

HOW SUPPLY CHAIN MANAGEMENT PRACTICES INFLUENCE CUSTOMER DEVELOPMENT AND OPERATIONAL PERFORMANCE

Hafidz Ummay Muhammad ¹

Dessy Isfianadewi ²

^{1,2}Department of Management, Faculty of Business and Economics, Universitas Islam, Indonesia

*e-mail: hafidz.muhammad@students.uii.ac.id, dessy.isfianadewi@uui.ac.id

*Correspondence: hafidz.muhammad@students.uii.ac.id

Submitted: 17th January 2023 *Revised:* 14th January 2023 *Accepted:* 25th January 2023

Abstract: This study was undertaken to measure the supply chain management practices affected customer development and operational performance at small and medium-sized businesses (SME) that distributed liquefied petroleum gas (LPG). The dataset contains 103 SMEs in East Kotawaringin, Indonesia. Quantitative techniques were employed in this research, and Employing questionnaire to collect data. To analyze the data for this investigation, partial least square structural equation modeling (PLS-SEM) was used. The outcomes of all variables' data analysis have a significant effect on all other variables in this model. The study's findings show that supply chain management practices have a significant impact on customer development and operational performance, while customer development has a positive and significant impact on operational performance. Furthermore, Customer development can act as a mediator in the interaction between operational performance and supply chain management. The study's conclusions have some relevance for LPG retailers.

Keywords: Customer Development (CD); Operational Performance (OP); Supply Chain Management Practices (SCMP).

INTRODUCTION

In today's increasingly developing industrial era, technological advances have swift changes, innovations are carried out continuously, and a work environment always strives to be ready to face uncertainty. Technology has ensured that the company will always remain competitive with its competitors. And persist in ensuring that the company can provide the best for consumer needs and maintain good relations with its suppliers. Therefore, companies must be able to improve their operational performance. To achieve this, several

ways can be done, one of which is by increasing the implementation of the supply chain (Sajja, 2021).

To meet consumer needs appropriately, companies must define value-added processes that can transcend organizational boundaries. Therefore, an organization must work as much as possible with internal and external parties of the company because this can create a good system for the company. For internal parties, the company can coordinate to manage the flow of information, material flow, and financial flow. As for external parties, the organization can collaborate with suppliers and consumers (Amedofu et al., 2019).

SCM, or supply chain management, refers to all supply chain operations that collaborate to produce the desired consumer value. The chain of industry that transports goods and services from suppliers to manufacturers or service providers through distributors, wholesalers, and retailers. With the

application of SCM, the company will have several advantages. It can compete with other companies because if all parties involved are willing to share information related to sales and information costs, all parties can benefit (Heizer et al., 2020).

Liquefied Petroleum Gas (LPG) store is a business that distributes LPG through the store to consumers or retailers. To get LPG gas, consumers must come directly to the LPG store. Pertamina is the official supplier of LPG gas cylinders for distribution to consumers. The method used by Pertamina in distributing LPG gas to the public is carried out with a close loop supply chain system, which means that products start from consumers, return to LPG depots to return to consumers with product updates (Sulistyawati & Ridwan, 2022).

This study will concentrate on the SCM Practice system Pertamina applies in its LPG retail, which is also correlated to the influence of customer development.

The topic of this study will be an exciting discussion because in previous studies, very few discussed LPG stores as study objects.

In order to understand how supply chain management methods influence customer development and operational performance in East Kotawaringin, Indonesia, this study was conducted. In this study, 103 SMEs based in East Kotawaringin, Indonesia, received their data analyzed using partial least square structural equation modeling (PLS-SEM).

Literature Review

Supply Chain Management Practices

SCM practices or SCM practices,

according to Li et al. (2005) in the research by Amedofu et al. (2019), are a set of actions taken by firms to improve supply chain operations more efficiently. The SCM Practices are viewed as a multidimensional construct including dimensions for supply chain information exchange, supply chain information management, and supplier relationship.

Supplier relationship

Saad et al. (2022) explain that companies must build good relationships with suppliers to improve operational capabilities. This built relationship helps manage organizational networks and can improve supplier performance. Another advantage of the company is joint problem-solving activities, such as minimizing useless time and effort. On the other hand, companies get access to resources that have more value.

Customer Relationship

Saad et al. (2022) explain that companies must build long-term relationships with consumers to stay safe in an increasingly competitive era to know consumer needs and create products or services that are different from competitors to maintain and satisfy consumers.

Supply Chain Information Sharing

Zhou & Benton (2007), in Zhou & Li's research (2020), explains that supply chain information sharing is divided into three parts: information sharing support technology, information content, and quality information. According to them, supply chain information sharing is related to production and operations between

manufacturers and suppliers, such as the exchange of quality information, price information, and technical information.

Supply Chain Information Management

According to Saad et al. (2022), Supply chain information management links supply chain information exchange with accuracy, timeliness, adequacy, and credibility. Companies need to share accurate market-related information with suppliers so that decisions can be based on data from the market.

Customer Development

Customer development is a company's ability to find markets for its products, build appropriate uses for products, find solutions to consumer needs, test various methods that can be used to find consumers, and provide the right resources, perfect for business purposes (Cooper et al., 2022). Several studies' results have proven a significant influence of Supply Chain Management Practices on Customer Development (Elfarmawi, 2020; Prathiba, 2020). Some indicators, such as in the research by Blank (2013), are: attracting customers, customer base, acquiring customers, retaining customers, and growing referred customers.

H1. Supply Chain Management Practices have a positive and significant influence on Customer Development.

Operational Performance

Performance is a measure of a company's operational success, measured through cost, quality, flexibility, and delivery. The company will use this

operational performance as a benchmark for the results derived from the company's operations, the results of which can later be used for external and internal purposes (Lee, 2021). Some indicators, such as in the research by Lee (2021) and Amedofu et al. (2019), are revenue, cost, return on investment, and profit margin on sales. Several studies' results have proven significant influence of Supply Chain Management Practices on Operational Performance (Shetty, 2019; Zhou & Li, 2020).

Several studies' results have proven that Customer Development significantly influences Operational Performance (Amedofu et al., 2019; Berraies & Hamouda, 2018). Numerous research' findings have shown that customer development might operate as a mediator in the relationship between supply chain management practices and operational performance. (Amedofu et al., 2019; Saad et al., 2022).

H2. Supply Chain Management Practices have a positive and significant influence on Operational Performance.

H3. Customer Development has a positive and significant influence on Operational Performance.

H4. Customer Development positively and significantly influences the relationship between Supply Chain Management Practices and Operational Performance.

MATERIALS AND METHODS

The methodology used for this study is quantitative. The population in this

study are all SMEs that distributed LPG in East Kotawaringin. Purposive sampling is applied to distribute the questionnaires to the respondents. The criteria of the purposive sampling are the owner of SMEs. The amount of responders, which came to 103 in total, was acceptable for data processing and additional analysis. The response was a 5-point Likert scale, from very disagree to very agree for items of supply chain management practices and very low to very high for customer development and operational performance. SEM model with Smart PLS 3.0 software is used in the statistical method, below is an explanation of the variable and measurement.

1. The term "Supplier Relationship" (SR), "Customer Relationship" (CR), "Supply Chain Information Sharing" (SCIS), and "Supply Chain Information Management" (SCIM) are all used to refer to different dimensions of the multidimensional construct characterized as "Supply Chain Management Practices" (SCMP). This dimensional construct was measured using 15 items sourced from Amedofu et al. (2019).
2. Customer Development (CD) is a company's ability to find markets for its products, build appropriate uses for products, find solutions to consumer needs, test various methods that can be used to find consumers, and provide the right resources. Some indicators, such as in the research by Blank (2013), are: attracting customers, customer base, acquiring

customers, retaining customers, and growing referred customers. This variable is measured using seven items sourced from Amedofu et al. (2019).

Operational Performance (OP) is a measure of a company's operational success; it is measured through cost, quality, flexibility, and delivery. The company will use this operational performance as a benchmark for the results derived from the company's operations, the results of which can later be used for external and internal purposes (Lee, 2021). Some indicators, such as in the research by Le (2021) and Amedofu et al. (2019), are revenue, cost, return on investment, and profit margin on sales. This variable is measured using six items sourced from

Amedofu et al. (2019); Lee (2021).

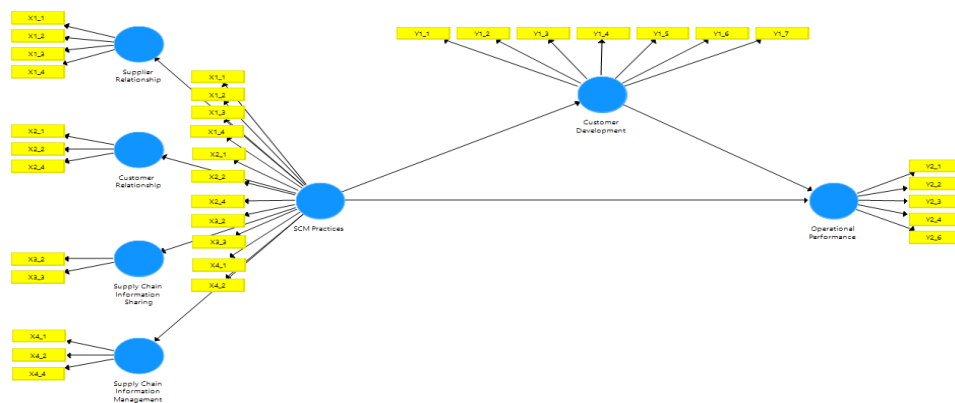
RESULTS AND DISCUSSION

Respondents Description

With 103 respondents answered (no missing data). Regarding gender, the respondents were divided into 46 men (45%) and 57 women (55%). In terms of Age of Respondents divided into 4 samples < 25 (4%), 13 samples 26-30 (12%), 27 samples 31-40 (26%), 44 samples 41-50 (43%), 15 > samples 50 (15%). Regarding of age of LPG stores, divided into 48 samples < 5 (47%), 53 samples 6-10 (51%), and 2 samples > 10 (2%).

Validity and Reliability Testing

Figure 1 Model PLS



Source: Authors construct, 2022

Table 1. Summary of Outer Loading Result

Construct	Indicator	Convergent Validity		Internal Consistency Reliability	
		Outer Loading	AVE	Composite Reliability	Cronbach's Alpha

Supplier Relationship	X1_1	0,885	0,76 4	0,928	0,897
	X1_2	0,847			
	X1_3	0,891			
	X1_4	0,873			
Customer Relationship	X2_1	0,893	0,65 4	0,848	0,725
	X2_2	0,653			
	X2_4	0,860			
Supply Chain Information Sharing	X3_2	0,908	0,83 6	0,910	0,804
	X3_3	0,920			
Supply Chain Information Management	X4_1	0,842	0,55 6	0,783	0,603
	X4_2	0,822			
	X4_4	0,532			
SCM Practices	X1_1	0,836	0,57 0	0,935	0,922
	X1_2	0,843			
	X1_3	0,828			
	X1_4	0,804			
	X2_1	0,780			
	X2_2	0,632			
	X2_4	0,772			
	X3_2	0,771			
	X3_3	0,821			
	X4_1	0,593			
	X4_2	0,547			
	Customer Development	Y1_1			
Y1_2		0,861			
Y1_3		0,886			
Y1_4		0,579			
Y1_5		0,770			
Y1_6		0,681			
Y1_7		0,890			
Operational Performance	Y2_1	0,901	0,69 0	0,916	0,883
	Y2_2	0,686			
	Y2_3	0,921			
	Y2_4	0,907			
	Y2_6	0,706			

Source: Primary Data, 2022.

In this research, Supply Chain Management Practices are multi-

dimensional constructs. Convergent validity and discriminant validity are the

two components of measurement quality. The result score from two different instruments examining the same concept that are linked is termed as convergent validity. (Sekaran & Bougie, 2016). In this measurement, it is expected that the correlation is $> 0,7$ and the Average Variance Extracted (AVE) is $> 0,5$. However, The lowest score of each loading factor for research in the preliminary stages of developing a measurement scale is $> 0,5$, which is still acceptable. When a construct completely varies from other constructs in terms of empirical criteria, this is considered to have discriminant validity. This research used the Cross-loading

criterion to measure the discriminant validity.

X2 3, X3 1, X3 4, X4 3, and Y2 5 were among the indicators that had to be eliminated from the initial run since they did not meet the requirements. There are no indicators below 0,5 when the author ran the PLS algorithm twice after it was removed. Table 1 summarizes all AVEs and loading factors. It fulfills the requirement for internal consistency reliability as well. Table 1 indicates composite reliability, and all constructs have Cronbach's alpha value higher than 0.6. Furthermore, as seen in the in table 2, to examine the discriminant validity.

Table 2. Discriminant Validity Cross-loading

Construct Indicators	SR	CR	SCIS	SCIM	SCM P	CD	OP
X1_1	0,885	0,678	0,676	0,529	0,836	0,506	0,545
X1_1	0,885	0,678	0,676	0,529	0,836	0,506	0,545
X1_2	0,847	0,741	0,685	0,534	0,843	0,615	0,618
X1_2	0,847	0,741	0,685	0,534	0,843	0,615	0,618
X1_3	0,891	0,692	0,671	0,419	0,828	0,567	0,553
X1_3	0,891	0,692	0,671	0,419	0,828	0,567	0,553
X1_4	0,873	0,675	0,635	0,440	0,804	0,441	0,463
X1_4	0,873	0,675	0,635	0,440	0,804	0,441	0,463
X2_1	0,692	0,893	0,645	0,353	0,780	0,618	0,688
X2_1	0,692	0,893	0,645	0,353	0,780	0,618	0,688
X2_2	0,551	0,653	0,520	0,427	0,632	0,527	0,483
X2_2	0,551	0,653	0,520	0,427	0,632	0,527	0,483
X2_4	0,680	0,860	0,621	0,451	0,772	0,532	0,641

X2_4	0,680	0,860	0,621	0,451	0,772	0,532	0,641
X3_2	0,677	0,640	0,908	0,407	0,771	0,585	0,510
X3_2	0,677	0,640	0,908	0,407	0,771	0,585	0,510
X3_3	0,717	0,710	0,920	0,495	0,821	0,568	0,567
X3_3	0,717	0,710	0,920	0,495	0,821	0,568	0,567
X4_1	0,509	0,457	0,412	0,842	0,593	0,233	0,316
X4_1	0,509	0,457	0,412	0,842	0,593	0,233	0,316
X4_2	0,428	0,411	0,421	0,822	0,547	0,420	0,378
X4_2	0,428	0,411	0,421	0,822	0,547	0,420	0,378
X4_4	0,242	0,205	0,244	0,532	0,276	0,143	0,181
Y1_1	0,353	0,453	0,358	0,212	0,406	0,547	0,520
Y1_2	0,515	0,568	0,536	0,342	0,581	0,861	0,745
Y1_3	0,618	0,632	0,626	0,410	0,676	0,886	0,783
Y1_4	0,268	0,387	0,304	0,172	0,336	0,579	0,515
Y1_5	0,393	0,505	0,434	0,275	0,475	0,770	0,720
Y1_6	0,457	0,484	0,432	0,257	0,487	0,681	0,577
Y1_7	0,546	0,595	0,567	0,258	0,598	0,890	0,856
Y2_1	0,550	0,655	0,514	0,300	0,609	0,869	0,901
Y2_2	0,542	0,598	0,417	0,508	0,594	0,570	0,686
Y2_3	0,518	0,646	0,514	0,323	0,595	0,845	0,921
Y2_4	0,522	0,635	0,548	0,365	0,611	0,842	0,907
Y2_6	0,487	0,623	0,451	0,224	0,539	0,566	0,706

Source: Primary Data, 2022

Verifying Hypothesis

Inner Model ReviewThe results of the

hypothesis test are displayed in the table based on the data processing outcomes.

Table 3. T-Statistics, P-Values, Original Sample

Variabel	Original Sample (O)	T-Statistics	P-Value
CD -> OP	0,797	17,093	0,000
SCMP -> CD	0,686	11,589	0,000
SCMP -> OP	0,158	2,647	0,008
SCMP -> CD -> OP	0,593	9,813	0,000

Source: Primary Data, 2022

The author next evaluates the outcomes of the hypothesized paths by checking at their t-statistic and p-values after verifying the validity and reliability of the evaluation of measurement models.

Table 3 shows that all main paths are significant. Path relationship between Supply Chain Management Practices (SCMP) and Customer Development (CD) is substantial, with $t=11,589$, $p=0,000$. It implies that Customer Development is highly positively impacted by Supply Chain Management Practices. Operational Performance (OP) and supply chain management practices have a path linkage with $t=2,647$ and $p=0,008$. It indicates that supply chain management practices significantly positively affect operational performance. Furthermore, customer development significantly positively affects operational performance, with $t=17,093$ and $p=0,000$. Regarding the mediates effect, customer development does mediate the impact of supply chain management practices toward operational performance, with

$t=9,813$ and $p=0,000$.

Discussion

In this model, each variable generally has a positive impact on the others. The four proposed hypotheses are supported by the model presented in this study. The study's findings revealed that SCM practices positively impacted customer development. It implies that SMEs who implement in supply chain management (SCM) practices including supplier and customer relationship management, supply chain information sharing, and supply chain information management at a higher level are best prepared to attract in and keep consumers. The findings of this study match earlier studies by Elfarmawi (2020) and Prathiba, (2020), Several studies show that supply chain management practices have a favorable and considerable impact on small and medium-sized business (SMEs) customer development.

The outcomes of this study's analysis demonstrate that the variable relating to supply chain management practices has a

positive and significant impact on operational performance. Thus, it can be concluded that the owner of SMEs who implement supply chain management practices, such as supplier relationships, customer relationships, supply chain information sharing, and supply chain information management, are better at managing suppliers, customers, and information flow can minimize costs caused by errors, reduce selling costs, become more efficient, and be able to improve financial performance and operational performance. The outcomes of this study support earlier studies by Shetty, (2019) & Zhou & Li, (2020), which shown that supply chain management practices had a positive and significant impact on the operational performance of SMEs.

The outcomes of this study's analysis suggest that the customer development variable had a positive and significant influence on operational performance. Authors can arrive at the conclusion that SMEs would operate more effectively and have faster growth if they were better able to lure in, satisfy, and keep customers. According to the outcomes of this study, which were supported by earlier studies by Amedofu et al. (2019); Berraies & Hamouda (2018), customer development significantly and positively influenced operational performance. The outcomes of this study's analysis demonstrate that factors affecting customer development are a mediator between supply chain management practices and operational performance. It can be concluded that SMEs in satisfying and retaining consumers are encouraged by SCM practices, namely

evaluating relationships with consumers and suppliers to increase efficiency. The results in this study follow previous research conducted by Amedofu et al. (2019) & Saad et al. (2022), which yielded that customer development mediates supply chain management practices on operational performance.

CONCLUSIONS

The study's conclusions are that a) Supply Chain Management Practices have a positive and significant impact on the development of SME customers based on the outcomes of the study and discussion given. Therefore, it can be inferred that SMEs can acquire, keep, and satisfy customers when conducting business with SMEs as stakeholders at SMEs implement better levels of supply chain management practices. b) Supply chain management practices significantly and positively affect how well SMEs operate. Thus, it can be inferred that improved SME management of the relationship with suppliers and customers, as well as a more obvious flow of information, can cut expenses so that the SME is more profitable and operationally efficient. c) Customer development significantly and favorably affected the operational effectiveness of SMEs. Thus, it can be concluded that SMEs that can attract, retain, and satisfy consumers can increase profitability, and SME operations can be more efficient. d) customer development mediates the relationship between SCM practices and operational performance at SMEs. Thus, it can be concluded that the SMEs that are able to attract and retain those supported by SCM

practices will be able to improve their operations and profitability. This research has provided evidence that if suppliers and consumers offer essential information to the store, they can retain existing customers, so the owner needs to approach both parties because later, there will be an increase in sales of products available at the store. SME owners are expected to have skills in managing the supply chain. On the other hand, it shows that the more the SME attracts, retains, and satisfies consumers, the more the SME can increase its market share, and the growth of the SME becomes better. This research hoped to provide good pictures and information to the owners and stakeholders of the SMEs in East Kotawaringin to pay attention to the importance of implementing SCM practices. SME owners and stakeholders are also expected to receive training from the leading supplier, Pertamina, to apply SCM practices to improve consumers and their operations.

REFERENCES

- Amedofu, M., Asamoah, D., & Agyei-Owusu, B. (2019). Effect of supply chain management practices on customer development and start-up performance. *Benchmarking*, 26(7), 2267–2285. <https://doi.org/10.1108/BIJ-08-2018-0230>
- Berraies, S., & Hamouda, M. (2018). Customer empowerment and firms' performance: The mediating effects of innovation and customer satisfaction. *International Journal of Bank Marketing*, 36(2), 336–356. <https://doi.org/10.1108/IJBM-10-2016-0150>
- Blank, S. (2013). *The Four Steps To The Epiphany: Vol. Second Edition*.
- Cooper, Brant., Vlaskovits, Patrick., & Blank, S. G. (Steven G. (2022). *The entrepreneur's guide to customer development : a "cheat sheet" to The four steps to the epiphany*. B. Cooper and P. Vlaskovitz.
- Elfarmawi, W. (2020). The Effect of Customer Relationship Management System on Customer Satisfaction. *JOURNAL OF SYSTEMS INTEGRATION*, 11(2), 11–16. <https://doi.org/10.20470/jsi.v11i2.391>
- Heizer, J., Render, B., & Munson, C. (2020). *Operations management : sustainability and supply chain management (13th ed.)*. Pearson.
- Iqbal, T. (2020). The effect of operations management practices on the competitive advantages of smes: A mediating role of supply chain management practices. *Uncertain Supply Chain Management*, 8(4), 649–662. <https://doi.org/10.5267/j.uscm.2020.9.001>
- Lee, R. (2021). The Effect Of Supply Chain Management strategy On Operational And Financial Performance. *Sustainability (Switzerland)*, 13(9). <https://doi.org/10.3390/su13095138>
- Özoğlu, B., & Erdemir, M. B. (2021). The Effect of Logistics Performance on Marketing Performance and Customer Satisfaction: A Research on
-

- Manufacturing Companies. *Business & Management Studies: An International Journal*, 9(3), 994–1011. <https://doi.org/10.15295/bmij.v9i3.1860>
- Phan, A. C., Nguyen, H. A., Trieu, P. D., Nguyen, H. T., & Matsui, Y. (2019). Impact of supply chain quality management practices on operational performance: empirical evidence from manufacturing companies in Vietnam. *Supply Chain Management*, 24(6), 855–871. <https://doi.org/10.1108/SCM-12-2018-0445> SUPPLY CHAIN MANAGEMENT
- Saad, N. A., Elgazzar, S., & Mlaker Kac, S. (2022). Linking Practices To Customer Relationship Management Objectives: A Proposed Framework. *Business: Theory and Practice*, 23(1), 154–164. <https://doi.org/10.3846/btp.2022.15475>
- Sajja, G. S. (2021). Impact of Supply Chain Management Strategies on Business Performance. In *International Journal of Computer Applications* (Vol. 183, Issue 38).
- Saragih, J., Tarigan, A., Pratama, I., Wardati, J., & Silalahi, E. F. (2020). The impact of total quality management, supply chain management practices and operations capability on firm performance. *Polish Journal of Management Studies*, 21(2), 384–397. <https://doi.org/10.17512/pjms.2020.21.2.27>
- Sekaran, U., & Bougie, R. (2016). *Research Methods for Business: a skill-building approach* (seventh edition). John Wiley and Sons Ltd. www.wileypluslearningspace.com
- Shetty, V. K. (2019). Impact of Supply Chain Management Practices on Performance of Companies. <http://publishingindia.com/jscms/>
- Sulistyawati, A., & Ridwan, M. (2022, February). Mengulas Perbedaan Agen, Sub Agen, dan Pangkalan LPG. <https://www.solopos.com/>, 1.
- Zhou, H., & Li, L. (2020). The impact of supply chain practices and quality management on firm performance: Evidence from China's small and medium manufacturing enterprises. *International Journal of Production Economics*, 230. <https://doi.org/10.1016/j.ijpe.2020.107816>



© 2023 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY SA) license (<https://creativecommons.org/licenses/by-sa/4.0/>).