E-ISSN: 3108-4176

APSSHS

Academic Publications of Social Sciences and Humanities Studies
2021, Volume 2, Page No: 55-64
Available online at: https://apsshs.com/

Annals of Organizational Culture, Leadership and External Engagement Journal

Enhancing Supply Chain Performance through Collaboration: A Study of the Malaysian Manufacturing Industry

Muhammad Saeed Shahbaz[1*], Fazal Ali Shaikh[2], Muhammad Asif Qureshi[3], Qadir Buksh Jamali[4], Samiullah Sohu[5]

1. Department of Management Sciences, Shaheed Zulfikar Ali Bhutto Institute of Science and Technology, Karachi, Pakistan.
2. Department of Economic, University of Sindh, Jamshoro, Sindh, Pakistan.
3. Faculty of Business Administration, Muhammad Ali Jinnah University, Karachi, Pakistan.
4. Department of Mechanical Engineering, QUEST, Nawabshah, Sindh, Pakistan.
5. Department of Mechanical Engineering, Quaid e Awam University of Engineering Science and Technology (QUEST) Larkana, Sindh, Pakistan.

Abstract

Despite the Malaysian manufacturing sector experiencing the second-highest growth rate, its performance still lags behind that of developed countries. There are various strategies to enhance performance, with collaboration emerging as a key focus. While numerous studies have proven the positive effects of supply chain collaboration, they are usually limited to specific industries or sectors, with no comprehensive research addressing the overall manufacturing sector. This study aims to empirically examine the relationship between supply chain performance and supply chain collaboration within Malaysia's manufacturing industry. A questionnaire was distributed to all members of the Federation of Malaysian Manufacturers using convenience sampling. The collected data were processed to remove missing values and outliers, followed by an assessment of validity and reliability. The data were then analyzed using Smart PLS 3. The results revealed that all collaboration practices positively affected supply chain performance, with information sharing, aligning mission and vision supplier relationships, customer relationships, and information quality significantly affecting performance. However, while postponement and risk-reward sharing had positive effects, these were not statistically significant. This research provides insights for managers about the importance of collaboration in strategic decision-making and highlights its potential to mitigate risks. The study suggests a framework applicable to other industries and demographics. Limitations include the focus on manufacturing and the exclusion of suppliers of suppliers and customers of customers, which could be addressed in future research.

Keywords: Supply Chain Collaboration, Supply Chain Management, Manufacturing, Supply Chain Performance.

How to cite this article: Shahbaz MS, Shaikh FA, Qureshi MA, Jamali QB, Sohu S. Assesment of legalon on kidney functions and Lipids profile in broiler chickens exposed to Hydrogen Peroxide. Ann Organ Cult Leadersh Extern Engagem J. 2021;2:55-64. https://doi.org/10.51847/5YMmBjepu9

Received: 08 October 2021; **Revised:** 26 November 2021; **Accepted:** 04 December 2021
Corresponding author: Muhammad Saeed Shahbaz
E-mail ✉ msaeed.shahbaz@gmail.com

Introduction

This research concentrates on Malaysia's manufacturing sector, recognized as a leading hub for manufacturing activities globally [1]. According to the Department of Statistics, the manufacturing sector contributes significantly, accounting for 24.9% of the country's GDP [2]. Additionally, the Malaysia Productivity Corporation highlighted that the manufacturing sector has achieved an impressive productivity growth rate of 7.1%, which is the highest among all sectors [3]. This rapid growth has placed increasing pressure on the manufacturing sector to enhance its operational efficiency and optimize its

supply chain management to stay competitive on a global scale. The complexity of modern supply chains calls for stronger collaboration between stakeholders.

Effective collaboration within the supply chain, including information sharing between suppliers, distributors, retailers, wholesalers, and end-users, is crucial for improving decision-making speed, reducing inventory levels, boosting flexibility, and enhancing customer satisfaction [4]. Trust is a key enabler of successful information exchange, requiring the development of long-term relationships to foster mutual trust [5]. In the current competitive landscape, the rivalry is no longer between individual organizations, but among entire networks. To remain globally competitive, organizations must collaborate across their entire supply chain network and evaluate collective performance. This study investigates seven distinct strategies for supply chain collaboration: information sharing, aligning vision and goals, supplier and customer relationships, information quality, postponement, and risk-reward sharing, and examines their impact on overall supply chain performance.

Literature Review

Supply chain management (SCM) involves overseeing the flow of materials, money, personnel, and information within a supply chain to enhance customer satisfaction and create a competitive advantage [6]. The supply chain is composed of multiple entities, such as distributors, retailers, and end-users. As the supply chain has evolved into a complex network, it is no longer just an upstream process but includes the downstream flow as well [7]. Due to this complexity, many researchers now refer to the supply chain as a "supply chain network" [8, 9], though the traditional term "supply chain" is still widely used because of its simplicity and familiarity [10].

Supply Chain Performance

Although various frameworks and models have been proposed to measure supply chain performance, no universally accepted standard metric exists [11]. Performance in the past was measured primarily by cost, but over time, additional financial metrics such as return on equity and sales have been introduced [12]. In this study, the focus is on collaboration with external partners. Research by Kauppi *et al.* [13] highlights that organizations must collaborate with external partners to face the global challenges of today. For a company to remain competitive on a global scale, it must extend its collaboration beyond internal boundaries and actively engage with external partners [14]. Among the various approaches to improving supply chain performance, collaboration is recognized as one of the most effective strategies [15].

Supply Chain Collaboration

As Daud [16] noted, the relationship with stakeholders is a growing concern within Malaysian organizations. Many approaches to supply chain management have been recognized under the umbrella of collaboration. These approaches are designed to help organizations achieve both short- and long-term objectives, such as improving productivity, managing inventory, reducing waste, increasing market share, and ensuring growth [14].

Several studies have shown that integrating customers into the supply chain can significantly improve performance. For instance, Ataseven and Nair [17] identified information sharing and establishing a common vision and goals (AV & G) as key factors for success in supply chain collaboration. The literature reveals that several supply chain collaboration strategies—including information sharing, risk/reward sharing, aligning goals, electronic data interchange, and maintaining strong supplier and customer relationships—are all critical for enhancing performance. These strategies have been empirically validated across different industries [17-19]. A further exploration of each collaboration strategy is provided in the following sections.

Information Sharing (IS)

Information sharing (IS) refers to the willingness of firms within a supply chain to exchange strategic and tactical data, such as inventory levels, forecasts, sales strategies, and marketing plans [20]. It encompasses sharing data on various factors including quality, customer preferences, timing, market changes, and design uncertainty [21]. Multiple studies have shown that IS plays a critical role in enhancing Supply Chain Performance (SCP) [4, 5]. Given the increasing risks in modern supply chains, IS has been proven to have a positive influence on performance by mitigating uncertainty [22]. Hence, the following hypothesis is proposed:

H1: Information sharing positively influences supply chain performance.

Agreed Vision and Goals (AV&G)

Agreed Vision and Goals (AV & G) refers to the process where supply chain partners align their strategic decisions, including jointly setting their vision and goals [20]. This approach involves planning, information integration, problem resolution, and the establishment of rules and procedures. However, since each member has its objectives, reaching a common vision can

sometimes be challenging [13]. AV & G helps reduce this uncertainty and has become an essential strategy in modern business. Empirical studies have confirmed that AV&G positively affects SCP [4, 7, 23, 24]. Wiengarten *et al*. [25] also highlighted that AV & G positively correlates with operational performance when the quality of information is high. Additionally, AV & G has been shown to enhance logistics efficiency [4]. Therefore, the following hypothesis is proposed:
H2: Agreed vision and goals positively affect supply chain performance.

Risk and Reward Sharing (RRS)

RRS is a critical component of organizational sustainability [26]. As the global market grows and supply chains become more complex, RRS has become increasingly important [27]. RRS refers to the degree of collaboration between chain members that results in superior business performance than if each firm were to act individually. Studies have empirically validated the positive influence of RRS on SCP [28, 29]. Based on these findings, the following hypothesis is proposed:
H3: RRS positively affects supply chain performance.

Information Quality (IQ)

As mentioned earlier, information sharing is crucial for organizations. However, the effectiveness of shared information depends on its accuracy, timeliness, completeness, and safety. Poor-quality information can increase costs and introduce uncertainty, potentially disrupting operations [30, 31]. IQ is defined as the extent to which information exchanged is accurate, timely, complete, and credible [32, 33]. High-quality information fosters trust and strengthens relationships among supply chain partners, thereby enhancing performance [25, 34, 35]. Based on these findings, the following hypothesis is proposed:
H4: Information quality positively affects supply chain performance.

Supplier Relationship

Supplier relationships involve long-term collaborations between organizations and their suppliers. These relationships ensure that suppliers perform optimally and align with the company's objectives [36]. Good supplier relationships often involve joint training, attractive reward systems, and shared goals [37]. Such collaborations can lead to various benefits, including cost reductions, faster product development, and less uncertainty. However, due to a lack of training and tools, many global supplier relationships have been transactional and adversarial [38]. Numerous studies have confirmed that strong supplier relationships positively impact performance. Therefore, based on the literature, the following hypothesis is proposed:
H5: Supplier relationships positively affect supply chain performance.

Customer Relationship

Customer relationship management involves a range of practices aimed at handling customer complaints, building lasting relationships, and enhancing customer satisfaction [32]. These relationships help organizations understand customer needs more effectively, which improves forecasting and reduces demand-side uncertainties [36]. Regular interaction with customers is key to developing tailored products [39]. Studies have shown that companies with strong customer relationships are better equipped to address customer feedback and offer the necessary support [33]. The literature supports that fostering customer relationships positively influences organizational performance. Based on these findings, the following hypothesis is proposed for Malaysian industries:
H6: A positive customer relationship contributes to improved supply chain performance.

Postponement

Postponement refers to a strategy where businesses initially produce a generic version of a product based on overall demand and only customize it once they have a more accurate understanding of individual customer needs [40, 41]. In response to the competitive global market and fluctuating demand patterns, companies may face increased costs and reduced efficiency [21]. Research has demonstrated that postponement can reduce these costs and enhance performance by offering both flexibility and consistency [33, 42]. Pre-manufactured products can be customized once customer preferences are clarified, thus saving time and resources [34, 43]. This leads to the hypothesis that postponement positively influences performance.
H7: Postponement positively impacts supply chain performance.

Research Framework

Supply chain collaboration strategies are essential for both business growth and long-term stability, as they reduce risks and uncertainties. A review of the literature reveals that these strategies contribute positively to performance outcomes. The research framework, depicted in **Figure 1**, outlines seven independent variables (information sharing, agreed vision and goals, risk/reward sharing, information quality, supplier relationship, customer relationship, and postponement) that collectively influence the dependent variable: supply chain performance.

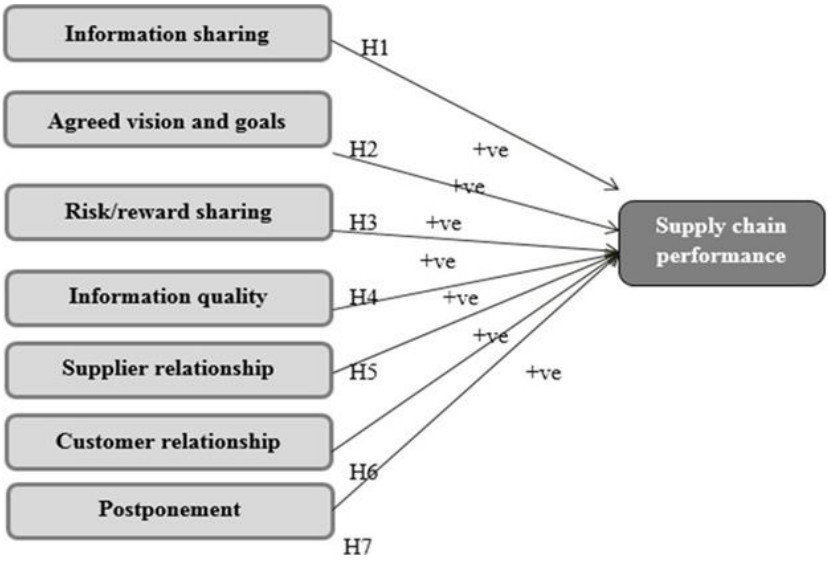

Figure 1. The research model

Methodology

The objective of this study was to examine the impact of supply chain collaboration (SCC) strategies on SCP. This research followed a positivist approach, which is based on the empirical analysis of data to test hypotheses. A quantitative research design was used to assess how different SCC approaches influence SCP. The study applied a deductive reasoning method, where existing theories guided the research, and conclusions were drawn from tested hypotheses. Data was collected through a cross-sectional survey, with a single-time point data collection method directed at respondents from various manufacturing organizations.

The primary focus was on the organizational level, as this allowed for the assessment of supply chain performance at a higher scale, particularly concerning the risks and performance metrics that organizations face. A structured survey method was used, with a 7-point Likert scale to capture the responses. The survey was distributed electronically to respondents in the target population.

The study targeted large manufacturing companies in Malaysia. The survey instrument was designed with items adapted from previous research, particularly from Sundram *et al.* [34], whose work had already been validated within the Malaysian electronics and electrical sectors. The performance measures were based on the framework proposed by Kauppi *et al.* [13]. Data collection was facilitated through the Federation of Malaysian Manufacturers [44], using a convenience sampling technique. Out of the 2,250 manufacturing companies, 585 were classified as large. According to Krejcie and Morgan's [45] sampling guidelines, a sample size of 234 was deemed necessary for a population of 600. Consequently, questionnaires were sent to all 585 large manufacturers, with 258 responses returned. After screening for incomplete and inconsistent responses, 243 valid responses were included in the final data analysis.

Data Analysis

The study tested the relationship between SCC and SCP through a series of analyses, including descriptive statistics, validity and reliability checks, and structural model testing using Smart PLS 3 software.

Results

Descriptive Statistics

The descriptive analysis provided a profile of the responding organizations, categorizing them according to the criteria set by the Federation of Malaysian Manufacturers [44]. Most respondents were from private enterprises (94%), followed by public-limited companies, partnerships, and sole proprietorships (**Table 1**).

Table 1. Descriptive analysis

Business incorporation	Number of respondents	Percentage (%)
Private limited	229	94
Public limited	9	3
Partnership	3	1

Sole proprietorship	2	0.8
Employee experience (years)		
1-5	31	12
6-10	24	10
11-15	41	17
16-20	134	55
≥ 21	13	6

Measurement Model

The measurement model illustrates how constructs relate to their respective items or dimensions. Each item was assigned a specific code for identification (see **Table 2**). The testing of the measurement model occurred in two stages. The first stage focused on data purification, which was performed using SPSS software. This involved handling missing data, and outliers, and addressing potential collinearity issues. Various statistical methods such as histograms, skewness, kurtosis, 5% trimmed mean, scatterplots, and collinearity statistics were applied to clean the data.

In the second stage, the study tested the validity and reliability of the model. Factor analysis and Cronbach's α were used to assess the reliability of the constructs. A Cronbach's α value higher than 0.7 indicates reliability, and as shown in **Table 3**, all constructs exceeded this threshold, confirming that the scale used was reliable. For internal consistency, composite reliability was also evaluated, with a threshold value of 0.7. All constructs met this criterion, demonstrating that the scale was consistent internally.

The average variance extracted (AVE) reflects the extent to which a latent construct accounts for the variance in its indicators. According to Hair et al. (2014), an AVE value greater than 0.5 indicates that the construct explains more variance than the error in the items. The AVE values reported in **Table 3** exceeded this threshold, confirming satisfactory construct validity. Additionally, the factor loadings were checked to ensure they fell between the acceptable range of 0.5 to 0.7 [46]. **Table 2** shows that all factor loadings met these criteria, confirming that validity was achieved.

Table 2. Coding and factor loading

Constructs	Code	Items	Factor loading
Information sharing	IS1	"The organization informs its trading partners in advance of changing needs"	0.730
	IS2	"Organization's trading partners share proprietary information"	0.725
	IS3	"Organization's trading partners keep your organization fully informed about issues that affect its business"	0.760
	IS4	"Organization's trading partners share business knowledge of core business processes with your organization"	0.783
	IS5	"Organization and its trading partners exchange information that helps the establishment of business planning"	0.817
	IS6	"Organization and its trading partners keep each other informed about events or changes that may affect the other partners"	0.741
Average vision and goals	AGV1	"Supply chain members have common, agreed goals"	0.876
	AGV2	"Supply chain members are actively involved in standardizing supply chain management practices and operations"	0.920
	AGV3	"Supply chain members clearly define roles and responsibilities of each other cooperatively"	0.874
	AGV4	"Know which supply chain members are responsible for what activity"	0.870
Supplier relationship	SI1	"Organization considers quality as the number one criterion in selecting suppliers"	0.867
	SI2	"Organizations regularly solve problems jointly with its suppliers"	0.907
	SI3	"Organization helps its suppliers to improve their product quality"	0.918
	SI4	"Organization has continuous improvement programs"	0.884
	SI5	"Organization include its key suppliers in its planning and goal setting"	0.876
	SI6	"Organization actively involves its key suppliers in new product development"	0.871

Customer relationship	CI1	"Organization frequently interacts with customers to set its reliability, responsiveness, and other standards"	0.877
	CI2	"Organization frequently measures and evaluates customer satisfaction"	0.910
	CI3	"Organizations frequently determine future customer expectations"	0.707
	CI4	"Organization facilitates customers' ability to seek assistance from it"	0.824
	CI5	"Organization periodically evaluates the importance of the relationship with customers"	0.564
Information quality	IQ1	"Information exchange between the organization and its trading partners is timely"	0.873
	IQ2	"Information exchange between an organization and its trading partners are accurate"	0.850
	IQ3	"Information exchange between an organization and its trading partners are complete"	0.866
	IQ 4	"Information exchange between an organization and its trading partners are adequate"	0.859
	IQ5	"Information exchange between an organization and its trading partners are reliable"	0.583
Postponement	POS1	"Organization's products are designed for modular assembly"	0.791
	POS2	"Organization delays final product assembly activities until customer orders have been received"	0.913
	POS3	"Organization delays final product assembly activities until the last possible position (or nearest to the customer) in the supply chain"	0.918
RRS	RR1	"Supply chain members share risks and rewards"	0.891
	RR2	"Supply chain members share research and development costs and results"	0.707
	RR3	"Supply chain members help each other with financial capital investment"	0.909
Supply chain performance	SCP1	"Quality performance"	0.865
	SCP2	"Flexibility performance"	0.858
	SCP3	"Customer service"	0.894
	SCP4	"Delivery speed"	0.913
	SCP5	"Cost performance"	0.805

Table 3. Cronbach's α, composite reliability, and AVE

Constructs	Number of items	Cronbach's α	Composite reliability	AVE
Information sharing	6	0.853	0.891	0.578
Join goals	4	0.910	0.935	0.784
Supplier relationship	6	0.946	0.957	0.788
Customer relationship	5	0.838	0.888	0.619
Information quality	5	0.867	0.906	0.662
Postponement	3	0.850	0.908	0.767
RRS	3	0.789	0.877	0.706
Supply chain performance	5	0.917	0.938	0.753

Structural Model

For the preliminary analysis, bivariate correlation analysis was performed using Smart PLS. This analysis provides various insights into the relationships among variables. As shown in **Table 4**, all SCP approaches exhibited significant correlations with SCP, with all correlation values exceeding 0.6. Notably, information quality demonstrated the strongest correlation with SCP, suggesting that high-quality information sharing is crucial for enhancing performance. Additionally, all the SCP approaches were found to be interrelated, indicating interconnectedness among the various factors.

Table 4. Bivariate correlation.

	IS	JD	SI	CI	IQ	POD	RR	SCP
IS	1.000							

JD	0.599	1.000						
SI	0.604	0.529	1.000					
CI	0.603	0.631	0.645	1.000				
IQ	0.558	0.592	0.615	0.647	1.000			
POD	0.584	0.711	0.491	0.516	0.528	1.000		
RR	0.589	0.611	0.703	0.712	0.723	0.541	1.000	
SCP	0.668	0.685	0.656	0.673	0.693	0.603	0.667	1.000

Additionally, all these SCC approaches collectively influenced SCP. As shown in **Figure 2**, the coefficient of determination (R^2) is 0.675, indicating that the seven SCC approaches explain 67.5% of the variance in SCP. According to Hair *et al.* [47], an R^2 value greater than 0.5 is considered to indicate a moderating effect, suggesting that SCC approaches have a moderating influence on SCP.

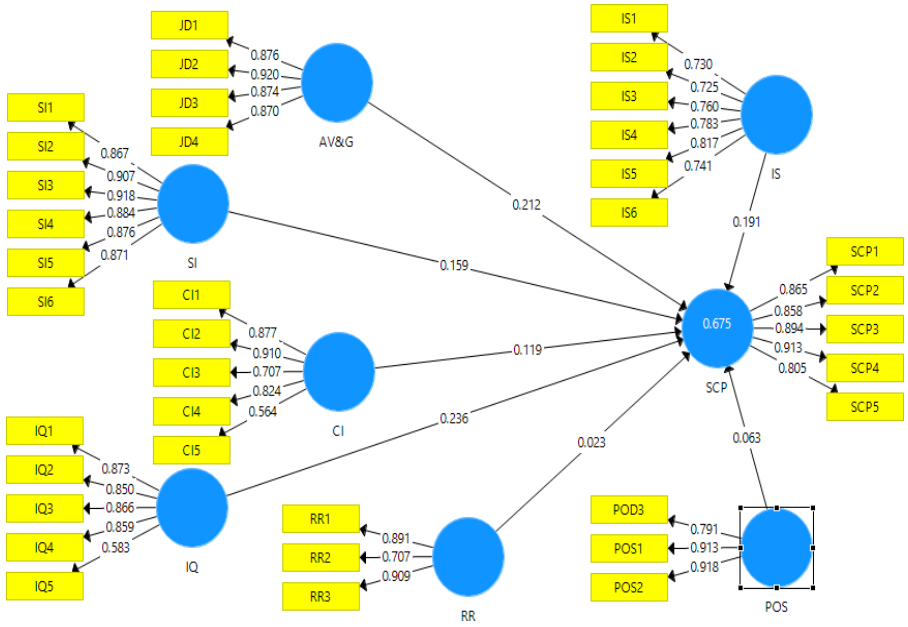

Figure 2. PLS algorithm results

In addition, it's important to verify the significance of these findings to determine whether the hypotheses should be accepted or rejected. Table 5 displays the bootstrapping results from Smart PLS, which provide support for some of the proposed hypotheses. A comprehensive review of prior research indicates that SCC approaches positively influence SCP. This study used one-tailed tests with a 90% confidence level. The results are consistent with the findings of Sundram *et al.* [29, 34], where variables like information sharing (IS), agreed vision and goals (AV & G), supplier integration (SI), customer integration (CI), and IQ were found to have a positive and significant impact on SCP, with t-values exceeding 1.645 and p-values above 0.1. On the other hand, postponement (POS) and risk/reward sharing (RR) were not found to have significant effects, though they were still positively correlated with SCP. This indicates that while POS has a positive impact on Malaysia's manufacturing industry, previous research showed such an effect primarily in specific sectors. Similarly, RR did not exhibit significant effects on SCP in this study, in line with prior research by Sundram *et al.* [29, 34].

Table 5. Path coefficient and t values

Constructs	Path coefficient (P-Value)	t-value	Result
Information sharing	0.191	2.784	Supported
Join goals	0.212	2.708	Supported
Supplier relationship	0.159	2.148	Supported
Customer relationship	0.119	1.749	Supported
Information quality	0.236	4.065	Supported
Postponement	0.063	1.034	Not-supported
RRS	0.023	0.302	Not-supported

Discussion and Contribution

The results of this study highlight that SCC approaches have a positive influence on SCP, although not all effects are significant. Specifically, the study found that information sharing, aligned vision and goals, supplier relationships, customer relationships, and information quality have significant positive effects on SCP. However, postponement and risk/reward sharing, while positive, did not show significant impacts on performance. This indicates that while SCC approaches can enhance performance, their relevance varies across industries. For instance, certain SCC approaches may be crucial for some sectors but less so for others.

The study found that the most impactful SCC approaches in the Malaysian manufacturing sector were aligning vision and goals, indicating that manufacturing firms that share common objectives experience better outcomes than those with divergent goals. Information quality, it seems, plays a more critical role than simply sharing information, as inaccurate or incomplete information can cause disruptions. Additionally, the study revealed that supplier relationships are more significant than customer relationships in driving performance, as strong supplier ties can reduce costs, foster innovation, and minimize disruptions and risks.

In contrast to previous literature on RRS, which suggested a significant impact in the electric and electronics sectors, this study found that Malaysian manufacturers were reluctant to engage in risk/reward sharing. Finally, postponement, although significant in prior research, was not significantly adopted by Malaysian manufacturers.

The theoretical contributions of this study suggest that not all SCC approaches are equally impactful. While some approaches significantly enhance SCP, others may not be as critical for the manufacturing sector in Malaysia. These findings align with prior studies, such as those by Wiengarten *et al*. [25], and underscore the need for a more nuanced understanding of SCC in different industries. From a managerial perspective, the study offers two key contributions: First, it affirms the importance of focusing on collaboration strategies, especially aligning vision and goals, information quality, and supplier/customer relationships, to enhance supply chain performance. Second, it provides guidance for managers to prioritize more effective approaches while reconsidering the role of risk/reward sharing and postponement strategies.

Conclusion

In conclusion, the study demonstrates that SCC approaches have a generally positive effect on SCP within Malaysian manufacturing. While information sharing, aligned vision and goals, supplier integration, customer integration, and information quality significantly enhance performance, risk/reward sharing and postponement have positive but insignificant effects. Specifically, postponement is valuable for certain industries but may lead to customer dissatisfaction and higher costs if overused. Additionally, while risk/reward sharing shows positive potential, the reluctance of firms to share risks and rewards limits its impact.

This research provides empirical evidence of the relationship between SCC and SCP, offering valuable insights for managers making strategic decisions. The findings contribute to the development of a framework that can be applied across various industries and regions. However, this study is limited to the manufacturing sector in Malaysia, suggesting the need for future research to extend the analysis to the service sector or to include second-tier suppliers and customers in the collaboration network.

Acknowledgments: None

Conflict of interest: None

Financial support: None

Ethics statement: None

References

1. Shahbaz MS, Rasi RM, Zulfakar MH, Ahmad MFB, Asad MM. Theoretical Framework Development for Supply Chain Risk Management for Malaysian Manufacturing. International Journal of Supply Chain Management. 2018;7(6):325-338.
2. Jinn BCW, Shuhaimen MS. Complexity and Growth: Malaysia's Position and Policy Implications. Jüttner U, Maklan S. Supply chain resilience in the global financial crisis: An empirical study. Supply Chain Management: An International Journal. 2011;16(4):246-259. https://doi.org/10.1108/13598541111139062
3. Malaysia Productivity Corporation. 23rd Malaysian Productivity Report 2015/2016. Selangor Darul Ehsan; 2016.
4. Effendi FSR. The Determinants of Logistics Efficiency in Malaysia. Social Science Research Network. 2015. Available from: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2702315

5. Abdallah AB, Obeidat BY, Aqqad NO. The Impact of Supply Chain Management Practices on Supply Chain Performance in Jordan: The Moderating Effect of Competitive Intensity. International Business Research. 2014;7(3):13-27. https://doi.org/10.5539/ibr.v7n3p13
6. Shukla RK, Garg D, Agarwal A. Understanding of supply chain: A literature review. International Journal of Engineering Science and Technology. 2011;3(3):2059-2072.
7. Shahbaz MS, Rasi RZRM, Ahmad MFB, Rehman F. What is supply chain risk management? A review. Advanced Science Letters. 2017;23(9):9233-9238. https://doi.org/10.1166/asl.2017.10061
8. Christopher M. Logistics & supply chain management. Pearson Education Limited. 2011;4th edition. https://doi.org/10.1007/s12146-007-0019-8
9. Zsidisin GA, Ritchie B. Supply chain risk: a handbook of assessment, management, and performance. 2009. https://doi.org/10.1007/978-0-387-79933-9
10. Singh G, Abdul Wahid N. Supply Chain Risk Management: A Review. International Journal of Supply Chain Management. 2014;3(3):59-67.
11. Ravindran AR, Warsing DP. Supply Chain Engineering: Models and Applications. 2013. https://doi.org/10.1007/978-1-84996-017-5
12. Anand N, Grover N. Measuring retail supply chain performance: Theoretical model using key performance indicators (KPIs). Benchmarking: An International Journal. 2015;22(1):135-166. https://doi.org/10.1108/BIJ-05-2012-0034
13. Kauppi K, Longoni A, Caniato F, Kuula M. Managing country disruption risks and improving operational performance: risk management along integrated supply chains. International Journal of Production Economics. 2016;182:484-495. https://doi.org/10.1016/j.ijpe.2016.10.006
14. Basu G, Jeyasingam J, Habib M, Letchmana U, Ravindran R. The Impact of Supply Chain Management Practices on the Performance of Private Universities in Malaysia. International Journal of Supply Chain Management. 2017;6(3):22-35.
15. Singh H, Garg RK, Sachdeva A. Supply chain collaboration: A state-of-the-art literature review. Uncertain Supply Chain Management. 2018;6:149-180. https://doi.org/10.5267/j.uscm.2017.8.002
16. Daud AB. A Study on Lean Supply Chain Implementation in Malaysia's Electrical and Electronics Industry: Practices and Performances [Master thesis]. Universiti Sains Malaysia; 2010. Available from: https://core.ac.uk/download/pdf/11972983.pdf
17. Ataseven C, Nair A. Assessment of Supply Chain Integration and Performance Relationships: A Meta-Analytic Investigation of the Literature. International Journal of Production Economics. 2017. https://doi.org/10.1016/j.ijpe.2017.01.007
18. Kilubi I. The strategies of supply chain risk management – a synthesis and classification. International Journal of Logistics Research and Applications. 2016;19(6):604-629. https://doi.org/10.1080/13675567.2016.1150440
19. Wiengarten F, Humphreys P, Gimenez C, McIvor R. Risk, risk management practices, and the success of supply chain integration. International Journal of Production Economics. 2016;171:361-370. https://doi.org/10.1016/j.ijpe.2015.03.020
20. Cao M, Zhang Q. Supply Chain Collaboration: Roles of Interorganizational Systems, Trust, and Collaborative Culture. 2013. https://doi.org/10.1007/978-1-4471-4591-2
21. Singh A. Understanding supply chain disruption risk with the aid of social networks and information flows analysis [PhD thesis]. Aston University; 2013.
22. Cao M, Vonderembse MA, Zhang Q, Ragu-Nathan TS. Supply chain collaboration: conceptualisation and instrument development. International Journal of Production Research. 2010;48(22):6613-6635. https://doi.org/10.1080/00207540903349039
23. Ha BC, Park YK, Cho S. Suppliers' affective trust and trust in competency in buyers Its effect on collaboration and logistics efficiency. International Journal of Operations & Production Management. 2011;31(1-2):56-77. https://doi.org/10.1108/01443571111098744
24. Shukla RK, Garg D, Agarwal A. Supply Chain Coordination Competency and Firm Performance: An Empirical Study. International Journal of Supply Chain Management. 2013;2(4):64-70.
25. Wiengarten F, Humphreys P, Cao G, Fynes B, McKittrick A. Collaborative supply chain practices and performance: exploring the key role of information quality. Supply Chain Management-an International Journal. 2010;15(6):463-473. https://doi.org/10.1108/13598541011080446
26. Matopoulos A, Vlachopoulou M, Manthou V, Manos B. A conceptual framework for supply chain collaboration: empirical evidence from the agri-food industry. Supply Chain Management: An International Journal. 2007;12(3):177-186. https://doi.org/10.1108/13598540710742491
27. Udbye A. Supply Chain Risk Management in India: An Empirical Study of Sourcing and Operations Disruptions, their Frequency, Severity, Mitigation Methods, and Expectations [PhD thesis]. Portland State University; 2014. https://doi.org/10.15760/etd.1812

28. Shukla RK. Coordination Practices in Supply Chain Management: An Empirical Study of Indian Manufacturing Firms. Journal of Management Research. 2016;16(1):44-54.
29. Sundram VPK, Ibrahim AR, Govindaraju VGRC. Supply chain management practices in the electronics industry in Malaysia. Benchmarking: An International Journal. 2011;18(6):834-855. https://doi.org/10.1108/14635771111180725
30. Chopra S, Meindl P. Supply chain management. Strategy, planning & operation. Prentice Hall; 2006. 552 p. https://doi.org/10.1007/978-3-8349-9320-5_22
31. Low RQ, Baharudin AS, Lim SC. The Determinants of Problem Solving Tools Adoption in SME in Manufacturing Sector in Malaysia. In: Abdullah MA, Yahya WK, Ramli N, Mohamed SR, Ahmad BE, editors. Regional Conference on Science, Technology and Social Sciences (RCSTSS 2014): Business and Social Sciences. 2016. p. 251-263. https://doi.org/10.1007/978-981-10-1458-1
32. Li S, Rao SS, Ragu-Nathan TS, Ragu-Nathan B. Development and validation of a measurement instrument for studying supply chain management practices. Journal of Operations Management. 2005;23(6):618-641. https://doi.org/10.1016/j.jom.2005.01.002
33. Qrunfleh SM. Alignment of information systems with supply chains: Impacts on supply chain performance and organizational performance [PhD thesis]. University of Toledo; 2010.
34. Sundram VPK, Chandran V, Bhatti MA. Supply chain practices and performance: the indirect effects of supply chain integration. Benchmarking: An International Journal. 2016;23(6):1445-1471. https://doi.org/10.1108/02656710210415703
35. Tsai M, Liao C, Han C. Risk perception on logistics outsourcing of retail chains: model development and empirical verification in Taiwan. Supply Chain Management: An International Journal. 2008;13(6):415-424. https://doi.org/10.1108/13598540810905679
36. Chen J. The Role of Supply Chain Collaboration in Supply Chain Risk Mitigation [PhD thesis]. Monash University; 2012.
37. Chen J, Sohal AS, Prajogo DI. Supply chain operational risk mitigation: A collaborative approach. International Journal of Production Research. 2013;51(7):2186-2199. https://doi.org/10.1080/00207543.2012.727490
38. Manuj I. Risk Management in Global Sourcing: Comparing the Business World and the Academic World. Transportation Journal. 2013;52(1):80-107.
39. Sukati I, Hamid AB, Baharun R, Yusoff RM. The Study of Supply Chain Management Strategy and Practices on Supply Chain Performance. Procedia - Social and Behavioral Sciences. 2012;40:225-233. https://doi.org/10.1016/j.sbspro.2012.03.185
40. Christopher M, Ryals L. Supply Chain Strategy: Its Impact on Shareholder Value. The International Journal of Logistics Management. 1999;10(1):1-10. https://doi.org/10.1108/09574090910954864
41. Tsiakkouri M. Risk Management Processes for Managing Disruptions in Supply Chains [PhD thesis]. University of Southampton; 2010. https://doi.org/10.1109/fie.2016.7757408
42. Musa SN. Supply Chain Risk Management: Identification, Evaluation and Mitigation Techniques [PhD thesis]. Linköping University Sweden; 2012.
43. Afzal MA. Managing Risk and Resilience in Supply Chain & 3PL: Conceptual Developments and Proposed Frameworks [Master thesis]. King Fahd University of Petroleum & Minerals; 2011.
44. Federation of Malaysian Manufacturers. Malaysian Industries: FMM Directory 48th. 2017.
45. Krejcie RV, Morgan DW. Determining Sample Size for Research Activities Robert. Educational and Psychological Measurement. 1970;38(1):607-610. https://doi.org/10.1177/001316447003000308
46. Hair JFJ, Hult GTM, Ringle CM, Sarstedt M. A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM). SAGE Publications, Inc; 2014. https://doi.org/10.1016/j.lrp.2013.01.002
47. Hair JF, Matthews LM, Matthews RL, Sarstedt M. PLS-SEM or CB-SEM: updated guidelines on which method to use. International Journal Multivariate Data Analysis. 2017;1(2):107-123. https://doi.org/10.1504/IJMDA.2017.087624