enabled environments.
- Regression analysis to measure how SRM factors correlate with performance indicators like cost savings, supplier reliability, and resilience.

To maintain credibility and accuracy, the research used random sampling for survey participants, ensuring diverse representation. Ethical standards were followed, including data privacy for respondents and transparency in analysis. The insights generated aim to guide organizations in crafting effective, technology-driven, and sustainable SRM strategies for long-term success.

Data Analysis and Interpretation

Sampling Technique

Sample Size: 50 respondents

Method of Sampling: Convenience sampling was used to select participants who were readily accessible.

Target Audience: Individuals in roles such as Supply Chain Managers, Procurement Specialists, Vendor Relations Officers, Logistics and Operations Managers, and industry consultants were surveyed.

Data Collection Tool: Data was collected using online forms (Google Forms), allowing broad reach and ease of participation.

Data Analysis Techniques

To interpret the responses, a combination of statistical tools was applied:

Descriptive Analysis summarized demographics, awareness of digital tools like AI, and participation in relevant upskilling.

- ANOVA (Analysis of Variance) tested whether perceptions of SRM effectiveness varied by industry.
- T-tests were used to evaluate satisfaction levels between groups working with and without AI support.
- Regression Analysis determined the influence of various SRM elements on supply chain performance metrics.
- Statistical software (such as SPSS) was used for processing and validating the findings to ensure reliability.

Demographic Analysis

Category	Percentage
Age Distribution	
18-25years	25%
26-35years	19%
36-45years	24%
46 and above	32%
Gender Distribution	46%
Male	54%
Female	
Industry Representation	21%
Government	18%
Managers	18%
Procurement Officers	10%
Business Executives	

Strategic Planners	8%
Industry	10%
Consultants	10%
Academicians.	
Experience in Supply Chain Management	
Less than 5	
Years 5	20%
10 years	35%
10-15years	25%
More than 15 years	20%
Importance of SRM in SC Performance	50%
	30%
Very	10%
Important	5%
Important	5%
Neutral	
Less	
Important	70%
Not	60%
Important	
Most Used SRM Strategies	50%
Supplier Performance	45%
Evaluation Long-term Supplier	40%
Collaboration	
Risk Management & Contingency Planning	
Technology Adoption	55%
Sustainable Sourcing & Ethical Procurement	40%
	35%
Challenges in SRM Implementation	
Lack of Supplier Transparency & Trust	30%
High Cost of SRM Implementation	
Limited Technological Integration	
Inconsistent Supplier Performance	

Interpretation

- SRM is widely recognized as crucial (80% rated it Important or Very Important).
- Supplier performance evaluation is the most used strategy, but technological adoption and sustainability are growing trends.
- Trust and transparency issues with suppliers remain a major challenge for over 50% of respondents.
- More than 60% report significant benefits of SRM in cost efficiency, reliability, and resilience, indicating a strong positive impact.

ANOVA Results & Interpretation

ANOVA (Analysis of Variance) test to determine if there are significant differences between groups in the dataset.

- F-Statistic:0.74
-
- p-Value:0.565

Interpretation

Since the p-value (0.565) is greater than 0.05, we fail to reject the null hypothesis. The results suggest that different industries do not significantly differ in their perception of Supplier Relationship Management (SRM) effectiveness. This could imply that SRM strategies and their impact are relatively uniform across sectors, or that other factors (such as company size, technology adoption, or supplier collaboration levels) might play a more significant role than industry type.

T-Test Results & Interpretation

T-test to compare two groups within the dataset

- T-Statistic:-0.029
- p-Value:0.977 Interpretation

Since the p-value (0.977) is much greater than 0.05, we fail to reject the null hypothesis. The results suggest that the two groups do not have significantly different effects or perceptions regarding Supplier Relationship Management (SRM). The near-zero T-statistic reinforces that their means are almost identical. This implies that any observed differences in the data are likely due to random chance rather than a meaningful effect.

Regression analysis

A regression analysis to see how different factors influence a numerical outcome. Since Work Experience (Years) is a numerical variable.

Overall Model Fit

- The R^2 value of 0.72 indicates that 72% of the variation in supply chain performance is explained by the independent variables (SRM strategies).
- The p-value of the F-statistic (< 0.001) confirms that the model is statistically significant, meaning that at least one predictor variable has a meaningful impact on supply chain performance.

Significant Predictors

- Supplier Collaboration ($\beta=0.42, p=0.001$): A strong positive impact on supply chain performance, meaning better supplier relationships lead to improved efficiency.
- Technology Adoption ($\beta=0.28, p=0.006$): A significant influence, suggesting that AI, block chain, and ERP improve supplier management and overall supply chain outcomes.
- Cost Efficiency ($\beta=0.35, p=0.002$): Also significant, indicating that cost-saving strategies in supplier management positively affect supply chain performance.

Non-Significant Predictors

- Risk Management ($\beta=0.15, p=0.098$): While it shows a small positive effect, it is not statistically significant, suggesting that risk management alone may not directly.
- Supplier Performance Evaluation ($\beta=0.08, p=0.320$): This predictor is not significant, implying that while monitoring supplier performance is useful, it may not directly lead to better supply chain performance.
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that while monitoring supplier performance is useful, it may not directly lead to better supply chain performance.

Key Factors Influencing Supply Chain Performance Enhancement

1. Supplier Relationship Management (SRM) –Effective collaboration, trust, and communication with suppliers improve efficiency and reliability.
2. Technology Integration–Adoption of AI, Block chain, IoT, and ERP systems enhances transparency, tracking, and decision-making.
3. Cost Efficiency Strategies– Optimizing procurement, reducing waste, and negotiating favorable contracts lower supply chain costs.
4. Risk Management& Resilience–Proactive risk assessment,contingency planning, and diversification of suppliers reduce disruptions.
5. Inventory & Logistics Optimization–Real-time tracking, automated warehouses, and strategic supplier locations improve lead times.
6. Quality Management –Ensuring supplier compliance with quality standards leads to better product consistency and customer satisfaction.

Challenges and Opportunities in Enhancing Supplychain Performance

Challenges:

1. Unreliable Supplier Performance – Delays, poor-quality deliveries, or inconsistent behavior from suppliers can severely impact operations.
2. Limited Visibility – Inadequate transparency across the supply chain restricts effective planning and tracking
3. High Tech Implementation Costs – Adopting advanced systems like AI and IoT requires significant financial investment, often acting as a barrier for SMEs.

Opportunities:

1. Smart Technology Integration – Leveraging AI, IoT, and automation tools can improve forecasting, workflow accuracy, and data-driven decisions.
2. Analytical Decision-Making – Utilizing big data analytics helps in optimizing procurement, supplier monitoring, and demand planning.
3. Strategic Supplier Alliances – Building long-term partnerships fosters innovation, reliability, and shared growth.

Findingsand Suggestions

Findings

- SRM’s Strategic Importance: The results confirm that structured Supplier Relationship Management significantly contributes to greater efficiency, cost savings, and resilience in supply chains.
- Technology as a Catalyst: Tools such as Artificial Intelligence, Blockchain, and IoT have enabled businesses to improve real-time decision-making, increase visibility, and enhance forecasting accuracy.
- Value of Supplier Collaboration: Organizations that actively engage with their suppliers enjoy improved reliability, quality assurance, and reduced operational risks.
- Cost Management as a Key Driver: Most companies prioritize lowering procurement and operational expenses to maintain profitability and sustainability.
- Persistent Challenges: Despite its benefits, SRM implementation is often slowed by factors

such as high costs, lack of transparency, and resistance to change from internal or external stakeholders.

- Underused Risk Management: Although recognized as critical, many firms lack comprehensive, proactive strategies to manage supply chain risks effectively.

Suggestions:

1. Build Stronger Supplier Relationships – Foster collaborative, long-term partnerships to ensure consistent quality, reliability, and shared growth.
2. Invest in Emerging Technologies – Companies should adopt digital tools like AI, IoT, and Blockchain to automate workflows, enhance visibility, and enable predictive analytics.
3. Develop Comprehensive Risk Mitigation Plans – Diversify supplier bases, create contingency protocols, and apply data-driven models to prepare for disruptions.
4. Adopt Sustainable Practices – Implement ethical sourcing, reduce supply chain waste, and embrace green procurement to align with global sustainability goals.
5. Enhance Cost Controls – Use procurement optimization strategies such as demand forecasting, supplier consolidation, and inventory reduction to control expenses.
6. Improve Transparency and Accountability – Encourage open data exchange, continuous supplier monitoring, and ethical compliance to build mutual trust and operational clarity.

Conclusion

Supplier Relationship Management plays a foundational role in shaping efficient, responsive, and future-ready supply chains. By adopting effective SRM practices—centered on collaboration, innovation, and sustainability—organizations can improve operational resilience, reduce procurement costs, and gain a competitive advantage.

This research demonstrates that integrating advanced technologies with relationship-focused strategies enables better forecasting, supplier coordination, and long-term value creation. As the global supply chain environment becomes more complex and uncertain, companies that prioritize adaptive, transparent, and tech-enabled SRM frameworks will be better equipped to navigate challenges and achieve enduring success.

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