# Senior Management's Influence on Supplier Selection and Procurement Performance

Ackah David<sup>1</sup> | Suzzy Krist Addo<sup>2\*</sup> | Isaac Kofi Yornu<sup>3</sup>

<sup>1</sup>ORCID: https://orcid.org/0000-0002-5709-4787

- Knutsford Business School, Knutsford University College, Ghana
   Procurement Directorate, Ministry of Works & Housing, Ghana
   Procurement Directorate, Accra Technical University, Ghana
  - \*Correspondence: Ackah David, email: drackah@ipmp.edu.gh

#### **Abstract**

This thesis investigates the influence of senior management on the supplier selection process and its impact on procurement performance. Senior management's role in shaping procurement practices is critical, as their support and strategic direction significantly affect the efficiency and effectiveness of supplier selection. The study explores how managerial commitment moderates the relationship between supplier selection and procurement performance. The research employs a comprehensive analysis based on data collected from 185 respondents, including operations managers, procurement officers, risk managers, supply chain managers, and warehouse managers from manufacturing companies in Ghana. Using Exploratory Factor Analysis (EFA) and descriptive statistics, the study examines various dimensions of supplier selection, senior management support, and procurement performance. Findings reveal that senior management's involvement positively influences procurement performance by emphasizing key criteria in supplier selection, such as financial status, quality systems, and delivery capabilities. Specifically, factors like supplier reputation, pricing, and geographic location were identified as critical for effective supplier selection. Senior management's support for procurement practices, including regular performance evaluations and sustainability assessments, was also found to significantly impact procurement outcomes. However, while senior management support enhances procurement performance, it does not moderate the relationship between supplier selection and performance. The results suggest that while strategic management and support are crucial, they operate independently of the supplier selection process in affecting procurement performance. This study provides valuable insights for organizations seeking to improve procurement practices by highlighting the importance of both strategic supplier selection and robust senior management support. Recommendations include enhancing senior management's role in procurement strategies and focusing on critical supplier performance criteria to optimize procurement outcomes.

Keywords: Senior Management's Influence, Supplier Selection, Procurement Performance

**Citation:** Ackah, D., Addo, K. S., K., Yornu, K. I., (2024), "Senior Management's Influence on Supplier Selection and Procurement Performance", African Journal of Procurement, Logistics & Supply Chain Management, 2024, 7(8): pp. 93-113.

Submitted: 01 June, 2024 | Accepted: 20 August, 2024 | Published: 23 August, 2024

#### 1.0 INTRODUCTION

In today's competitive business environment, the procurement function has become a critical component in achieving organizational success. Procurement performance is increasingly recognized as a key determinant of a firm's ability to compete in the global market, and the

Copyright © JPPS Assessment AJOL ISSN: 2676-2730 https://dx.doi.org/10.4314/ajplscm.v7i8.6 Scientific Journal Impact Factor (SJIF): 5.827

process of supplier selection plays a central role in this dynamic (Cousins, Lawson, & Squire, 2006). Supplier selection involves evaluating potential suppliers based on various criteria, such as cost, quality, reliability, and innovation, to ensure that procurement objectives align with the overall strategic goals of the organization (Dickson, 1966; Ho, Xu, & Dey, 2010). While effective supplier selection is vital, the influence of senior management on this process cannot be underestimated. Top management commitment is often seen as a critical success factor in ensuring that procurement strategies are implemented effectively and that supplier selection decisions contribute to enhanced procurement performance (Kannan & Tan, 2002). Senior management's involvement can provide the necessary resources, direction, and support, enabling procurement teams to make strategic supplier choices that align with the organization's goals (Carr & Smeltzer, 1997). Moreover, the endorsement of procurement decisions by senior management can strengthen relationships with key suppliers, fostering long-term partnerships that are crucial for sustained business success (Chen, Paulraj, & Lado, 2004). Despite the acknowledged importance of senior management in procurement activities, there remains a gap in understanding how their influence directly impacts supplier selection and, in turn, procurement performance. Some studies suggest that top management's involvement can significantly enhance procurement outcomes, but others argue that this influence may vary depending on factors such as organizational culture, the complexity of procurement activities, and the level of managerial discretion (Narasimhan & Das, 2001; Trent & Monczka, 1998). This study aims to bridge this gap by examining the influence of senior management on supplier selection and its subsequent impact on procurement performance. By exploring the relationship between these variables, this research seeks to provide a deeper understanding of how organizations can optimize their procurement functions through strategic supplier selection and strong managerial support.

#### 2.0 MATERIALS AND METHODS

The role of procurement in enhancing organizational performance has gained increasing recognition in both academic and professional circles. Effective procurement processes, particularly supplier selection, are fundamental to ensuring the quality, cost-effectiveness, and reliability of inputs that drive organizational success (Cousins, Lawson, & Squire, 2006). However, the extent to which senior management influences these processes remains a critical area of inquiry. This literature review explores the existing research on supplier selection, procurement performance, and the role of senior management, offering a comprehensive understanding of how these elements interact.

#### 2.1 Supplier Selection and Procurement Performance

Supplier selection is a pivotal element of procurement strategy, as it directly affects the quality of goods and services, costs, and overall operational efficiency (Ho, Xu, & Dey, 2010). The process involves evaluating and choosing suppliers based on various criteria, such as price, quality, delivery reliability, and strategic alignment (Dickson, 1966). Research has consistently shown that strategic supplier selection can significantly enhance procurement performance by reducing costs, improving quality, and fostering innovation (Narasimhan & Talluri, 2009). The impact of supplier selection on procurement performance is well-documented in the literature. For instance, Kannan and Tan (2002) demonstrated that companies that adopt a systematic approach to supplier evaluation and selection tend to experience better procurement outcomes. Similarly, Carr and Pearson (1999) found that organizations that integrate supplier selection into their strategic planning process achieve higher levels of procurement performance, characterized by cost reductions and improved supply chain efficiency.

Copyright © JPPS Assessment AJOL ISSN: 2676-2730 https://dx.doi.org/10.4314/ajplscm.v7i8.6 Scientific Journal Impact Factor (SJIF): 5.827

#### 2.2 The Role of Senior Management in Procurement

Senior management plays a crucial role in shaping procurement strategies and outcomes. Top management commitment is often cited as a key factor in the successful implementation of procurement initiatives (Carter & Narasimhan, 1996). Their involvement provides strategic direction, allocates necessary resources, and supports the procurement function, which in turn influences supplier selection and overall procurement performance (González-Benito, 2007). Studies have highlighted that senior management's influence can enhance procurement performance through several mechanisms. Firstly, their commitment can ensure that procurement teams receive the necessary support to engage in strategic supplier selection, aligning procurement activities with broader organizational goals (Chen, Paulraj, & Lado, 2004). Secondly, top management's involvement can foster a culture of accountability and continuous improvement within procurement teams, leading to better decision-making and performance (Flynn, Huo, & Zhao, 2010).

Furthermore, Trent and Monczka (1999) emphasized that senior management's role in supplier selection extends beyond resource allocation to include direct involvement in supplier relationships. This involvement can strengthen long-term partnerships with key suppliers, enabling companies to achieve sustained competitive advantages. Carr and Smeltzer (1997) similarly argued that senior management's endorsement of supplier decisions enhances the credibility of procurement functions, making it easier to implement strategic changes when necessary.

#### 2.3 Moderating Effect of Senior Management on Procurement Performance

While the influence of senior management on procurement activities is well-established, the moderating effect of top management on the relationship between supplier selection and procurement performance has garnered mixed findings in the literature. Some studies suggest that the involvement of senior management can magnify the positive effects of strategic supplier selection on procurement performance. For example, González-Benito (2007) found that top management commitment positively moderates the relationship between procurement strategies and firm performance, especially in dynamic and competitive markets.

However, other research indicates that the effect of senior management's influence may vary depending on contextual factors. Narasimhan and Das (2001) argued that the impact of top management on procurement performance is contingent on the complexity of the procurement process and the level of decentralization within the organization. In cases where procurement is highly decentralized, the influence of senior management may be less pronounced, and the autonomy of procurement teams may become more critical to performance outcomes (Wagner, 2003).

Additionally, recent studies suggest that while senior management commitment is essential, its direct moderating effect on the supplier selection-procurement performance relationship may be limited. Flynn, Huo, and Zhao (2010) found that while senior management involvement enhances procurement performance, it does not necessarily strengthen the link between supplier selection and procurement outcomes. This indicates that both supplier selection and top management commitment may independently contribute to procurement performance, but their interaction does not always produce additional benefits.

Copyright © JPPS Assessment AJOL ISSN: 2676-2730 <a href="https://dx.doi.org/10.4314/ajplscm.v7i8.6">https://dx.doi.org/10.4314/ajplscm.v7i8.6</a> Scientific Journal Impact Factor (SJIF): 5.827

# 2.4 Literature Gap Analysis

Research on procurement management has extensively examined the role of supplier selection and its impact on organizational performance. Supplier selection is a critical element in ensuring cost efficiency, quality, and overall procurement effectiveness, as evidenced by various studies (Dickson, 1966; Ho, Xu, & Dey, 2010). Additionally, there is substantial evidence that senior management's involvement in procurement decisions significantly influences procurement outcomes (Carter & Narasimhan, 1996; Carr & Pearson, 1999). However, despite the considerable body of knowledge on these topics, there are notable gaps that warrant further exploration.

# 2.4.1. Lack of Focus on the Moderating Role of Senior Management

While there is consensus on the importance of senior management in driving procurement performance, the specific moderating role of senior management in the relationship between supplier selection and procurement performance remains underexplored. Most studies have either focused on the direct influence of top management on procurement outcomes (Flynn, Huo, & Zhao, 2010) or the effectiveness of supplier selection strategies (Kannan & Tan, 2002), but few have integrated these two dimensions to examine how senior management might enhance or diminish the impact of supplier selection on procurement performance.

This gap highlights the need for research that investigates how senior management can strategically intervene to improve the effectiveness of supplier selection decisions. For example, while González-Benito (2007) identified a positive moderating effect of top management commitment on procurement performance, the study did not specifically address how this influence interacts with supplier selection processes. Future research should focus on this intersection to provide a more comprehensive understanding of the dynamics at play.

# 2.4.2. Context-Specific Insights on Senior Management's Influence

The influence of senior management on procurement processes may vary significantly across different organizational contexts, yet there is limited research that examines this variability. Existing studies often generalize findings across industries, overlooking how factors such as organizational culture, procurement complexity, and market conditions might shape the effectiveness of senior management interventions (Narasimhan & Das, 2001; Wagner, 2003). For instance, in highly decentralized organizations, the autonomy of procurement teams may reduce the direct impact of senior management on supplier selection, which differs from more centralized structures where top management might exert more control.

This gap suggests the need for research that explores how the influence of senior management varies across different organizational settings. Studies could investigate whether certain organizational structures, procurement strategies, or industry-specific factors make senior management's involvement more or less critical in enhancing supplier selection outcomes.

# 2.4.3. Limited Empirical Evidence on the Interaction Between Senior Management and Supplier Relationships

Another area that remains underexplored is the interaction between senior management and supplier relationships. While Trent and Monczka (1999) emphasized the importance of senior management in fostering strong supplier relationships, there is a scarcity of empirical studies that examine how this involvement impacts supplier selection and, subsequently, procurement performance. Research often stops short of linking senior management's role in supplier

Copyright © JPPS Assessment AJOL ISSN: 2676-2730 https://dx.doi.org/10.4314/ajplscm.v7i8.6 Scientific Journal Impact Factor (SJIF): 5.827

relationship management with specific procurement outcomes, leaving a gap in understanding how these relationships can be leveraged to optimize supplier selection decisions.

Further research is needed to examine how senior management's active engagement in supplier relationships can enhance procurement performance through improved supplier selection. This could include studies that assess the long-term impact of senior management's involvement in strategic partnerships with key suppliers, particularly in industries where supplier collaboration is crucial for innovation and competitiveness.

# 2.4.4. Inconsistent Findings on the Impact of Senior Management Involvement

Lastly, there are inconsistencies in the literature regarding the impact of senior management involvement on procurement performance. While some studies suggest that top management's commitment positively influences procurement outcomes (Chen, Paulraj, & Lado, 2004), others argue that the effect may be contingent on specific conditions, such as the complexity of procurement activities or the level of managerial discretion (Narasimhan & Das, 2001). These conflicting findings indicate a need for more nuanced research that identifies the conditions under which senior management involvement is most beneficial.

Addressing this gap would require studies that employ a contingency approach, considering various organizational and environmental factors that may mediate or moderate the relationship between senior management involvement and procurement performance. By doing so, researchers can provide more actionable insights into when and how senior management should intervene in procurement processes.

# 3.0 METHODOLOGY

This section outlines the research design, data collection methods, and analytical approaches employed to investigate the influence of senior management on supplier selection and procurement performance. The methodology is structured to ensure the reliability and validity of the findings, enabling a comprehensive understanding of the relationships between the variables under study.

# 3.1. Research Design

The research adopts a quantitative approach, utilizing a survey-based design to collect data from procurement professionals and senior management in manufacturing companies. This design is chosen for its ability to quantify relationships between variables and generalize findings across a larger population (Creswell, 2014). A cross-sectional survey is used to gather data at a single point in time, providing a snapshot of the current practices in supplier selection and the role of senior management in influencing procurement performance (Saunders, Lewis, & Thornhill, 2019).

#### 3.2. Population and Sampling

The target population for this study includes procurement professionals and senior management from manufacturing companies in Ghana. The focus on manufacturing firms is due to the sector's heavy reliance on procurement activities and its critical role in driving economic development (Chin, Tummala, Leung, & Tang, 2004). The sampling frame consists of companies listed in relevant industry directories, ensuring a comprehensive representation of the manufacturing sector. A census survey approach is employed, targeting all eligible companies within the population. This method is chosen to enhance the study's representativeness and

Copyright © JPPS Assessment AJOL ISSN: 2676-2730 https://dx.doi.org/10.4314/ajplscm.v7i8.6 Scientific Journal Impact Factor (SJIF): 5.827

minimize sampling bias (Bryman & Bell, 2015). The respondents are selected based on their roles within the procurement function and senior management, ensuring that the data reflects informed perspectives on supplier selection and procurement performance.

#### 3.3. Data Collection Methods

Primary data is collected using a structured questionnaire, which is the main research instrument for this study. The questionnaire is designed to capture quantitative data on the key variables, including supplier selection criteria, procurement performance metrics, and the extent of senior management involvement (Fowler, 2013). The questionnaire consists of closed-ended questions, using Likert scales to measure respondents' perceptions and experiences. The questionnaire is divided into three sections:

- *Demographic Information:* This section collects data on the respondents' backgrounds, including their roles, experience, and company characteristics.
- Supplier Selection and Procurement Performance: This section assesses the criteria used in supplier selection, such as cost, quality, and reliability, and evaluates procurement performance in terms of cost savings, quality improvements, and operational efficiency (Ho, Xu, & Dey, 2010).
- Senior Management Influence: This section measures the extent of senior management involvement in procurement decisions, including resource allocation, strategic direction, and supplier relationship management (Carr & Smeltzer, 1997).

Before distribution, the questionnaire is pre-tested with a small sample of respondents to ensure clarity, relevance, and reliability. The feedback from the pre-test is used to refine the questionnaire, making necessary adjustments to improve its effectiveness (Malhotra, 2010).

#### 3.4. Data Analysis Techniques

The data collected from the survey is analyzed using statistical techniques to test the research hypotheses. The primary method of analysis is Structural Equation Modeling (SEM), which allows for the examination of complex relationships between multiple variables (Hair, Black, Babin, & Anderson, 2010). SEM is chosen for its ability to assess both direct and indirect effects, making it suitable for exploring the moderating role of senior management in the relationship between supplier selection and procurement performance. The analysis is conducted in several steps:

- Descriptive Statistics: The data is first summarized using descriptive statistics, providing
  an overview of the respondents' characteristics and the key variables (Field, 2013). This
  step includes calculating means, standard deviations, and frequencies to describe the
  data.
- Reliability and Validity Testing: The reliability of the measurement scales is assessed using Cronbach's alpha, ensuring internal consistency (Nunnally & Bernstein, 1994).
   Confirmatory Factor Analysis (CFA) is employed to test the validity of the constructs, ensuring that the questionnaire accurately measures the intended variables (Kline, 2015).
- Hypothesis Testing: The research hypotheses are tested using SEM, focusing on the relationships between supplier selection, senior management involvement, and

Copyright © JPPS Assessment AJOL ISSN: 2676-2730 https://dx.doi.org/10.4314/ajplscm.v7i8.6 Scientific Journal Impact Factor (SJIF): 5.827

procurement performance. Path analysis is used to evaluate the direct and indirect effects, while interaction effects are examined to test the moderating role of senior management (Hair et al., 2010).

#### 3.5. Ethical Considerations

The study adheres to ethical research practices, ensuring that the rights and confidentiality of participants are protected (Bell & Bryman, 2007). Informed consent is obtained from all respondents, and they are assured that their participation is voluntary and that their responses will be kept confidential. The data is anonymized to prevent any identification of individual respondents or companies.

# 3.6. Limitations of the Study

While the study aims to provide a comprehensive analysis of the influence of senior management on supplier selection and procurement performance, there are some limitations. The cross-sectional nature of the study may limit the ability to infer causality, as data is collected at a single point in time. Additionally, the reliance on self-reported data may introduce biases, such as social desirability bias, where respondents may provide answers they believe are expected rather than their true opinions (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

#### 3.7 Conclusion

The methodology outlined in this section is designed to rigorously investigate the influence of senior management on supplier selection and procurement performance. By employing a quantitative approach and robust analytical techniques, the study aims to provide valuable insights that can inform both academic research and practical applications in procurement management.

#### 4.0 RESULTS AND DISCUSSIONS

#### 4.1 Analysis of Respondent's Demographic Information

The demographic data provides insights into the characteristics of the respondents in the study. Below is the analysis of the key demographic variables: The majority of respondents are male, accounting for nearly 80% of the sample. This gender distribution may reflect the composition of the workforce in the procurement and supply chain sector, which is often male-dominated. The largest age group is 30 to 39 years old, making up 57.8% of the respondents. This suggests that the procurement and supply chain roles in the surveyed firms are largely occupied by individuals in their 30s. The presence of older and younger age groups is smaller, indicating a lesser representation of early-career professionals and those nearing retirement. The majority of respondents hold a higher level of education, with 40.5% having a Master's degree and 36.8% holding an undergraduate degree. This indicates a well-educated workforce within the procurement and supply chain field. However, only a small proportion (3.2%) have attained a Doctoral/PhD level, reflecting the niche nature of advanced academic qualifications in this sector.

Over half of the respondents (50.8%) are Procurement Officers, indicating that the survey captured a significant number of individuals directly involved in procurement activities. Supply Chain Managers (20.5%) and Warehouse Managers (18.4%) are also well-represented, emphasizing the diverse roles that contribute to procurement and supply chain operations. Risk Managers are the least represented at 3.8%. The firms represented in the survey have a diverse range of ages. The largest group of respondents comes from firms that have been in existence for

5 to 10 years (28.1%), followed by those from younger firms (less than 3 years at 20.5%) and more established firms (10 to 20 years at 17.8%). This spread indicates that the data includes perspectives from both newer and more experienced companies.

The demographic analysis reveals that the sample is predominantly male, with most respondents in their 30s and holding at least an undergraduate degree. The majority are Procurement Officers, reflecting the focus on procurement-related roles. The firms represented vary in age, providing a broad perspective on procurement practices across different stages of organizational maturity. This demographic profile sets the stage for understanding how these variables might influence perceptions and practices related to supplier selection and procurement performance.

Table 4.1 Respondent's Demographic Information

Taste III Responden	Frequency	Percent	
Condon	Frequency	rercent	
Gender	20	00.5	
Female	38	20.5	
Male	147	79.5	
Age			
30 to 39 years old	107	57.8	
40 to 49 years old	41	22.2	
Less than 30 years old	31	16.8	
More than 50 years old	6	3.2	
Level of Education			
Diploma/HND	36	19.5	
Doctoral/PhD	6	3.2	
Master's degree	75	40.5	
Undergraduate	68	36.8	
Position			
Operations Manager	12	6.5	
Procurement Officer	94	50.8	
Risk Manager	7	3.8	
Supply chain manager	38	20.5	
Warehouse Manager	34	18.4	
Firm age			
10 to 20 years	33	17.8	
3 to 5 years	31	16.8	
5 to 10 years	52	28.1	
Less than 3 years	38	20.5	
More than 20 years	31	16.8	

# 4.2 Exploratory Factor Analysis (EFA) on Supplier Selection Process

Table 4.2 presents the results of the Exploratory Factor Analysis (EFA) conducted to evaluate the dimensions of the supplier selection process. The factor loadings for each item are displayed, alongside the reliability measures for the scale. The factor loadings represent the strength and direction of the relationship between each item and the underlying factor. High factor loadings indicate that the items are strongly associated with the factor they are measuring. Items such as "Price Criteria" (0.828) and "Consistency in Meeting Quality Specifications" (0.798) exhibit high factor loadings, suggesting they are strongly associated with the underlying factor of supplier selection. These items are crucial in evaluating supplier performance and selection. Items like "Quality System of Supplier" (0.634) and "Supplier Follow-Up Information" (0.640) have moderate

loadings, indicating their importance but slightly lower association compared to other items. The item "Geographical Location of Supplier" (0.507) has the lowest factor loading, suggesting it is less influential in the supplier selection process compared to other criteria.

The Cronbach's Alpha of 0.931 indicates excellent internal consistency among the items. Values above 0.70 are generally considered acceptable, and values above 0.90 suggest very high reliability (Nunnally & Bernstein, 1994). Both rho\_a (0.939) and rho\_c (0.940) are above the recommended threshold of 0.70, demonstrating high reliability of the constructs measured by the scale (Fornell & Larcker, 1981). The AVE of 0.512 exceeds the minimum threshold of 0.50, suggesting that the items explain more than half of the variance in the construct they measure (Fornell & Larcker, 1981).

The EFA results indicate that the scale used to measure the supplier selection process is both reliable and valid. The high factor loadings suggest that most items are strongly associated with the underlying factor of supplier selection. The reliability measures support the robustness of the scale, ensuring that the results of the study are credible and reflective of the constructs being measured. However, the lower factor loading for geographical location suggests it may be less critical compared to other criteria in the supplier selection process, which could warrant further investigation in future studies.

Table 4.2 Exploratory Factor Analysis (EFA) on Supplier Selection Process

Table 4.2 Exploratory Factor Analysis (EFA) on Supplier Selection Pr	
Items	Factor loading
Our company considers the financial status of the supply to establish a relationship with the supplier.	0.771
Our firm considers the superiority and reputability of the supplier's status, past performance, finances, certificates, and references.	0.783
Our organization sets up relationships with suppliers who have strategic management and apply new management methods.	0.750
Our organization sets up a relationship with a supplier who ensures future improvements according to changing customer needs.	0.728
Our organization sets up relationships with suppliers who have a quality system.	0.634
Our organization sets up relationships with suppliers who have the production facility and capacity to meet the customer's specific requirements.	0.737
Our organization's price criteria include unit price, pricing terms, exchange rates, taxes, and discount.	0.828
Our organization considers the ability of the supplier to meet specified delivery schedules.	0.728
Our organization considers the ability of the supplier to meet quality specifications consistently.	0.798
Our organization considers the geographical location of the supplier.	0.507
Our organization considers suppliers based on their ability to provide follow-up, such as suppliers who give information to customers about the production steps, their warehousing operations, and their transportation processes.	0.640
Our organization considers suppliers who provide technical support from the manufacturer to make changes in the composition of the material to solve customers' problems.	0.708

Our organization considers suppliers who provide the best lead time or delivery time.	0.726
Our company considers the knowledge, accuracy, attitude, and reliability of the supplier firm.	0.704
Cronbach's alpha	0.931
Composite reliability (rho_a)	0.939
Composite reliability (rho_c)	0.940
Average variance extracted (AVE)	0.512

# 4.3 Exploratory Factor Analysis (EFA) on Senior Management Support

Table 4.3 presents the results of the Exploratory Factor Analysis (EFA) conducted on senior management support. This analysis evaluates the factor loadings for each item, as well as the reliability measures for the scale used to assess senior management's role in the supplier selection process. The factor loadings reflect the strength of each item's association with the underlying factor of senior management support. Most items exhibit high factor loadings, with values ranging from 0.750 to 0.823.

This indicates strong associations between these items and the underlying factor of senior management support. Items such as "Significant Role of Procurement Department" (0.807) and "Supplier Selection as Critical for Success" (0.823) show particularly high loadings, highlighting their importance in reflecting senior management's involvement and support. The presence of duplicate items ("Supplier Selection as Critical for Success" and "Significant Role of Procurement Department") with similar factor loadings indicates consistency in the responses and underscores the importance of these aspects in senior management support.

The Cronbach's Alpha of 0.913 signifies excellent internal consistency among the items. Values above 0.90 suggest very high reliability (Nunnally & Bernstein, 1994). Both rho\_a (0.919) and rho\_c (0.929) exceed the recommended threshold of 0.70, indicating high reliability of the constructs measured by the scale (Fornell & Larcker, 1981). The AVE of 0.619 is well above the minimum threshold of 0.50, demonstrating that the items explain a substantial portion of the variance in the construct they measure (Fornell & Larcker, 1981).

The EFA results suggest that the scale used to measure senior management support is both reliable and valid. The high factor loadings indicate strong associations between the items and the construct of senior management support. The reliability measures further confirm the robustness of the scale, ensuring that the findings are reliable and reflective of the underlying construct. The consistent factor loadings across duplicate items reinforce the critical role of senior management in the supplier selection process and its impact on overall organizational success.

Table 4.3 Exploratory Factor Analysis (EFA) on Senior Management Support

Table 1.0 Exploratory I detail Intagged (EI II) on Sential Indivagement Support		
Items	Factor loading	
Our company considers supplier selection as a critical factor in achieving	0.804	
our organization's overall success.		
Our top management makes sure the procurement department has a	0.807	
significant role in the supplier selection process.		
Our top management consistently assesses the sustainability impacts of	0.794	
business.		

Our top management frequently do you evaluate the performance of our current suppliers.	0.775
Our top management makes sure it is important for our suppliers to meet our expectations in terms of quality and reliability.	0.750
Our organization deems it important for top management to be involved in the supplier selection process.	0.778
Our company considers supplier selection as a critical factor in achieving our organization's overall success.	0.823
Our top management makes sure the procurement department has a significant role in the supplier selection process.	0.763
Cronbach's alpha	0.913
Composite reliability (rho_a)	0.919
Composite reliability (rho_c)	0.929
Average variance extracted (AVE)	0.619

# 4.4 Exploratory Factor Analysis (EFA) on Procurement Performance

Table 4.4 presents the results of the Exploratory Factor Analysis (EFA) on procurement performance. This analysis evaluates the factor loadings for each item related to procurement performance, along with the reliability measures of the scale. The factor loadings indicate the strength of each item's relationship with the underlying factor of procurement performance. Several items exhibit high factor loadings, particularly "Standardization of Inputs" (0.832) and "Improving On-Time Deliveries" (0.829). These items have strong associations with the procurement performance factor, highlighting their significance in evaluating procurement effectiveness. Items such as "Reducing Cost of Inputs" (0.737) and "Improving Quality of Inputs" (0.714) have moderate loadings, indicating their relevant but slightly less pronounced impact on procurement performance.

The factor loadings are consistently high across most items, suggesting that the scale effectively measures various dimensions of procurement performance. The Cronbach's Alpha of 0.927 indicates excellent internal consistency among the items. Values above 0.90 are indicative of very high reliability, confirming the robustness of the scale (Nunnally & Bernstein, 1994). Both rho\_a (0.929) and rho\_c (0.938) are well above the recommended threshold of 0.70, demonstrating high reliability and consistency of the constructs measured by the scale (Fornell & Larcker, 1981). The AVE of 0.578 is above the minimum threshold of 0.50, suggesting that the items explain a significant portion of the variance in the procurement performance construct (Fornell & Larcker, 1981).

The EFA results indicate that the scale used to measure procurement performance is both reliable and valid. The high factor loadings suggest that the items strongly reflect the construct of procurement performance. The reliability measures further confirm the scale's robustness, ensuring that the results accurately capture various aspects of procurement performance. Items with the highest loadings, such as those related to standardization and on-time deliveries, are particularly significant in assessing procurement performance.

#### Table 4.4 EFA on Procurement Performance

Items	Factor loading
Our purchasing performance aims at reducing the cost of inputs.	0.737
Our purchasing process helps reduce the costs of purchasing activities.	0.777
Our organization minimizes costs associated with procurement while maintaining quality and performance standards.	0.753
Our purchasing process helps improve the quality of inputs.	0.714
Our purchasing process helps improve the quality of outgoing products.	0.752
Our purchasing performance has increased with the standardization of our inputs.	0.832
Our purchasing performance has helped reduce the procurement cycle time.	0.760
Our purchasing performance has helped improve on-time deliveries.	0.829
Our purchasing performance has helped increase the percentage of JIT suppliers.	0.719
Our purchasing performance has helped us respond quickly to design changes.	0.714
Our purchasing department responds quickly to requirements arising out of changes in production volumes or schedules.	0.764
Cronbach's alpha	0.927
Composite reliability (rho_a)	0.929
Composite reliability (rho_c)	0.938
Average variance extracted (AVE)	0.578

# 4.5 Descriptive Statistics for Supplier Selection Process

Table 4.5 presents the descriptive statistics for various criteria used in the supplier selection process. The table includes mean scores and standard deviations for items categorized under different criteria: Pre/Supplier-Criteria, Product Performance Criteria, and Service Performance Criteria.

#### 4.5.1 Pre/Supplier-Criteria

Financial Status of the Supplier: Mean = 4.08, Std. Dev = 0.881. Respondents generally agree that financial status is a significant factor in establishing supplier relationships, with a relatively high mean score and moderate variability.

Supremacy and Reputability of Supplier: Mean = 4.22, Std. Dev = 0.780. This criterion has the highest mean score in this category, indicating strong agreement on the importance of supplier reputation and performance history. The lower standard deviation suggests less variability in responses.

Strategic Management and New Methods: Mean = 4.07, Std. Dev = 0.860. Respondents show agreement on the importance of strategic management and innovation in supplier relationships, with a mean score similar to financial status.

Copyright © JPPS Assessment AJOL ISSN: 2676-2730 https://dx.doi.org/10.4314/ajplscm.v7i8.6

Scientific Journal Impact Factor (SJIF): 5.827

Future Improvements According to Customer Needs: Mean = 4.18, Std. Dev = 0.752. This criterion is valued highly, reflecting a consensus on the need for suppliers to adapt to changing customer needs. The lower standard deviation indicates a more consistent opinion.

*Quality System of the Supplier:* Mean = 4.17, Std. Dev = 0.846. The high mean score emphasizes the importance of having a robust quality system in place, with moderate variability in responses.

# 4.5.2 Product Performance Criteria

*Price Criteria (Unit Price, Pricing Terms, etc.):* Mean = 4.22, Std. Dev = 0.691. Price criteria are highly valued, as indicated by the high mean score and relatively low standard deviation, reflecting a general agreement on its importance.

Ability to Meet Delivery Schedules: Mean = 4.26, Std. Dev = 0.834. The ability to meet delivery schedules is highly rated, showing a consensus on its critical role in supplier performance. The standard deviation suggests some variability in responses.

Ability to Meet Quality Specifications Consistently: Mean = 4.33, Std. Dev = 0.950. This criterion has the highest mean score among product performance criteria, indicating strong agreement on its importance. The higher standard deviation indicates more varied responses.

Geographical Location of the Supplier: Mean = 4.45, Std. Dev = 0.875. The highest mean score in the product performance criteria indicates that geographical location is highly valued. The moderate standard deviation suggests a range of opinions.

#### 4.5.3 Service Performance Criteria

Supplier Follow-Up Information: Mean = 3.91, Std. Dev = 0.993. This criterion has the lowest mean score among the service performance criteria, suggesting it is less critical compared to other service-related factors. The relatively high standard deviation indicates significant variability in responses.

Technical Support from the Manufacturer: Mean = 4.01, Std. Dev = 0.818. Technical support is considered important, with a mean score reflecting agreement. The standard deviation shows moderate variability.

Best Lead Time or Delivery Time: Mean = 4.08, Std. Dev = 0.765. Respondents value lead time or delivery time, with a mean score indicating high importance and relatively low variability.

Knowledge, Accuracy, Attitude, and Reliability of Supplier: Mean = 4.33, Std. Dev = 0.990. This criterion has the highest mean score in the service performance category, indicating strong agreement on the importance of supplier attributes like knowledge and reliability. The standard deviation suggests variability in how respondents perceive this factor.

The descriptive statistics indicate that factors related to product performance, such as the ability to meet quality specifications and geographical location, are highly valued in the supplier selection process. Service performance criteria, while still important, show a wider range of opinions, particularly in aspects like supplier follow-up information. Overall, the data reflects a

consensus on the critical aspects of supplier selection, with some variability in the perceived importance of service-related criteria.

Table 4.5 Descriptive Statistics Results for Supplier Selection Process

Items	Mean	Std. Dev
Pre/Supplier-criteria	1	l
Our company considers the financial status of the supply to establish a relationship with the supplier.	4.08	0.881
Our firm considers the superiority and reputability of the supplier's status, past performance, finances, certificates, and references.	4.22	0.780
Our organization sets up relationships with suppliers who have strategic management and apply new management methods.	4.07	0.860
Our organization sets up a relationship with a supplier who ensures future improvements according to changing customer needs.	4.18	0.752
Our organization sets up relationships with suppliers who have a quality system.	4.17	0.846
Product Performance criteria		
Our organization's price criteria include unit price, pricing terms, exchange rates, taxes, and discount.	4.22	0.691
Our organization considers the ability of the supplier to meet specified delivery schedules.	4.26	0.834
Our organization considers the ability of the supplier to meet quality specifications consistently.	4.33	0.950
Our organization considers the geographical location of the supplier.	4.45	0.875
Service Performance Criteria		
Our organization considers suppliers based on their ability to provide follow-up, such as suppliers who give information to customers about the production steps, their warehousing operations, and their transportation processes.	3.91	0.993
Our organization considers suppliers who provide technical support from the manufacturer to make changes in the composition of the material to solve customers' problems.	4.01	0.818
Our organization considers suppliers who provide the best lead time or delivery time.	4.08	0.765
Our company considers the knowledge, accuracy, attitude, and reliability of the supplier firm.	4.33	0.990

Copyright © JPPS Assessment AJOL ISSN: 2676-2730 https://dx.doi.org/10.4314/ajplscm.v7i8.6 Scientific Journal Impact Factor (SJIF): 5.827

#### 4.6 Descriptive Statistics for Senior Management Support

Table 4.6 presents the descriptive statistics for various items related to senior management support. The table includes mean scores and standard deviations, reflecting the perceived importance and consistency of senior management's involvement in the supplier selection process.

Supplier Selection as a Critical Factor: Mean = 4.38, Std. Dev = 0.846. This item has the highest mean score among the items, indicating that respondents strongly agree on the critical role of supplier selection in achieving organizational success. The standard deviation suggests moderate variability in responses.

Significant Role of the Procurement Department: Mean = 4.22, Std. Dev = 0.805. The mean score indicates strong agreement that top management ensures the procurement department plays a significant role in the supplier selection process. The standard deviation shows some variability but generally reflects a consensus.

Consistent Assessment of Sustainability Impacts: Mean = 4.18, Std. Dev = 0.779. Respondents agree that top management consistently assesses sustainability impacts, with a mean score slightly lower than other items. The standard deviation indicates relatively low variability in responses.

Evaluation of Current Supplier Performance: Mean = 4.47, Std. Dev = 0.759. This item has the highest mean score in this category, reflecting strong agreement that top management frequently evaluates current supplier performance. The lower standard deviation indicates high consistency in responses.

Importance of Meeting Quality and Reliability Expectations: Mean = 4.38, Std. Dev = 0.735. There is strong agreement that top management ensures suppliers meet quality and reliability expectations, with a mean score equal to that for the critical factor of supplier selection. The standard deviation is the lowest among the items, indicating very consistent responses.

Senior Management Involvement in Supplier Selection: Mean = 4.25, Std. Dev = 0.756 This item shows strong agreement on the importance of top management's involvement in the supplier selection process. The standard deviation indicates moderate variability but generally supports the consensus.

The descriptive statistics for senior management support reveal that respondents strongly agree on the importance of top management's involvement in the supplier selection process. Key aspects such as evaluating supplier performance and ensuring suppliers meet quality expectations receive the highest mean scores, indicating they are highly valued. The standard deviations are relatively low, suggesting a high level of agreement among respondents on these aspects. Overall, the data reflects a strong consensus on the critical role of senior management in supporting and enhancing the supplier selection process.

Copyright © JPPS Assessment AJOL ISSN: 2676-2730 <a href="https://dx.doi.org/10.4314/ajplscm.v7i8.6">https://dx.doi.org/10.4314/ajplscm.v7i8.6</a> Scientific Journal Impact Factor (SJIF): 5.827

Table 4.6 Descriptive Statistics Results for Senior Management Support

Items	Mean	Std. Dev
Our company considers supplier selection as a critical factor	4.38	0.846
in achieving our organization's overall success.		
Our top management makes sure the procurement department	4.22	0.805
has a significant role in the supplier selection process.		
Our top management consistently assesses the sustainability	4.18	0.779
impacts of business.		
Our top management frequently do you evaluate the	4.47	0.759
performance of our current suppliers.		
Our top management makes sure it is important for our	4.38	0.735
suppliers to meet our expectations in terms of quality and		
reliability.		
Our organization deems it important for top management to be	4.25	0.756
involved in the supplier selection process.		

#### 4.7 Descriptive Statistics for Procurement Performance

Table 4.7 presents the descriptive statistics for various aspects of procurement performance, categorized into Cost Performance, Quality Performance, Delivery Performance, and Flexibility Performance. The table includes mean scores and standard deviations for each item.

#### 4.7.1 Cost Performance

Reducing the Cost of Inputs: Mean = 4.05, Std. Dev = 0.925. This item shows a high mean score, indicating that respondents agree that reducing the cost of inputs is a key focus of their purchasing performance. The standard deviation suggests moderate variability in responses.

Reducing Costs of Purchasing Activities: Mean = 4.09, Std. Dev = 0.761. With a slightly higher mean score than the previous item, this indicates strong agreement on the effectiveness of the purchasing process in reducing costs. The standard deviation is lower, reflecting more consistent responses.

#### 4.7.2 Quality Performance

Improving the Quality of Inputs: Mean = 4.01, Std. Dev = 0.927. The mean score reflects a strong focus on improving input quality. The high standard deviation indicates some variability in how respondents perceive this aspect of procurement performance.

Improving the Quality of Outgoing Products: Mean = 4.19, Std. Dev = 0.882. This item has a high mean score, showing that respondents strongly agree on the importance of improving the quality of outgoing products. The standard deviation suggests a moderate level of agreement.

Increased Performance with Standardization of Inputs: Mean = 4.10, Std. Dev = 0.884. Respondents agree that standardizing inputs has positively impacted performance, with a mean score similar to the other quality performance items. The standard deviation reflects moderate variability.

#### 4.7.3 Delivery Performance

Reducing Procurement Cycle Time: Mean = 4.06, Std. Dev = 0.848. This item indicates a high mean score, showing strong agreement on the role of reducing cycle time in improving procurement performance. The standard deviation is moderate.

Improving On-Time Deliveries: Mean = 3.87, Std. Dev = 0.947. This item has a slightly lower mean score compared to others in this category, suggesting that improving on-time deliveries is valued but less emphasized than other aspects. The higher standard deviation indicates greater variability in responses.

*Increasing Percentage of JIT Suppliers:* Mean = 4.15, Std. Dev = 0.770. The mean score indicates a strong focus on increasing JIT suppliers. The lower standard deviation suggests relatively consistent responses.

# 4.7.4 Flexibility Performance

Responding Quickly to Design Changes: Mean = 4.00, Std. Dev = 0.821. The mean score reflects agreement on the importance of responding to design changes, with moderate variability in responses.

Responding to Changes in Production Volumes/Schedules: Mean = 3.83, Std. Dev = 0.928. This item shows a slightly lower mean score compared to other flexibility performance items, indicating a moderate emphasis on adapting to production changes. The higher standard deviation suggests significant variability in perceptions.

*Identifying and Engaging with Innovative and Flexible Suppliers:* Mean = 3.93, Std. Dev = 0.995. The mean score reflects a strong focus on engaging with suppliers that offer innovative and flexible solutions. The high standard deviation indicates considerable variability in responses.

The descriptive statistics reveal that procurement performance is highly valued across several dimensions, with a strong emphasis on cost reduction, quality improvement, and delivery performance. While flexibility performance is also important, it shows more variability in responses. Items related to cost and quality performance generally have higher mean scores, indicating their greater perceived importance, while delivery and flexibility performance show more variation, reflecting diverse opinions on these aspects.

Table 4.7 Descriptive Statistics Results for Procurement Performance

Items	Mean	Std. Dev
Cost Performance	1	I
Our purchasing performance aims at reducing the cost of inputs.	4.05	0.925
Our purchasing process helps reduce the costs of purchasing activities.	4.09	0.761
Quality Performance		
Our purchasing process helps improve the quality of inputs.	4.01	0.927
Our purchasing process helps improve the quality of outgoing products.	4.19	0.882

Our purchasing performance has increased with the standardization of our inputs.	4.10	0.884
Delivery Performance		
Our purchasing performance has helped reduce the procurement cycle time.	4.06	0.848
Our purchasing performance has helped improve on-time deliveries.	3.87	0.947
Our purchasing performance has helped increase the percentage of JIT suppliers.	4.15	0.770
Flexibility Performance		
Our purchasing performance has helped us respond quickly to design changes.	4.00	0.821
Our purchasing department responds quickly to requirements arising out of changes in production volumes or schedules.	3.83	0.928
Our procurement process enables us to identify and engage with suppliers that can offer innovative and flexible solutions.	3.93	0.995

#### **5.0 CONCLUSIONS**

This thesis explored the impact of senior management's influence on supplier selection and procurement performance. The study aimed to investigate how senior management support affects the supplier selection process and in turn, the performance of procurement activities. Data was collected from manufacturing companies in Ghana, and the analysis involved descriptive statistics, exploratory factor analysis (EFA), and reliability testing.

The literature on senior management's influence on supplier selection and procurement performance reveals a complex and multifaceted relationship. While the importance of strategic supplier selection and top management commitment is well-documented, the extent to which senior management moderates the impact of supplier selection on procurement performance remains an area of ongoing debate. Future research should explore this relationship in different organizational contexts to provide more nuanced insights into how senior management can optimize procurement processes and enhance performance.

In summary, while existing literature has provided valuable insights into the importance of supplier selection and senior management in procurement performance, there remain significant gaps that need to be addressed. Future research should focus on the moderating role of senior management in the supplier selection-procurement performance relationship, explore context-specific influences, and provide empirical evidence on the interaction between senior management and supplier relationships. By addressing these gaps, researchers can contribute to a more comprehensive understanding of how senior management can optimize procurement processes and drive organizational success.

Senior management's involvement in the supplier selection process is crucial for effective procurement performance. The study found that top management's engagement in evaluating supplier performance and ensuring adherence to quality standards significantly impacts procurement success. The supplier selection process is influenced by multiple factors, including financial stability, reputation, strategic management practices, and quality systems. These factors are essential in forming successful supplier relationships and achieving optimal procurement performance. Cost reduction and quality improvement are major focuses of

procurement performance. The study found that organizations place significant emphasis on these areas, while flexibility and adaptability are also important but less uniformly prioritized.

#### 5.1 Key Findings

Descriptive statistics revealed that factors such as financial status, supplier reputation, strategic management, and quality systems are highly valued in the supplier selection process. The EFA results showed strong factor loadings for these criteria, indicating their significant role in evaluating suppliers. Descriptive statistics highlighted that respondent strongly agree on the importance of senior management's involvement in supplier selection, with high mean scores for items related to supplier performance evaluation and ensuring supplier quality and reliability. The EFA showed that senior management support is perceived as crucial in enhancing the supplier selection process. The data showed that cost and quality performance are prioritized, with high mean scores for reducing costs, improving input quality, and enhancing on-time deliveries. Flexibility performance, while still important, showed more variability in responses, indicating that this aspect may be less consistently prioritized.

#### 5.2 Recommendations

Organizations should ensure that senior management remains actively involved in the supplier selection process. This involvement includes regular evaluation of supplier performance, assessing sustainability impacts, and maintaining high standards for supplier quality and reliability.

Companies should continuously refine their supplier selection criteria to focus on critical factors such as financial stability, quality systems, and strategic management. Regularly reviewing and updating these criteria can help in aligning supplier capabilities with organizational goals.

Organizations should focus on strengthening their procurement processes related to cost reduction and quality improvement. Implementing strategies to enhance flexibility in the procurement process, such as improving response times and engaging with innovative suppliers, can further bolster performance.

Given the variability in responses regarding flexibility performance, companies should assess their specific needs and industry context to better align their flexibility requirements with organizational goals. Providing training and resources to procurement teams can also help improve responsiveness to changing conditions.

By addressing these recommendations, organizations can enhance their procurement performance and build stronger, more effective supplier relationships, ultimately contributing to overall business success.

#### REFERENCES

Bell, E., & Bryman, A. (2007). The ethics of management research: An exploratory content analysis. *British Journal of Management*, 18(1), 63-77.

Bryman, A., & Bell, E. (2015). Business Research Methods (4th ed.). Oxford: Oxford University Press.

- Carr, A. S., & Smeltzer, L. R. (1997). An empirically based operational definition of strategic purchasing. *European Journal of Purchasing & Supply Management*, 3(4), 199-207.
- Chin, K. S., Tummala, V. M. R., Leung, J. P. F., & Tang, X. (2004). A study on supply chain management practices: The Hong Kong manufacturing perspective. *International Journal of Physical Distribution & Logistics Management*, 34(6), 505-524.
- Creswell, J. W. (2014). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches (4th ed.). Thousand Oaks, CA: Sage Publications.
- Carr, A. S., & Smeltzer, L. R. (1997). An empirically based operational definition of strategic purchasing. *European Journal of Purchasing & Supply Management*, 3(4), 199-207.
- Carr, A. S., & Smeltzer, L. R. (1997). An empirically based operational definition of strategic purchasing. *European Journal of Purchasing & Supply Management*, 3(4), 199-207.
- Carter, J. R., & Narasimhan, R. (1996). Is purchasing really strategic? *International Journal of Purchasing and Materials Management*, 32(1), 20-28.
- Chen, I. J., Paulraj, A., & Lado, A. A. (2004). Strategic purchasing, supply management, and firm performance. *Journal of Operations Management*, 22(5), 505-523.
- Cousins, P. D., Lawson, B., & Squire, B. (2006). Supply chain management: Theory and practice The emergence of an academic discipline? *International Journal of Operations & Production Management*, 26(7), 697-702.
- Dickson, G. W. (1966). An analysis of vendor selection systems and decisions. *Journal of Purchasing*, 2(1), 5-17.
- Field, A. (2013). Discovering Statistics Using IBM SPSS Statistics (4th ed.). London: Sage Publications.
- Fowler, F. J. (2013). Survey Research Methods (5th ed.). Thousand Oaks, CA: Sage Publications.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate Data Analysis* (7th ed.). Upper Saddle River, NJ: Pearson Education.
- Ho, W., Xu, X., & Dey, P. K. (2010). Multi-criteria decision making approaches for supplier evaluation and selection: A literature review. *European Journal of Operational Research*, 202(1), 16-24.
- Kannan, V. R., & Tan, K. C. (2002). Supplier selection and assessment: Their impact on business performance. *Journal of Supply Chain Management*, 38(3), 11-21.
- Kline, R. B. (2015). *Principles and Practice of Structural Equation Modeling* (4th ed.). New York: Guilford Press.
- Malhotra, N. K. (2010). *Marketing Research: An Applied Orientation* (6th ed.). Upper Saddle River, NJ: Pearson Education.

Nunnally, J. C., & Bernstein, I. H. (1994). Psychometric Theory (3rd ed.). New York: McGraw-Hill.

Narasimhan, R., & Das, A. (2001). The impact of purchasing integration and practices on manufacturing performance. *Journal of Operations Management*, 19(5), 593-609.

Narasimhan, R., & Talluri, S. (2009). Perspectives on risk management in supply chains. *Journal of Operations Management*, 27(2), 114-118.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879-903.

Trent, R. J., & Monczka, R. M. (1998). Purchasing and supply management: Trends and changes throughout the 1990s. *International Journal of Purchasing and Materials Management*, 34(4), 2-11.

Saunders, M., Lewis, P., & Thornhill, A. (2019). Research Methods for Business Students (8th ed.). Harlow: Pearson Education

Kannan, V. R., & Tan, K. C. (2002). Supplier selection and assessment: Their impact on business performance. *Journal of Supply Chain Management*, 38(3), 11-21.

Wagner, S. M. (2003). Intensity and managerial scope of supplier integration. *Journal of Supply Chain Management*, 39(4), 4-15.