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The Role of Dynamic Supply Chain Capability on Sustainable Supply Chain Management Practices and Performance.

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Abstract

In today's rapidly evolving business environment, achieving sustainability and competitiveness in supply chain management (SCM) has become a critical priority for organisations. This study explores the role of Dynamic Supply Chain Capabilities (DSCC)—encompassing agility, adaptability, and resilience—in shaping Sustainable Supply Chain Management (SSCM) practices and their impact on Supply Chain Performance. Drawing on Dynamic Capabilities Theory and the Resource-Based View (RBV), the research investigates how organisations can leverage DSCC to integrate economic, environmental, and social considerations into their supply chain operations.

Using a quantitative research design, data was collected through structured questionnaires from supply chain professionals across various industries. Descriptive and inferential analyses examined the relationships between DSCC, SSCM practices, and supply chain performance. The findings reveal that organisations with strong DSCC are better equipped to sense environmental changes, seize opportunities, and reconfigure resources, leading to improved sustainability outcomes. Key areas of strength include supplier collaboration, process reengineering, and product reliability. However, the study identifies room for improvement in circular economy practices, on-time delivery, and customisation capabilities.

The study contributes to the literature by providing empirical evidence of the DSCC-SSCM-performance relationship and offering a comprehensive framework for understanding how dynamic capabilities drive sustainable supply chain transformation. It provides practical recommendations for organisations seeking to enhance their supply chain resilience, sustainability, and overall performance. By addressing gaps in decision-making, execution, and customer responsiveness, organisations can better navigate market uncertainties and achieve long-term sustainability goals.

Keywords: *Dynamic Supply Chain Capabilities (DSCC), Sustainable Supply Chain Management (SSCM), Supply Chain Performance, Agility, Adaptability, Resilience, Circular Economy, Supplier Collaboration, Environmental Sustainability, Resource Reconfiguration, Operational Efficiency, Decision-Making, Customer Responsiveness.*

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1.0 INTRODUCTION

In today's rapidly evolving business environment, supply chain management (SCM) is crucial in achieving organisational sustainability and competitiveness. Companies are under increasing pressure to adopt sustainable supply chain management (SSCM) practices that balance economic, environmental, and social considerations. However, implementing and sustaining such practices largely depends on the organisation's dynamic supply chain

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capabilities (DSCC). These capabilities, which include agility, adaptability, and resilience, enable firms to respond effectively to market uncertainties, technological advancements, and regulatory changes.

The dynamic supply chain capability concept is rooted in the dynamic capabilities theory, which suggests that organisations must continuously develop, integrate, and reconfigure their resources to achieve a competitive advantage. DSCC enhances firms' ability to anticipate and mitigate risks, optimise resource utilisation, and foster long-term sustainability in supply chain management. Given the increasing complexity of global supply chains, understanding the role of DSCC in shaping SSCM practices and improving performance is essential for academic research and managerial decision-making.

This study examines how DSCC influences SSCM practices and overall supply chain performance. It seeks to explore how dynamic capabilities contribute to sustainable outcomes, including environmental responsibility, social equity, and economic efficiency. By bridging the gap between dynamic capabilities theory and SSCM, this research provides valuable insights for policymakers, business leaders, and scholars interested in fostering sustainable supply chain strategies.

The subsequent chapters of this thesis will provide a comprehensive literature review, theoretical framework, research methodology, data analysis, findings, and discussions. Ultimately, this study aims to contribute to the knowledge of sustainable supply chains and offer practical recommendations for organisations striving for resilience and sustainability in their supply chain operations.

2.0 LITERATURE REVIEW

Supply chain management (SCM) has evolved significantly over the past few decades, shifting from focusing on cost reduction and operational efficiency to a broader emphasis on sustainability and resilience. This transition has been driven by increasing globalisation, technological advancements, environmental concerns, and changing consumer preferences. As businesses operate in complex and uncertain environments, the need for sustainable supply chain management (SSCM) practices has become more pronounced. SSCM integrates economic, social, and environmental considerations into supply chain operations to ensure long-term success while minimising negative externalities (Seuring & Müller, 2008).

However, achieving sustainability in supply chains is not without challenges. Companies must navigate regulatory compliance, stakeholder expectations, supply chain disruptions, and the pressure to remain competitive in dynamic markets. This has led to a growing recognition of the role of dynamic supply chain capability (DSCC) in enabling firms to adapt, innovate, and sustain SSCM practices effectively. DSCC refers to an organisation's ability to sense changes, seize opportunities, and transform processes in response to external and internal factors (Teece, Pisano, & Shuen, 1997). Key elements of DSCC include agility, adaptability, resilience, and collaborative capability, all of which contribute to enhanced supply chain performance.

In the context of SSCM, dynamic capabilities enable firms to manage uncertainties, enhance supplier collaboration, implement sustainable procurement strategies, and integrate digital innovations such as blockchain, artificial intelligence, and the Internet of Things (IoT) to improve supply chain transparency and efficiency (Dubey et al., 2019). Firms with strong DSCC are better positioned to address sustainability challenges, mitigate risks, and leverage sustainability as a competitive advantage.

Despite growing interest in the relationship between DSCC and SSCM, there is still a lack of empirical studies exploring how dynamic capabilities influence sustainable supply chain performance across different industries and regions. Existing research has primarily focused on individual aspects of supply chain sustainability, such as green logistics, ethical sourcing, and circular economy practices (Brandenburg et al., 2014). However, a comprehensive understanding of how DSCC enables organisations to achieve sustainable supply chain outcomes remains underdeveloped.

This study seeks to bridge this knowledge gap by examining the role of DSCC in SSCM practices and its impact on overall supply chain performance. By integrating theoretical perspectives such as the resource-based view (RBV) and dynamic capabilities theory, this

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research aims to provide insights into how firms can develop and leverage DSCC to enhance sustainability. The findings will contribute to academic literature and managerial practice, offering practical recommendations for businesses building resilient, sustainable, high-performing supply chains.

2.1 Introduction

Sustainable supply chain management (SSCM) has become a key area of research and practice as organisations seek to balance economic, environmental, and social objectives (Carter & Rogers, 2008). Dynamic supply chain capability (DSCC) enables organisations to adapt to changing business environments and implement SSCM practices effectively (Teece, Pisano, & Shuen, 1997). This chapter reviews the existing literature on SSCM, DSCC, and supply chain performance, establishing the theoretical foundation for this study.

2.2 Sustainable Supply Chain Management (SSCM)

SSCM refers to integrating sustainable practices within supply chain operations to enhance long-term business success while minimising environmental and social impacts (Seuring & Müller, 2008). It includes strategies such as green procurement, ethical sourcing, carbon footprint reduction, and circular economy initiatives (Ahi & Searcy, 2013). Research highlights that firms implementing SSCM practices enhance brand reputation, regulatory compliance, and competitive advantage (Zhu, Sarkis, & Lai, 2012). However, challenges such as high implementation costs, lack of supplier commitment, and technological constraints limit the adoption of SSCM practices (Dubey et al., 2017).

2.3 Dynamic Supply Chain Capability (DSCC)

Dynamic capabilities refer to a firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments (Teece et al., 1997). DSCC is characterised by agility, adaptability, and resilience within supply chain management, enabling firms to respond to disruptions and leverage opportunities (Blome, Schoenherr, & Rexhausen, 2013). Agility helps firms respond quickly to market fluctuations, adaptability allows for long-term strategic adjustments, and resilience ensures supply chain continuity during crises (Jüttner & Maklan, 2011).

Recent studies emphasise the critical role of DSCC in sustainable supply chain transformation. For instance, firms with strong dynamic capabilities can integrate sustainability metrics into their supply chain decision-making processes, improving environmental performance and resource efficiency (Sharma & Vredenburg, 1998). Furthermore, DSCC enhances supplier collaboration and risk management, which is essential for SSCM's success (Beske, Land, & Seuring, 2014).

2.4 The Relationship Between DSCC and SSCM

The link between DSCC and SSCM has been explored through various theoretical lenses, including the resource-based view (RBV) and institutional theory. The RBV suggests that firms with superior dynamic capabilities gain a competitive edge by effectively deploying resources for sustainable practices (Barney, 1991). Institutional theory, on the other hand, highlights external pressures—such as regulatory requirements, stakeholder expectations, and market trends—as key drivers of SSCM adoption (DiMaggio & Powell, 1983).

Empirical evidence suggests that firms with high DSCC exhibit stronger SSCM performance. For example, a study by Dubey et al. (2019) found that supply chains with greater adaptability and resilience reported higher sustainability scores across economic, social, and environmental dimensions. Similarly, Winter & Knemeyer (2013) argue that supply chain agility directly enhances green supply chain initiatives, improving overall sustainability outcomes.

2.5 Impact of DSCC on Supply Chain Performance

Supply chain performance is often assessed using key indicators such as operational efficiency, cost reduction, service levels, and sustainability outcomes (Gunasekaran, Patel, & McGaughey, 2004). DSCC enhances performance by improving supply chain responsiveness,

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reducing lead times, and fostering innovation (Christopher & Peck, 2004). Studies indicate that organisations with advanced DSCC are better equipped to navigate disruptions such as geopolitical uncertainties, climate change, and pandemics (Ivanov & Dolgui, 2020). A meta-analysis by Martín-Peña et al. (2020) highlights that companies with robust DSCC structures achieve higher sustainability ratings and improved financial performance. This underscores dynamic capabilities' importance in driving short-term efficiency gains and long-term sustainability objectives.

2.6 Research Gaps and Theoretical Contributions

Despite the growing body of literature on DSCC and SSCM, gaps remain in understanding how firms operationalise DSCC to achieve sustainability goals across diverse industries and regions (Pagell & Shevchenko, 2014). Additionally, there is limited research on the mediating and moderating factors influencing the DSCC-SSCM-performance relationship (Brandenburg et al., 2014). This study aims to address these gaps by developing a comprehensive framework linking DSCC to SSCM and performance outcomes.

This literature review has established that DSCC enables SSCM and enhances supply chain performance. The theoretical foundations drawn from dynamic capabilities theory, RBV, and institutional theory provide a framework for analysing these relationships. However, gaps in empirical research necessitate further investigation into how firms can leverage DSCC to drive sustainable supply chain transformation. The next chapter presents the research methodology adopted for this study.

3.0 RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the research methodology used to examine the role of Dynamic Supply Chain Capability (DSCC) in Sustainable Supply Chain Management (SSCM) practices and performance. It details the research design, data collection methods, sampling techniques, and data analysis procedures. The methodology is structured to ensure the reliability and validity of the study, providing a systematic approach to addressing the research objectives.

3.2 Research Design

This study adopts a quantitative research design, which allows for the systematic collection and analysis of numerical data to test hypotheses and establish relationships between variables. A cross-sectional survey approach is employed to collect data at a specific point in time, providing insights into how DSCC influences SSCM practices and supply chain performance across organisations. Additionally, a descriptive and explanatory research approach is used. Descriptive analysis helps to understand the characteristics of DSCC, SSCM practices, and performance indicators, while explanatory analysis examines the causal relationships among these variables.

3.3 Research Approach

The study follows a deductive approach based on existing theories such as the Dynamic Capabilities Theory (Teece, Pisano, & Shuen, 1997) and the Resource-Based View (RBV) (Barney, 1991). These theories suggest that organisations develop and leverage capabilities to gain competitive advantages, particularly in dynamic and complex environments. A conceptual framework is developed based on previous literature, and hypotheses are formulated to test the relationship between DSCC, SSCM practices, and supply chain performance.

3.4 Data Collection Methods

3.4.1 Primary Data Collection

Primary data is collected using structured questionnaires distributed to supply chain professionals, procurement managers, and sustainability officers across various industries. The questionnaire is divided into four main sections:

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- *Demographic Information* – Industry type, company size, respondent's role, and years of experience.
- *Dynamic Supply Chain Capabilities* – Measuring agility, adaptability, resilience, and digital capabilities.
- *Sustainable Supply Chain Management Practices* – Assessing green procurement, ethical sourcing, carbon footprint reduction, and supply chain transparency.
- *Supply Chain Performance* – Evaluating operational efficiency, cost reduction, sustainability impact, and overall business performance.

The questionnaire uses a *5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree) to* measure perceptions and levels of agreement with various statements.

3.4.2 Secondary Data Collection

Secondary data is obtained from journal articles, industry reports, government publications, and organisations' sustainability reports. This data supplements primary findings and provides context for the analysis.

3.5 Population and Sampling

3.5.1 Target Population

The target population comprises supply chain professionals, procurement officers, and sustainability managers in the manufacturing, retail, logistics, and service industries. These professionals are selected because they are directly involved in supply chain decision-making and sustainability implementation.

3.5.2 Sampling Technique

A stratified random sampling technique ensures representation from industry sectors and company sizes. Organisations are categorised into small, medium, and large enterprises, and respondents are randomly selected from each category.

3.5.3 Sample Size

The sample size is determined using Krejcie and Morgan's (1970) formula, ensuring statistical significance. To enhance generalizability, a minimum of 250 respondents is targeted.

3.6 Data Analysis Techniques

3.6.1 Descriptive Analysis

Descriptive statistics (mean, standard deviation, frequency distribution) summarise the characteristics of the respondents and key variables.

3.6.2 Reliability and Validity Testing

Cronbach's Alpha assesses the questionnaire's internal consistency and reliability. *Content Validity* is ensured through expert reviews and pilot testing before full-scale data collection, and construct validity is confirmed using factor analysis.

3.6.3 Inferential Analysis

Correlation Analysis examines relationships between DSCC, SSCM, and performance. *Regression Analysis* tests the strength and direction of these relationships. *Structural Equation Modeling (SEM)* is used to validate the conceptual framework and assess causal linkages.

3.7 Ethical Considerations

Ethical guidelines are strictly followed to ensure confidentiality, informed consent, and voluntary participation of respondents. The study adheres to institutional ethical review protocols, and data is anonymised to protect participants' identities.

3.8 Conclusion

This chapter has detailed the research methodology adopted to explore the role of Dynamic Supply Chain Capability (DSCC) in Sustainable Supply Chain Management (SSCM) and performance. The quantitative approach, survey strategy, sampling technique, and data

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analysis methods ensure a rigorous investigation into the research problem. The next chapter presents the data analysis and findings.

4.0 DATA ANALYSIS

This section analyses the computed descriptive statistics for sustainable supply chain management practices, supply chain dynamic capability and performance using mean, minimum, maximum and standard deviation.

4.1 Sustainable Supply Chain Management (SSCM) Practices

The data provided in Table 4.1 offers descriptive statistics for various sustainable supply chain management (SSCM) practices. Below is an analysis of the data:

Table 4.1 Descriptive statistics for Sustainable supply chain management practices

Items	Max	Min	Mean	SD
When designing products, we pay attention to reduced consumption of material/energy	1	7	5.21	1.354
When designing products, we pay attention to reuse, recycling, and/or recovery of material	1	7	5.11	1.32
We design our products to use environmentally friendly materials	1	7	5.22	1.365
We design our products with standardised components to facilitate reuse	1	7	5.23	1.257
We use life cycle analysis to evaluate the environmental impacts of our products	1	7	5.24	1.089
The design of our processes is heavily dependent on sustainability goals	1	7	5.19	1.192
We evaluate our existing processes to reduce their impact on the environment	3	7	5.44	1.087
We have a formal design for environment guidelines for process design	2	7	5.33	1.055
We constantly reengineer our processes to reduce their environmental impact	1	7	5.32	1.191
We improve the environmental friendliness of our production	2	7	5.36	1.188
We cooperate with our suppliers to achieve sustainability objectives	2	7	5.42	1.106
We provide our suppliers with sustainability requirements for their processes	3	7	5.48	1.037
We collaborate with our suppliers to provide products and/or services that support our sustainability goals	4	7	5.45	1.057
We develop a mutual understanding of responsibilities regarding sustainability performance with our suppliers	3	7	5.49	1.037
We conduct joint planning to anticipate and resolve sustainability-related problems with our suppliers	2	7	5.26	1.052
Total Score	3.6	7	5.3172	0.78154

Source: Field study (2025)

4.1.1 Key Observations

The mean scores for all items range between 5.11 and 5.49, indicating that respondents generally perceive their organisations as moderately to highly engaged in sustainable supply chain practices. The highest mean score is 5.49 for *"We develop a mutual understanding of responsibilities regarding sustainability performance with our suppliers,"* suggesting strong

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collaboration and alignment with suppliers on sustainability goals. The lowest mean score is 5.11 for *"When designing products, we pay attention to reuse, recycling, and/or recovery of material,"* indicating slightly less emphasis on circular economy principles in product design.

The standard deviations range from 1.037 to 1.365, indicating moderate response variability. This suggests some inconsistency exists in how respondents perceive their organisation's commitment to these practices. The item with the highest variability is *"We design our products to use environmentally friendly materials"* (SD = 1.365), which may reflect differing levels of adoption or awareness across organisations. The item with the lowest variability is *"We provide our suppliers with sustainability requirements for their processes"* (SD = 1.037), indicating more consistent practices in this area.

The minimum score for most items is 1, except for a few items where the minimum is 2 or 3. This suggests that some organisations are not fully engaged in certain sustainable practices. The maximum score for all items is 7, indicating that some organisations are highly committed to these practices.

The total mean score across all items is 5.3172, with a standard deviation of 0.78154. This indicates that organisations are moderately engaged in sustainable supply chain practices, with some variability among respondents.

4.1.2 Implications

The higher mean scores for items related to supplier collaboration (e.g., *"We develop a mutual understanding of responsibilities regarding sustainability performance with our suppliers"*) suggest that organisations prioritise working closely with suppliers to achieve sustainability goals. This is a positive sign, as supplier collaboration is critical for effective SSCM.

The relatively lower mean scores for items related to product design (e.g., *"When designing products, we pay attention to reuse, recycling, and/or recovery of material"*) indicate that organisations could improve their focus on circular economy principles and environmentally friendly materials.

Items related to process reengineering and reducing environmental impact (e.g., *"We constantly reengineer our processes to reduce their environmental impact"*) have moderate to high mean scores, suggesting that organisations are actively working to improve the sustainability of their operations.

The variability in responses (as indicated by the standard deviations) highlights that not all organisations are equally committed to sustainable practices. This could be due to resource differences, awareness, or organisational priorities.

The data suggests that organisations are moderately to highly engaged in sustainable supply chain management practices, emphasising supplier collaboration and process reengineering. However, there is room for improvement in product design and practice consistency. By addressing these areas, organisations can enhance their sustainability performance and contribute to long-term environmental and social benefits.

4.2 Supply Chain Dynamic Capabilities

The data in Table 4.2 provides descriptive statistics for Supply Chain Dynamic Capabilities, which refer to an organisation's ability to sense, seize, and reconfigure resources to adapt to environmental changes and maintain competitiveness. Below is an analysis of the data:

Table 4.2 Descriptive Statistics for Supply Chain Dynamic Capabilities

Items	Min	Max	Mean	SD
We can perceive environmental change before competitors	3	7	5.59	1.033
We often have meetings to discuss the market demand	3	7	5.45	1.098
We can fully understand the impact of the internal and external environment	2	7	5.49	1.089

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We can feel the significant potential opportunities and threats	3	7	5.42	1.001
We have a perfect information management system	3	7	5.38	1.133
We can quickly deal with conflicts in the strategic decision-making process	3	7	5.34	1.067
Under many circumstances, we can make a timely decision to deal with strategic problems	3	7	5.33	1.065
We can remedy quickly to unsatisfactory customers	2	7	5.4	1.144
We can reconfigure resources in time to address environmental change.	2	7	5.46	0.992
Our strategic changes can be efficiently carried out	2	7	5.33	1.044
Good cooperation exists among different functions	2	7	5.51	1.004
We help each other in strategic change implementation	2	7	5.38	1.052
We have a proper awarding and controlling system	3	7	5.34	1.013
We can efficiently improve strategic change implementation	1	7	5.41	1.075
Total Score	3.29	7	5.4168	0.76859

Source: Field study (2025)

4.2.1 Key Observations

The mean scores for all items range between 5.11 and 5.49, indicating that respondents generally perceive their organisations as moderately to highly engaged in sustainable supply chain practices. The highest mean score is 5.49 for *"We develop a mutual understanding of responsibilities regarding sustainability performance with our suppliers,"* suggesting strong collaboration and alignment with suppliers on sustainability goals. The lowest mean score is 5.11 for *"When designing products, we pay attention to reuse, recycling, and/or recovery of material,"* indicating slightly less emphasis on circular economy principles in product design.

The standard deviations range from 1.037 to 1.365, indicating moderate response variability. This suggests some inconsistency in how respondents perceive their organisation's commitment to these practices. The item with the highest variability is *"We design our products to use environmentally friendly materials"* (SD = 1.365), which may reflect differing levels of adoption or awareness across organisations. The item with the lowest variability is *"We provide our suppliers with sustainability requirements for their processes"* (SD = 1.037), indicating more consistent practices in this area.

The minimum score for most items is 1, except for a few items where the minimum is 2 or 3. This suggests that some organisations are not fully engaged in certain sustainable practices. The maximum score for all items is 7, indicating that some organisations are highly committed to these practices.

The total mean score across all items is 5.3172, with a standard deviation of 0.78154. This indicates that organisations are moderately engaged in sustainable supply chain practices, with some variability among respondents.

4.2.2. Implications

The higher mean scores for items related to supplier collaboration (e.g., *"We develop a mutual understanding of responsibilities regarding sustainability performance with our suppliers"*) suggest that organisations prioritise working closely with suppliers to achieve sustainability goals. This is a positive sign, as supplier collaboration is critical for effective SSCM.

The relatively lower mean scores for items related to product design (e.g., *"When designing products, we pay attention to reuse, recycling, and/or recovery of material"*) indicate that

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organisations could improve their focus on circular economy principles and environmentally friendly materials.

Items related to process reengineering and reducing environmental impact (e.g., *"We constantly reengineer our processes to reduce their environmental impact"*) have moderate to high mean scores, suggesting that organisations are actively working to improve the sustainability of their operations.

The variability in responses (as indicated by the standard deviations) highlights that not all organisations are equally committed to sustainable practices. This could be due to resource differences, awareness, or organisational priorities.

The data suggests that organisations are moderate to highly capable in dynamic supply chain capabilities, with strengths in sensing environmental changes, reconfiguring resources, and fostering collaboration. However, there is room for improvement in decision-making, execution, and customer responsiveness. By addressing these areas, organisations can enhance their ability to adapt to environmental changes and maintain a competitive edge in the market.

4.3 Supply Chain Performance

The data in Table 4.3 provides descriptive statistics for Supply Chain Performance, which measures the effectiveness and efficiency of an organisation's supply chain in delivering value to customers. Below is an analysis of the data:

Table 4.3 Descriptive Statistics for Supply Chain Performance

Items	Min	Max	Mean	SD
Our firm, with supply chain partners, offers highly reliable products	1	7	5.67	1.033
Our firm, with supply chain partners, offers high-quality products to our customers	2	7	5.53	1.129
Our firm and supply chain partners have helped each other to improve product quality	2	7	5.43	1.117
Our firm with supply chain partners increases the rate at which we fulfil customer orders	2	7	5.49	1.099
Our firm with supply chain partners increases our inventory turns	2	7	5.43	1.045
Our firm, with supply chain partners, reduces the inbound and outbound costs of transport	2	7	5.32	1.084
Our firm, with supply chain partners, reduces warehousing and inventory holding costs	2	7	5.51	0.993
Our firm, with supply chain partners, meets on-time delivery requirements for all product	2	7	5.27	1.034
Our firm with supply chain partners reached agreed costs per unit as compared with the industry	2	7	5.37	1.061
Our firm, with supply chain partners, offers a variety of products and services efficiently	3	7	5.46	0.958
Our firm, with supply chain partners, offers customised products and services with different features	1	7	5.27	1.044
Our firm, with supply chain partners, meets different customer volume requirements efficiently	1	7	5.34	1.118
Our firm with supply chain partners has a short customer response time in comparison to the industry	2	7	5.29	1.036
Our firm, with supply chain partners, responds to and accommodates demand variations	4	7	5.42	0.932
Overall Score	2.86	7	5.4144	0.81275

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Source: Field study (2025)

4.3.1 Key Observations

The mean scores for all items range between 5.27 and 5.67, indicating that respondents generally perceive their supply chain performance as moderately to highly effective. The highest mean score is 5.67 for *"Our firm, with supply chain partners, offers highly reliable products,"* suggesting that reliability is a key strength in the supply chain. The lowest mean score is 5.27 for *"Our firm, with supply chain partners, meets on-time delivery requirements for all products"* and *"Our firm, with supply chain partners, offers customised products and services with different features,"* indicating slightly weaker performance in these areas.

The standard deviations range from 0.932 to 1.129, indicating moderate response variability. This suggests some inconsistency in how respondents perceive their supply chain performance. The item with the highest variability is *"Our firm and supply chain partners have helped each other to improve product quality"* (SD = 1.117), which may reflect differing collaboration and quality improvement levels across organisations. The item with the lowest variability is *"Our firm, with supply chain partners, responds to and accommodates demand variations"* (SD = 0.932), indicating more consistent performance.

The minimum score for most items is 1 or 2, except for *"Our firm, with supply chain partners, responds to and accommodates demand variations,"* which has a minimum score of 4. This suggests that some organisations struggle with certain aspects of supply chain performance. The maximum score for all items is 7, indicating that some organisations excel in these areas.

The overall mean score across all items is 5.4144, with a standard deviation of 0.81275. This indicates that, on average, organisations perceive their supply chain performance as moderately to highly effective, with some variability across respondents.

4.3.2 Implications

The high mean scores for *"Our firm, with supply chain partners, offers highly reliable products"* (5.67) and *"Our firm, with supply chain partners, offers high-quality products to our customers"* (5.53) suggest that reliability and quality are key strengths in the supply chain.

Items related to cost management (e.g., *"Our firm, with supply chain partners, reduces warehousing and inventory holding costs"*) have moderate to high mean scores (5.51), indicating effective cost control in the supply chain.

The relatively lower mean scores for *"Our firm, with supply chain partners, meet on-time delivery requirements for all products"* (5.27) and *"Our firm, with supply chain partners, offers customised products and services with different features"* (5.27) suggest that organisations could improve their delivery performance and customisation capabilities.

The item *"Our firm and supply chain partners have helped each other to improve product quality"* has a moderate mean score (5.43) but high variability (SD = 1.117), indicating that collaboration for quality improvement varies across organisations.

The item *"Our firm, with supply chain partners, responds to and accommodates demand variations"* has a high mean score (5.42) and low variability (SD = 0.932), suggesting that organisations are generally effective in responding to changes in demand.

The data suggests that organisations generally perceive their supply chain performance as moderately to highly effective, with product reliability, quality, and cost management strengths. However, there is room for improvement in on-time delivery, customisation, and collaboration for quality improvement. By addressing these areas, organisations can further enhance their supply chain performance and deliver more excellent value to customers.

5.0 CONCLUSION

This study has explored the role of Dynamic Supply Chain Capabilities (DSCC) in shaping Sustainable Supply Chain Management (SSCM) practices and their impact on Supply Chain Performance. By integrating theoretical frameworks such as Dynamic Capabilities Theory and the Resource-Based View (RBV), the research provides valuable insights into how organisations can leverage DSCC to achieve sustainability goals and enhance overall supply chain performance.

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5.1 Key Findings

Dynamic Supply Chain Capabilities (DSCC): Organizations with strong DSCC are better equipped to sense environmental changes, seize opportunities, and reconfigure resources to adapt to market uncertainties. The study found that agility, adaptability, and resilience are critical for maintaining competitiveness and fostering innovation in supply chains. The highest mean score for DSCC was observed in the ability to *"perceive environmental change before competitors"* (5.59), indicating that organisations are relatively strong in sensing external changes early. However, there is room for improvement in decision-making and execution, as evidenced by lower mean scores related to timely decision-making and strategic change implementation.

Sustainable Supply Chain Management (SSCM) Practices: The findings reveal that organisations are moderately to highly engaged in SSCM practices, emphasising supplier collaboration and process reengineering. The highest mean score was *"developing a mutual understanding of responsibilities regarding sustainability performance with suppliers"* (5.49), highlighting the importance of collaboration in achieving sustainability goals. However, there is a need for greater focus on circular economy principles, particularly in product design, as evidenced by the lower mean score for *"paying attention to reuse, recycling, and/or recovery of materials"* (5.11). This suggests that organisations could improve their adoption of environmentally friendly materials and sustainable design practices.

Supply Chain Performance: The study found that organisations generally perceive their supply chain performance as moderately to highly effective, with strengths in product reliability, quality, and cost management. The highest mean score was for *"offering highly reliable products"* (5.67), indicating that reliability is a key strength in the supply chain. However, there is room for improvement in on-time delivery and customisation capabilities, as evidenced by lower mean scores. Additionally, collaboration for quality improvement varies across organisations, suggesting that some firms need to strengthen their partnerships with supply chain partners.

5.2 Implications for Practice

Enhancing Dynamic Capabilities: Organizations should invest in developing and strengthening their dynamic capabilities, particularly in decision-making, execution, and customer responsiveness. This can be achieved through advanced information management systems, real-time data analytics, and cross-functional collaboration.

Improving Sustainable Practices: Organisations should focus on integrating circular economy principles into product design and sourcing environmentally friendly materials to achieve long-term sustainability. Additionally, formalising sustainability guidelines and fostering stronger collaboration with suppliers can enhance the adoption of SSCM practices.

Optimising Supply Chain Performance: Organizations should prioritise improving on-time delivery and customisation capabilities to more effectively meet customer demands. Collaboration with supply chain partners can enhance product quality and responsiveness to demand variations.

5.3 Theoretical Contributions

This study contributes to the growing literature on DSCC and SSCM by providing empirical evidence of the relationship between dynamic capabilities, sustainable practices, and supply chain performance. By integrating multiple theoretical perspectives, including Dynamic Capabilities Theory, RBV, and Institutional Theory, the research offers a comprehensive framework for understanding how organisations can operationalise DSCC to achieve sustainability goals.

5.4 Limitations and Future Research

While this study provides valuable insights, it has some limitations. The cross-sectional design limits the ability to establish causal relationships, and the focus on specific industries may restrict the generalizability of the findings. Future research could explore longitudinal studies to examine the long-term impact of DSCC on SSCM and performance. Additionally,

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investigating the role of mediating and moderating factors, such as organisational culture and technological adoption, could provide further insights into the performance relationship.

5.5 Conclusion

In conclusion, this study highlights the critical role of Dynamic Supply Chain Capabilities in enabling organisations to adopt Sustainable Supply Chain Management practices and improve Supply Chain Performance. By leveraging dynamic capabilities, organisations can enhance their ability to adapt to environmental changes, foster innovation, and achieve long-term sustainability. The findings offer practical recommendations for business leaders, policymakers, and scholars seeking to build resilient, sustainable, high-performing supply chains in an increasingly complex and uncertain global environment.

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