

Examining the Role of Supply Chain Integration Dimensions in Driving Supply Chain Performance: Insights from Somali SMEs

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Abstract. This study investigates the impact of supply chain integration (SCI) on the supply chain performance (SCP) of small and medium-sized enterprises (SMEs) in Somalia. Drawing on the Dynamic Capability Theory (DCT), the authors hypothesize that customer integration, internal integration, information integration, and supplier integration positively influence SCP. Data were collected through a cross-sectional survey of 300 SMEs in Mogadishu, Somalia, and analyzed using structural equation modeling (SEM) with partial least squares (PLS). The results indicate that all four dimensions of SCI have significant positive effects on SCP, with internal integration having the strongest impact. The findings highlight the importance of developing and leveraging dynamic capabilities through SCI to enhance the adaptability, efficiency, and effectiveness of SMEs' supply chains in a challenging business environment. The study contributes to the literature by providing empirical evidence for the SCI-SCP link in the context of SMEs in a least-developed country, and offers practical implications for SME managers and policymakers in Somalia.

Keywords: Supply Chain Management, Integration, performance, SME, Somalia

1. Introduction

SMEs contribute to economic growth and societal well-being (Bayraktar & Algan, 2019; Shashi et al., 2018; Redmond et al., 2016; Kesik et al., 2017). Their entrepreneurial spirit, agility, and innovative capabilities empower them to adapt to market demands, fostering individual and national progress (Subburaj et al., 2020). As globalization reshapes markets, SMEs encounter unique challenges and opportunities, particularly in countries marked by economic and infrastructural complexities. (Asnordin et al., 2021; Vasilescu, 2014).

Despite their potential, many SMEs experience underperformance, often attributed to inadequate coordination and Collaboration within and across chain partners (Subburaj et al., 2020). According to Elder et al., (2021) Small and medium-sized enterprises encounter challenges include decreased purchasing power, payment issues hindering sourcing, increasing working capital needs caused by shipment delays, limited financial access, and complicated tax systems from several governing bodies. Supply chain performance (SCP) measures a company's supply network, including suppliers, manufacturers, distributors, and logistics partners. SCP involves the company's strategies and practices to control the movement of products, information, and funds from the source to the end user. (Prajogo & Olhager, 2012a). Performance evaluations of the supply channel are the responsibility of the company's supply management division. Depending on the demands of the business, the supply management division may be a distinct entity or fall under the functional area of operations (Prima Waluyowati, 2018; L. Jama et al., 2024).

Supply chain integration has become an essential strategic endeavor for organizations seeking to enhance the efficacy of their supply chain. (Pfanolo, 2017). SCI refers to the process of seamlessly incorporating suppliers, manufacturers, distributors, and customers into a unified system. An effective supply chain requires the synchronization of internal company activities and external collaborators, including suppliers, distributors, and retailers, to ensure the delivery of the final product to end consumers (Asnordin et al., 2021; Cheng et al., 2016).

Supplier integration is the involvement of suppliers in decision-making processes. This involves the exchange of information regarding demand predictions, manufacturing, and stock levels between the company and its suppliers (Liu & Jayaraman, 2019).

Firms must engage in information integration by sharing strategic supply chain information, rather than solely focusing on transactional data such as materials or product orders. The strategic supply chain information empowers supply chain partners to make strategic decisions in their operations (Li et al., 2006;Jama & Mohamud, 2024)).

Customer integration is the inclusion of customers in the decision-making process of the supply chain. This is done by acknowledging and fulfilling their needs and unique requests, which gives them a competitive edge in delivering exceptional service (Yachoulti & Houssaini, 2018).

The existing literature consistently demonstrates the immense impact of SCI on improving performance in various sectors. (Koçoğlu et al., 2011; Flynn et al., 2010; Zhu et al., 2018; Liu & Lee, 2018). This growing understanding emphasizes that enterprises must collaborate and synchronize their operational procedures with channel partners, particularly for underperforming SMEs. In Somalia, where SMEs are pivotal contributors to the economy, understanding how integrating supply partners affects performance is paramount. (Hassan, 2022)

Despite SCI's recognized importance, understanding its specific implications for SMEs in the Somali context remains limited. The lack of an extensive investigation into the relationship between SCI and the performance of SMEs in Somalia creates a knowledge gap. This study endeavors to bridge this knowledge gap by examining the dynamics and implications of SCI on the performance metrics of SMEs operating within the unique socio-economic landscape of Somalia.

The main aim of this investigation is to examine the relationship between SCI and the supply chain performance of SMEs in Somalia. By achieving this objective, the research aims to contribute to theoretical knowledge in supply channel management, particularly in least-developed economies, and

practical insights that can inform strategies for SMEs, policymakers, and practitioners in Somalia. To address this gap, this research is guided by specific objectives and formulates research questions as follows:

1. What dimensions of the supply chain significantly impact the performance of SMEs' supply chains in Somalia?
2. How do practices of Supply Chain Integration affect the supply chain performance of SMEs?

By focusing on these research questions, this study aims to provide both theoretical contributions to the literature on supply chain management and practical insights that can help SMEs, policymakers, and practitioners enhance supply chain operations and performance within the challenging context of Somalia.

The implications of this research extend beyond academic discourse. The study's findings offer valuable insights for small and medium-sized businesses, informing their strategic decisions related to supply networks. Policymakers can leverage this knowledge to design targeted interventions that support SMEs in enhancing their supply chain process and fostering economic resilience. Furthermore, practitioners will gain valuable insights into optimizing supply chain processes, ultimately contributing to the overall economic development of Somalia.

2. Literature Review

Dynamic Capability Theory (DCT)

The current study employs dynamic capability theory (DCT), which expands upon the 'resource-based view' (RBV). DCT suggests that organizations can enhance their competitive advantage by effectively integrating, developing, and adjusting their resources. DCT theory has been extensively debated in the SCM literature. For example, (Mandal, 2017) applied it to explore how various forms of visibility influence 'Supply Chain Resilience' (SCRES) and subsequent performance. Similarly, Brusset and Teller (2017) applied this theory to explore how lower-order capabilities can enhance 'supply chain resilience.' Within the framework of our research, the adoption of DCT is founded on the notion that organizations must demonstrate adaptability through reorganizing their supply chain practices and cultivating enhanced integration with suppliers and customers.

DCT emphasizes the importance of an organization's ability to modify its operational processes and resource configurations to respond to changing environments. This theoretical framework is particularly pertinent to examining how supply chain integration (SCI) acts as a dynamic capability in SMEs. SCI involves the alignment and synchronization of a business's operations with those of its suppliers and customers to create a seamless flow of information, goods, and services (Piprani et. al, 2020). By fostering better coordination and cooperation among supply chain partners, SCI enhances the organization's ability to adapt to market demands and operational challenges effectively.

Supply Chain Integration Dimensions

Customer Integration (CI)

CI denotes the level of involvement by a business with its customers to enhance cooperation and facilitate collaborative planning efforts; CI positively impacts supply chain performance by enabling companies to manage their interaction with customers as a single entity and effectively meet market needs. (Stevens, 1989; Wong et al., 2020). In order to achieve a strong level of CI, organizations need to engage with their consumers actively, understand their preferences, culture, and demands, and promptly address their needs (Lotfi et al., 2013). Similarly, Yeh et al. (2020) stated that incorporating customers, strategically sharing information, and encouraging Collaboration between key manufacturers and those they serve are critical for improving customer demand planning. Supply chain partnerships, customer orientation, flexibility, product innovation, and supplier and customer integration are proven to enhance operational performance (Ku et al., 2016). This study intends to

examine the association between CI and SCP, as discussed in the literature above. Thus, hypothesis H1 is suggested:

H1: 'Customer integration' (CI) positively impacts 'supply chain performance.'

Internal Integration (II)

Internal integration (II) recognizes the need for a company's multiple divisions and functional segments to work together as an integrated team. Internal integration is expected to improve performance outcomes by breaking traditional functional boundaries and encouraging collaborative efforts to address customer needs (Flynn et al., 2010).

Integration within the organizational structure fosters Collaboration among internal functions (Wong et al., 2015). It emphasizes departments or segments inside the businesses through a unified procedure connecting them. Inadequate internal coordination and diversification in each team's goals may result in duplicated duties and inefficient use of resources, ultimately impacting quality and cost-efficiency. (Huo, 2012). Furthermore, internal alignment promotes the spread of relevant knowledge and enables information interchange. (Prajogo & Olhager, 2012a). By sharing knowledge about activities that increase value among different teams, SMEs can optimize contemporary supply chains, promoting better cooperation between suppliers and consumers. (Natalicchio, A., Ardito, L., Savino, T. and Albino, 2010). According to Yu et al. (2013), The level of intra-organizational integration demonstrates a positive and statistically significant relationship with the level of inter-organizational integration. Research conducted by Huo et al. (2014) indicates that increased levels of internal integration positively influence business performance. Therefore, we proposed H2:

H2: 'Internal integration' positively impacts 'supply chain performance.'

Information integration

Efficient information integration involves the seamless sharing and distribution of essential data, including stock levels, demand forecasts, and production schedules, through different stages of the supply network. (Prajogo & Olhager, 2012b). Integrating information is crucial for sharing knowledge and enhancing the supplier-buyer relationship, significantly impacting performance by strengthening trust and Collaboration between supply network members. (Inderfurth et al., 2013).

Incorporating information sharing within the supply network yields a notable positive influence on performance, as evidenced by various scholars (Baah et al., 2022; Ahmed, 2022); (Pamulety & Pillai, 2011). Lin et al. (2002) Exhibit the critical effect of information sharing and Collaboration on supply network performance, particularly in reducing costs and improving service levels. Furthermore, Sugito and Kusri (2023) emphasize sharing information to achieve tight coordination and optimize supply chain efficiency. These studies emphasize the importance of information integration in improving supply chain performance. In addition, we put forward H3:

H3: 'Information integration' positively influences 'supply chain performance.'

Supplier Integration (SI)

SI involves establishing solid and cohesive supplier relationships that align with a company's core business operations. Specifically, businesses can collaborate with their suppliers as strategic partners (Kesk et al., 2017). Som et al. (2019) examined SI as a resource that may be used by managers in order to achieve positive outcomes in their supply network. Kumar et al. (2017) found that SI positively influences supply network performance. This is further supported by (Fariz, 2022), who also highlighted the role of transformational leadership in enhancing this relationship. Prajogo (2012) stated the importance of establishing reliable and lasting partnerships with suppliers to improve the coordination of material and information, leading to greater efficiency in operations. These studies highlight the essential role of SI in improving efficiency within the supply chain. In line with these studies, we

suggested H4:

H4: Supplier integration has a positive influence on supply chain performance.

Supply Chain Performance (SCP)

SCP is increasingly essential to attaining a competitive edge (Balfaqih et al., 2016). It enhances organizational efficiency, customer satisfaction, and profitability (Negi, 2021). Previous studies have used various performance measures, such as cost, quality, and customer responsiveness (Whicker et al., 2009; Deshpande, 2012; Qrunfleh & Tarafdar, 2014; Lee et al., 2022)

Managers are usually responsible for their companies' performance, but an organization's long-term success depends on how well its supply network operates. (Fatorachian & Kazemi, 2021). However, supply network managers must also focus on the external context and consider how their strategies affect other partners within the supply network. In this regard, Mukhtar and Azhar (2020) argued that strengthening supply network performance requires a collaborative and strategic approach among all entities in the supply web, working together to achieve their respective objectives.

The effectiveness of the supply network is dependent on the partners' ability to adapt to dynamic environments. Previous research has yielded mixed findings regarding "the impact of supply chain integration on supply chain performance." This inconsistency could be attributed to variations in definitions and measures of firm performance used across studies. Therefore, a comprehensive investigation is needed to clarify these relationships and provide more conclusive insights. Based on the conceptual model in Fig. 1 shown below, the study will investigate the influence of SCI on supply chain performance.

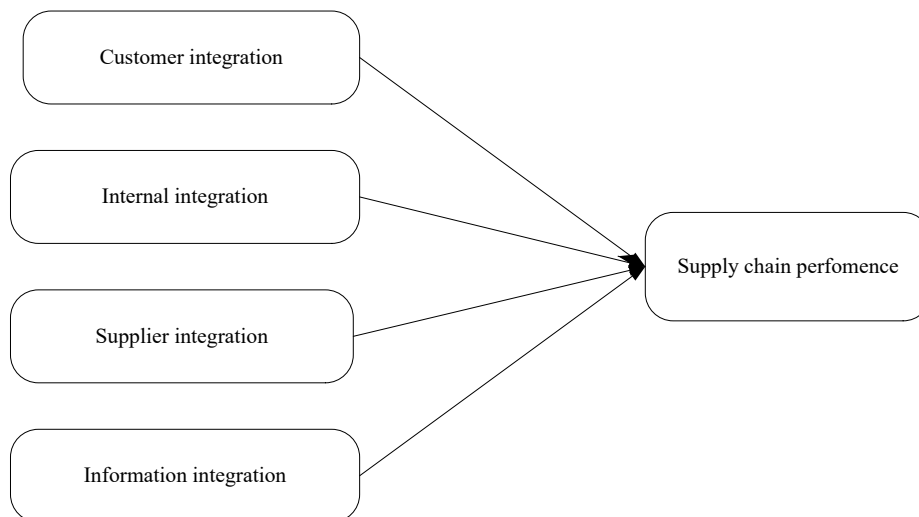


Fig.1: Theoretical Modal

3. Methodology

The study used a cross-sectional survey design with 5 point Likert questionnaires to evaluate the hypotheses. The research targeted executive managers, supply chain directors, and supply chain unit employees of SMEs in Mogadishu, Somalia. The aim was to fully understand the link between supply chain integration dimensions and supply chain performance. Data was collected from November 2023 to January 2024. The study employed a nonprobability sampling technique known as Purposive or Judgmental Sampling to select a sample of 300 individuals. Several researchers suggested that a sample size exceeding 200 units is considered significant and suitable for the study, which uses Structural Equation Modeling (Hair J et al., 2010). This method was chosen due to the broad scope of the study, allowing the researcher to select individuals believed to be most likely to provide accurate and relevant information from the population (Etikan & Bala, 2017;Jama & Mohamud, 2024a)).

A structured questionnaire comprising six discrete sections was utilized to administer a quantitative survey. These sections included essential personal and organizational information, integrating customers, suppliers, information, internal coordination, and supply chain performance. The questionnaire's constructs were obtained from well-established literature to guarantee the content's validity. The questionnaire components concerning supply chain performance and information sharing were adapted from (Koçoğlu et al., 2011) while supplier integration, customer integration, and internal integration were adapted from (Narasimhan and Kim 2002; Piprani et al., 2020) were taken from the publications of , Vickery et al. (2003), and Huo (2012). A pilot study with 5 participants was employed to evaluate the instrument's effectiveness

The researchers distributed 353 questionnaires online, and 300 of them were filled in. The response rate is thus 85%, this shows Strong interest and involvement from the participants. The collected data were analyzed using the extensively applied technique of structural equation modeling with partial least squares (PLS-SEM), as described by kaufmann (2015). PLS-SEM was considered appropriate for this inquiry in light of the model's attributes and the sample size, as henseler (2015) elaborated. A statistical analysis was performed using smart-PLS 4 software, which included bootstrapping to estimate the significance levels of relationships. Measures for assessing convergent validity, metrics such as average variance extracted (AVE), cronbach's alpha, and composite reliability were also assessed using the partial least squares (PLS) algorithm.

4. Results and Discussion

Descriptive Statistics

The study surveyed 300 participants. Regarding gender distribution, the majority of respondents, 189 individuals (63%), were male, while 111 (37%) identified as female. Regarding education level, 54.3% held a bachelor's degree, 32.7% with a high school diploma, and 13% with postgraduate certificates. In terms of company size, among the participants, 88 (29% of the population) worked for businesses with less than five employees, while 118 (39% of the population) were employed by businesses with 5 to 25 workers. In addition, firms with 26 to 100 employees were represented by 55 respondents (18% of the population), while organizations with 101 to 200 employees were represented by 16 participants (5% of the total). Of the respondents, 23 (or 8%) worked for companies with 200 or more workers. According to company age, nearly half (48.7%) were young startups (<5 years), followed by 31% (5-10 years), 14% (11-15 years), and 6.3% (> 15 years). The majority of the businesses were young, established businesses.

Table. 1: Respondents' profile

	Distribution	Frequency	Percentage %
Sex	male	189	63%
	Female	111	37%
Age	Less than 30 years	63	21%
	31-40 years	96	32%
	41-50 years	54	18%
	51-60 years	60	20%
	Above 60 years	27	9%
Education	Secondary	98	32.7%
	Tertiary/university	163	54.3%
	Postgraduate	39	13%
Company age	0-4 years	146	48.7%
	5-10 years	93	31%
	11-15 years	42	14%
	16+ years	19	6.3%
Employee size	Less than five employees	88	29%
	5-25 employees	118	39%
	26-100 employees	55	18%
	101-200 employees	16	5%
	More than 200 employees	23	8%

Measurement model

The measurement model underwent analysis to evaluate both convergent and discriminant validity.

Convergent validity

Convergent validity, serving as an internal consistency measure, evaluates the extent to which items within a scale demonstrate significant correlation to establish a shared underlying construct (Lu et al., 2011). Several statistical metrics, including "Average Variance Extracted (AVE), factor loading, Cronbach's Alpha, and Composite Reliability (CR)," are utilized for this assessment. The analysis revealed that item loadings exceeded the threshold of 0.7.

As illustrated in Table 2, the average variance extracted (AVE) exceeded the 0.5 threshold. Additionally, Dijkstra-rho (A) Henseler's and Jöreskog's (c) rho values exceeded 0.7. The observation that all three criteria exceeded their respective threshold values confirms that they met all criteria.

Table 2: Convergent validity

Construct	Items	Loadings	Cronbach's Alpha	AVE	CR
CI	CI1	0.756	0.862	0.636	0.897
	CI2	0.745			
	CI3	0.890			
	CI4	0.772			
	CI5	0.816			
II	II1	0.972	0.907	0.847	0.930
	II2	0.962			
	II3	0.819			
INI	INI1	0.884	0.806	0.631	0.827
	INI2	0.734			
	INI3	0.762			
	INI4	0.789			
SI	SI1	0.846	0.795	0.703	0.842
	SI2	0.784			
	SI3	0.884			
SP	SP1	0.846	0.771	0.582	0.842
	SP2	0.720			
	SP3	0.701			
	SP4	0.778			

Discriminant validity

Following the confirmation of convergent validity, the subsequent step involves assessing discriminant validity. This study employs the widely recognized Fornell-Larcker criterion, which is extensively utilized in the research community. As depicted in Table 3, the constructs exhibit sufficient discriminant validity when the square root of the average variance extracted (AVE) exceeds the correlation among all reflective constructs.

Table 3: Fornell–Larcker criterion

	CI	II	INI	SI	SP
CI	0.798				
II	0.894	0.920			
INI	0.788	0.725	0.794		
SI	0.532	0.512	0.793	0.839	
SP	0.819	0.853	0.645	0.536	0.763

Structural model

The current study utilized Partial Least Squares (PLS) regression, a modified multiple linear regression model version. The structural model's evaluation should include various statistical measures such as R-squared and t-values. A bootstrapping approach with a resample size 5000 is recommended to ensure reliable estimates. The results of the assessment of each matrix and parameter in this study

are presented in Table 4 and Figure 2.

The study's findings revealed that Customer Integration (CI) exhibited a T value of 3.873 with a P value of 0.000, indicating a statistically significant positive relationship with supply chain performance. Similarly, Internal Integration (II), Information Integration (INI), and Supplier Integration (SI) demonstrated T values of 9.522, 2.382, and 3.448, respectively, all with P values below 0.05, indicating significant positive relationships with supply chain performance.

As illustrated in Figure 2, the R-squared coefficient is recorded at 0.771, signifying that the integrated consideration of all four variables—Customer Integration (CI), Supplier Integration (SI), Internal Integration (II), and Information Integration (INI)—explains approximately 77.1% of the variance observed in the dependent variable, supply chain performance (SP). This indicates that these independent variables collectively predict 77.1% of the variability in supply chain performance, while the remaining 22.9% of the variance is attributable to other factors not incorporated within the scope of this study.

Table 4: Structural model-hypothesis testing

	Sample mean (M)	Standard deviation (STDEV)	T statistics	P values	Decision
CI -> SP	0.398	0.100	3.873	0.000	Supported
II -> SP	0.581	0.061	9.522	0.000	Supported
INI -> SP	-0.305	0.122	2.382	0.017	Supported
SI -> SP	0.270	0.076	3.448	0.001	Supported

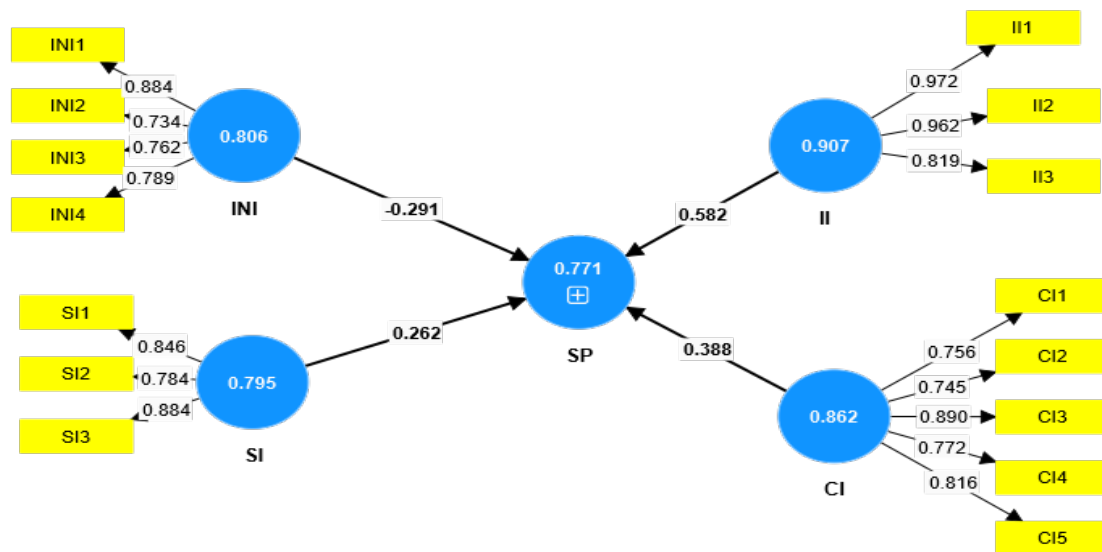


Fig.2: Structural model

4.1. Discussion

The present research investigation employed the “dynamic capability theory” (DCT) as the study framework to explore the relationship between supply network integration and SME supply chain performance. This study contributed to the empirical knowledge base by examining the association between specific dimensions of SCI and SCP.

Hypothesis 1 (H1) posited that customer integration (CI) would positively influence supply chain performance within the context of small and medium-sized enterprises (SMEs). It was proposed that a linear relationship existed between CI and the effectiveness of supply chains for SMEs. Supported by a T-statistic value of 3.873 and significance levels of p-values less than 0.001, this hypothesis (H1) was validated. Further evidence indicated that SMEs could acquire accurate and timely demand data for the downstream supply chain by establishing strong relationships and close collaborations with customers. (Chiang et al., 2015). This finding supports a study conducted by (Ku et al., 2016; Ruch & Sackmann, 2012), who found that customer integration is essential in boosting performance.

Hypothesis 2 (H2) suggested a positive association between internal integration (II) and supply chain performance (SCP) within SMEs. The T-statistic value obtained from the statistical analysis was 9.522, with a p-value less than 0.001. These results confirm the presence of a positive linear correlation between internal integration and SCP. Such results are consistent with the findings of (Huo, 2012), which highlighted that highly internally integrated organizations are posited to obtain high performance in their supply chains. Similarly, Yu et al. (2013) and Yuen & Thai (2016) supported this; their studies collectively highlight the importance of II in driving SCP.

Hypothesis 3 (H3) was supported by statistical validation, which demonstrated a p-value of 0.017 and a t-value of 2.382, respectively, establishing a positive correlation between supply chain performance and information integration. These results are consistent with previous studies that have concluded that information integration significantly impacts the performance of supply chains and organizations. (Prajogo & Olhager, 2012b; Qrunfleh & Tarafdar, 2014). Furthermore, Wong et al. (2015) added that Supply chain information integration facilitates more significant performance improvements.

Hypothesis 4 (H4) was verified by establishing a positive relationship between supplier integration and supply chain performance, as indicated by a t-value of 3.448 and a p-value of 0.001 at the 0.05 significance level. This finding is further substantiated by (Fariz, 2022), who highlighted the positive effect of SI on SCP, particularly when combined with transformational leadership. Similarly, Kumar et al. (2017) indicated the importance of SI in enhancing SCP.

Based on the above discussion, this study found that CI, II, INI, and SI positively and significantly affect the SCP of SMEs operating in Mogadishu, Somalia. The empirical results indicate that all four integration types explained more than 77% of the SCP variance. This finding is founded on studies conducted by (Brusset and Teller 2017; Liu & Lee, 2018).

4.2. Conclusion

In conclusion, this study provides empirical evidence for the positive impact of SCI on the SCP of SMEs in Somalia. The findings suggest that customer integration, internal integration, information integration, and supplier integration are critical dynamic capabilities that enable SMEs to sense and seize opportunities, reconfigure their resources, and achieve superior performance in their supply chains. The study highlights the importance of developing and leveraging these capabilities through a holistic and integrated approach to SCI, rather than focusing on individual dimensions or practices.

The results have important implications for SME managers, who should invest in building strong relationships with customers and suppliers, fostering cross- functional collaboration and information sharing, and aligning their internal processes and systems with the external environment. Policymakers can also use the insights from this study to design targeted interventions and support programs that help SMEs overcome the barriers to SCI and enhance their competitiveness in the global market. However, the study also has some limitations, such as the cross-sectional design, the reliance on self-reported measures, and the focus on a single country and sector.

Future research can address these limitations by using longitudinal or experimental designs, multi-source data, and comparative studies across different contexts. Overall, this study makes a valuable contribution to the literature on SCI and SCP in the context of SMEs in least-developed countries, and provides a foundation for further research and practice in this area.

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References

- Ahmed, M. A. (2022). Impact of Information Sharing on Supply Chain Performance with Mediation of Trust. *South Asian Journal of Social Review*, November, pp. 56–79. <https://doi.org/10.57044/sajsr.2022.1.2.2207>
- Asnordin, N. A., Sundaram, V. P. K., & Noranee, S. (2021). The Influence of Supply Chain Integration Towards Supply Chain Performance in Manufacturing Firms. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 11(1). <https://doi.org/10.6007/ijarafms/v11-i1/8851>
- Asnordin, N. A., Sundram, V. P. K., & Noranee, S. (2021, March 26). The Influence of Supply Chain Integration Towards Supply Chain Performance in Manufacturing Firms. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 11(1). <https://doi.org/10.6007/ijarafms/v11-i1/8851>
- Baah, C., Opoku Agyeman, D., Acquah, I. S. K., Agyabeng-Mensah, Y., Afum, E., Issau, K., Ofori, D., & Faibil, D. (2022). Effect of information sharing in supply chains: understanding the roles of supply chain visibility, agility, Collaboration on supply chain performance. *Benchmarking*, 29(2), 434–455. <https://doi.org/10.1108/BIJ-08-2020-0453>
- Balfaqih, H., Nopiah, Z. M., Saibani, N., & Al-Nory, M. T. (2016). Review of supply chain performance measurement systems: 1998–2015. *Computers in Industry*, 82, 135–150. <https://doi.org/10.1016/j.compind.2016.07.002>
- Bayraktar, M., & Algan, N. (2019). The Importance Of SMEs On World Economies. 56 *INTERNATIONAL CONFERENCE ON EURASIAN ECONOMIES 2019*, 500, 56–61. <https://doi.org/10.36880/c11.02265>
- Brusset, X., & Teller, C. (2017). Supply chain capabilities, risks, and resilience. *International Journal of Production Economics*, 184(December), 59–68. <https://doi.org/10.1016/j.ijpe.2016.09.008>
- Cheng, Y., Chaudhuri, A., & Farooq, S. (2016). Interplant coordination, supply chain integration, and operational performance of a plant in a manufacturing network: a mediation analysis. *Supply Chain Management*, 21(5), 550–568. <https://doi.org/10.1108/SCM-10-2015-0391>
- Chiang, A. H., Chen, W. H., & Wu, S. (2015). Does high supply chain integration enhance customer response speed? *Service Industries Journal*, 35(1–2), pp. 24–43. <https://doi.org/10.1080/02642069.2014.979406>
- Deshpande, A. R. (2012). Supply Chain Management Dimensions, Performance, and Organizational Performance: An Integrated Framework. *International Journal of Business and Management*, 7(8), 2–19. <https://doi.org/10.5539/ijbm.v7n8p2>
- Elder, C., Elder, C., & Lanfranchi, G. (2021). Financial disruption and fragile markets A political-economic perspective on SMEs in the Somali private sector under COVID-19. May.
- Fariz, F. (2022). The effect of supplier integration, manager transformational leadership on supply chain performance. *Uncertain Supply Chain Management*, 10(3), 993–998. <https://doi.org/10.5267/j.uscm.2022.2.014>

- Fatorachian, H., & Kazemi, H. (2021). Impact of Industry 4.0 on Supply Chain Performance. *Production Planning and Control*, 32(1), 63–81. <https://doi.org/10.1080/09537287.2020.1712487>
- Flynn, B. B., Huo, B., & Zhao, X. (2010). The impact of supply chain integration on performance: A contingency and configuration approach. *Journal of Operations Management*, 28(1), 58–71. <https://doi.org/10.1016/j.jom.2009.06.001>
- Hassan, A. M. (2022). The Small and Medium Enterprises' Contributions to Ongoing Economic Developments in Somalia. In *Journal of Industrial Policy and Technology Management* (Vol. 5, Issue 2).
- Huo, B. (2012). The impact of supply chain integration on company performance: An organizational capability perspective. *Supply Chain Management*, 17(6), 596–610. <https://doi.org/10.1108/13598541211269210>
- Huo, B., Qi, Y., Wang, Z., & Zhao, X. (2014). The impact of supply chain integration on firm performance: The moderating role of competitive strategy. *Supply Chain Management*, 19(4), 369–384. <https://doi.org/10.1108/SCM-03-2013-0096>
- Inderfurth, K., Sadrieh, A., & Voigt, G. (2013). The impact of information sharing on supply chain performance under asymmetric information. *Production and Operations Management*, 22(2), 410–425. <https://doi.org/10.1111/j.1937-5956.2012.01372.x>
- Jama, L. A., & Mohamud, I. H. (2024a). Investigating the effect of online service delivery on purchasing intention : experience from food shoppers in Mogadishu, Somalia. *International Journal of Sustainable Development and Planning*
- Jama, L. A., & Mohamud, I. H. (2024 b). The Impact of Procurement Practices on Organizational Performance: A Literature Review. *Journal of Logistics, Informatics and Service Science*, 11(1), 119–135. <https://doi.org/10.33168/JLISS.2024.0108>
- Jama, L., Farah, M., Hassan, M., & Jakuula, H. (2024). Enhancing organizational performance through supply chain integration: a literature review. *Journal of System and Management Sciences*. <https://doi.org/10.33168/JSMS.2023.0101>
- J. F. Hair, G. T. M. Hult, C. M. Ringle, and M. Sarstedt, (2017) “A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM). Thousand Oaks,” Sage, p. 165,.
- Kesk, H., Gentürk, C., & Sungur, O. H. M. (2017). The importance of SMEs in developing economies. 2nd International Symposium on Sustainable Development, 183–192.
- Koçoğlu, I., Imamoğlu, S. Z., Ince, H., & Keskin, H. (2011). The effect of supply chain integration on information sharing: Enhancing the supply chain performance. *Procedia - Social and Behavioral Sciences*, 24, 1630–1649. <https://doi.org/10.1016/j.sbspro.2011.09.016>
- Koçoğlu, I., Imamoğlu, S. Z., Ince, H., & Keskin, H. (2011). The effect of supply chain integration on information sharing: Enhancing the supply chain performance. *Procedia - Social and Behavioral Sciences*, 24(October 2015), 1630–1649. <https://doi.org/10.1016/j.sbspro.2011.09.016>
- Ku, E. C. S., Wu, W. C., & Chen, Y. J. (2016). The relationships among supply chain partnerships, customer orientation, and operational performance: the effect of flexibility. *Information Systems and E-Business Management*, 14(2), 415–441. <https://doi.org/10.1007/s10257-015-0289-0>
- Kumar, V., Chibuzo, E. N., Garza-Reyes, J. A., Kumari, A., Rocha-Lona, L., & Lopez-Torres, G. C. (2017). The Impact of Supply Chain Integration on Performance: Evidence from the UK Food Sector. *Procedia Manufacturing*, 11, 814–821. <https://doi.org/10.1016/j.promfg.2017.07.183>

- Lee, K. L., Romzi, P. N., Hanaysha, J. R., Alzoubi, H. M., & Alshurideh, M. (2022). Investigating the impact of benefits and challenges of IOT adoption on supply chain performance and organizational performance: An empirical study in Malaysia. *Uncertain Supply Chain Management*, 10(2), 537–550. <https://doi.org/10.5267/j.uscm.2021.11.009>
- Lin, F. R., Huang, S. H., & Lin, S. C. (2002). Effects of information sharing on supply chain performance in electronic commerce. *IEEE Transactions on Engineering Management*, 49(3), 258–268. <https://doi.org/10.1109/TEM.2002.803388>
- Liu, Z., & Jayaraman, V. (2019). Exploring the effect of internal and external integration on the performance of professional service outsourcing. *Journal of Global Operations and Strategic Sourcing*, 12(3), 410–428. <https://doi.org/10.1108/JGOSS-01-2019-0001>
- Lotfi, Z., Sahran, S., Mukhtar, M., & Zadeh, A. T. (2013). The Relationships between Supply Chain Integration and Product Quality. *Procedia Technology*, 11(Iceei), 471–478. <https://doi.org/10.1016/j.protcy.2013.12.217>
- Lu, Y., Cao, Y., Wang, B., & Yang, S. (2011). A study on factors that affect users' behavioral intention to transfer usage from offline to online channels. *Computers in Human Behavior*, 27(1), 355–364. <https://doi.org/10.1016/j.chb.2010.08.013>
- Mandal, S. (2017). Supply chain resilience and internal integration: An empirical examination of different visibility categories. *International Journal of Business Performance Management*, 18(2), 216–235. <https://doi.org/10.1504/IJBPM.2017.083076>
- Mukhtar, U., & Azhar, T. M. (2020). Inter-functional Coordination to Co-create Value within Integrated Value Chains for Competitive Supply Chain. *Operations and Supply Chain Management*, 13(1), 11–22. <https://doi.org/10.31387/OSCM0400249>
- Natalicchio, A., Ardito, L., Savino, T. and Albino, V. (2010). 기사 (Article) 와 안내문 (Information) [. In *The Electronic Library* (Vol. 34, Issue 1).
- Negi, S. (2021). Supply chain efficiency framework to improve business performance in a competitive era. *Management Research Review*, 44(3), 477–508. <https://doi.org/10.1108/MRR-05-2020-0272>
- Pamulety, T. C., & Pillai, V. M. (2011). Impact of information sharing in supply chain performance. *Communications in Computer and Information Science*, 145 CCIS, 327–332. https://doi.org/10.1007/978-3-642-20209-4_47
- Pfanelo, N. (2017). SUPPLY CHAIN PARTNERSHIP, COLLABORATION, INTEGRATION, AND RELATIONSHIP COMMITMENT AS PREDICTORS OF SUPPLY CHAIN PERFORMANCE IN SOUTH AFRICAN SMEs. *Business & Social Sciences Journal (BSSJ)*, 2(1), 134–168.
- Piprani, A. Z., Mohezar, S., & Jaafar, N. I. (2020). Supply chain integration and supply chain performance: The mediating role of supply chain resilience. *International Journal of Supply Chain Management*, 9(3), 58-73.
- Piprani, A. Z., Mohezar, S., & Jaafar, N. I. (2020). The Mediating Role of Supply Chain Resilience. *Int. J Sup. Chain. Mgt*, 9(3), 58–73.
- Prajogo, D., & Olhager, J. (2012a). Supply chain integration and performance: The effects of long-term relationships, information technology and sharing, and logistics integration. *International Journal of Production Economics*, 135(1), 514–522. <https://doi.org/10.1016/j.ijpe.2011.09.001>
- Prajogo, D., & Olhager, J. (2012b). Supply chain integration and performance: The effects of long-term relationships, information technology and sharing, and logistics integration. *International Journal of Production Economics*, 135(1), 514–522. <https://doi.org/10.1016/j.ijpe.2011.09.001>

- Prima Waluyowati, N. (2018). The Utilization of Long-Term Relationship and Supply Chain Performance in Improving SMEs Performance. *American Journal of Theoretical and Applied Business*, 4(3), 79. <https://doi.org/10.11648/j.ajtab.20180403.11>
- Qrunfleh, S., & Tarafdar, M. (2014). Supply chain information systems strategy Impacts supply chain performance and firm performance. *International Journal of Production Economics*, 147(PART B), 340–350. <https://doi.org/10.1016/j.ijpe.2012.09.018>
- Redmond, J., Wolfram Cox, J., Curtis, J., Kirk-Brown, A., & Walker, B. (2016). Beyond business as usual: How (and why) the habit discontinuity hypothesis can inform SME engagement in environmental sustainability practices. *Australasian Journal of Environmental Management*, 23(4), 426–442. <https://doi.org/10.1080/14486563.2016.1188424>
- Ruch, M., & Sackmann, S. (2012). Integrating management of customer value and risk in e-commerce. *Information Systems and E-Business Management*, 10(1), 101–116. <https://doi.org/10.1007/s10257-010-0152-2>
- Shashi, Cerchione, R., Centobelli, P., & Shabani, A. (2018). Sustainability orientation, supply chain integration, and SMEs performance: a causal analysis. *Benchmarking*, 25(9), 3679–3701. <https://doi.org/10.1108/BIJ-08-2017-0236>
- Som, O., Cobblah, Collins, & Anyigba, Hod. (2019). The Effect of Supply Chain Integration on Supply Chain Performance. <https://ssrn.com/abstract=3468798>
- Stevens, G. C. (1989). International Journal of Physical Distribution & Logistics Management Emerald Article: Integrating the Supply Chain. *International Journal of Physical Distribution & Logistics Management*, 19(8), 3–8.
- Subburaj, A., Sriram, V. P., & Mehroliya, S. (2020). Effects of supply chain integration on firm's performance: a study on micro, small and medium enterprises in India. *Uncertain Supply Chain Management*, 8(1), 231–240. <https://doi.org/10.5267/j.uscm.2019.7.001>
- Sugito, E., & Kusriani, E. (2023). Enhancing Company Productivity through Information Sharing in Supply Chain Implementation. *Jurnal Teknik Industri*, 24(2), 109–126. <https://doi.org/10.22219/jtiumm.vol24.no2.109-126>
- Vasilescu, L. (2014). Accessing Finance for Innovative Eu Smes - Key Drivers and Challenges. *Economic Review: Journal of Economics & Business / Ekonomiska Revija: Casopis Za Ekonomiju i Biznis*, 12(2), 35–47. <http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=101456441&site=ehost-live>
- Whicker, L., Bernon, M., Templar, S., & Mena, C. (2009). Understanding the relationships between time and cost to improve supply chain performance. *International Journal of Production Economics*, 121(2), 641–650. <https://doi.org/10.1016/j.ijpe.2006.06.022>
- Wong, C. Y., Wong, C. W. Y., & Boon-itt, S. (2015). Integrating environmental management into supply chains: A systematic literature review and theoretical framework. *International Journal of Physical Distribution and Logistics Management*, 45(March), pp. 43–68. <https://doi.org/10.1108/IJPDLM-05-2013-0110>
- Yachoulti, A., & Houssaini, A. (2018, June 13). impact of supply chain integration on corporate financial performance. *Journal of Academic Finance*, 9(1), 78–90. <https://doi.org/10.59051/joaf.v9i1.117>
- Yeh, T. M., Pai, F. Y., & Wu, L. C. (2020). Relationship stability and supply chain performance for SMEs: From internal, supplier, and customer integration perspectives. *Mathematics*, 8(11), 1–18. <https://doi.org/10.3390/math8111902>

Yu, W., Jacobs, M. A., Salisbury, W. D., & Enns, H. (2013). The effects of supply chain integration on customer satisfaction and financial performance: An organizational learning perspective. *International Journal of Production Economics*, 146(1), 346–358. <https://doi.org/10.1016/j.ijpe.2013.07.023>

Yuen, K. F., & Thai, V. V. (2016). The relationship between supply chain integration and operational performances: A study of priorities and synergies. *Transportation Journal*, 55(1), 31–50. <https://doi.org/10.5325/transportationj.55.1.0031>

Zhu, Q., Krikke, H., & Caniëls, M. C. J. (2018). Supply chain integration: value creation through managing inter-organizational learning. *International Journal of Operations and Production Management*, 38(1), 211–229. <https://doi.org/10.1108/IJOPM-06-2015-0372>