THE IMPACT OF SUPPLY CHAIN INTEGRATION ON SUPPLY CHAIN PERFORMANCE

[1*]Jahroni, [2]Moh Mukhsin, [3]Diqbal Satyanegara

[1,2,3]Department of Management, Faculty of Economics and Business, University of Sultan Ageng Tirtayasa - Indonesia

e-mail:
1*5551200123@untirta.ac.id (corresponding author)
[2]moh.mukhsin@untirta.ac.id
[3]diqbal.s@untirta.ac.id

ABSTRACT

The objective of this study is to determine the impact of internal integration, supplier integration, and customer integration on supply chain performance. This research employs a quantitative method and uses a saturated sampling technique by distributing questionnaires to 67 SRC partners in Cilegon City. The analysis method used is SPSS V20. The findings indicate that internal integration, supplier integration, and customer integration positively and significantly impact supply chain performance. The adjusted R-squared value is 0.604, concluding that internal integration, supplier integration, and customer integration influence supply chain performance by 60.4%, with the remaining 39.6% influenced by other variables outside this study. Expanding the data scope and considering other factors are recommended to obtain more representative results. This is crucial for future research to provide a more comprehensive and accurate depiction of supply chain performance dynamics at SRC and in broader contexts.

Keywords: *Internal Integration; Supplier Integration; Customer Integration; Supply Chain Performance*

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INTRODUCTION

According to Muda et al., (2017), in facing ongoing competition in various business sectors, companies must adapt to environmental changes, both from internal and external sources, to increase business growth. In accordance with (Rahman & Martadisastra., 2022) increasing business growth has consequences for raising the desire for sought goods. In order to more rapidly and precisely meet market demand, goods distribution activities are necessary.

According to Mukhsin (2021), Supply Chain Management (SCM) has emerged as a crucial element in increasing efficiency and achieving organizational goals. Many researchers and practitioners are interested in measuring supply chain performance. The importance of this measurement is stated that "without measurement, there will be no improvement". In the view of Piprani et al., (2020) In a highly dynamic market environment, the importance of supply chain integration has been highlighted as an essential foundation for companies to survive. Based on the findings of Nurjanah et al., (2023) Integration is the synthesis of multiple components or processes that might come together to generate In general, take-up can rise and decisions can be effectively assisted with the integration of relationships in each value chain.

Pursuant to Rusmana and Setyawan (2021), successful supply chain integration has an impact on improving supply chain performance which is reflected in increased planning, accuracy and speed of inventory procurement by suppliers. Research by Mukhsin., (2021) shows that there is a strong and favorable correlation between internal integration, supplier integration and customer integration with supply chain performance. Similar findings were also found in research conducted in the cocoa industry, from smallholder plantation businesses in West Sulawesi by Wahyu., (2017), which showed that several elements of supply chain integration, such as supplier, customer, and internal integration, helped to improve supply chain performance. According to Munir et al., (2020) , the components of supply chain integration are three: integration of suppliers, customers, and internal.

Through sustainable business assistance, Sampoerna's cooperation program for traditional retail in Indonesia includes a network of SRC stores aimed at boosting SMEs' competitiveness. It may be simpler for SRC (Sampoerna Retail Community) store owners to exchange business insights, obtain up-to-date information about SMEs, and receive training on effectively and accurately managing their businesses by enrolling in the partnership program (Dwiastuti et al., 2023). This research focuses on one retail shop business, namely the Sampoerna Retail Community (SRC) network in Cilegon City. To ensure the fulfillment of various product needs, SRC stores have developed close cooperation with several different suppliers outside the SRC partnership. The scheme used to supply various goods or products to SRC stores involves 2 to 5 suppliers. This collaborative effort is essential for effectively managing the supply chain, starting from the distribution by suppliers to the SRC partners and finally to the consumers. Additionally, the flow of information between these entities facilitates efficient communication and coordination, which is crucial for maintaining a responsive and agile supply chain.

However, issues have arisen in the supply chain flow, such as delays and discrepancies in order quantities as well as suboptimal product conditions. These challenges hinder the supply chain performance of the business, affecting productivity and reducing operational efficiency in the stores. This is a statement from several SRC partners in Cilegon City. There are two main statements regarding the relationship between the stores and their suppliers. The first concerns the ability to deliver

goods/products on time, with findings indicating a tendency for suppliers to delay product deliveries. The second statement pertains to the suppliers' ability to fulfill orders accurately, with results reflecting frequent mismatches between the ordered quantities and the conditions of the received products, ultimately impeding the stores' operational efficiency.

This research was also driven by research inconsistencies or research gaps. For instance, research carried out by Mufaqih et al., (2017) shows that supply chain performance is positively impacted by internal integration. However, the study found that supplier and customer integration had no effect on supply chain effectiveness. The findings of additional studies carried out by Kumar et al., (2017) showed that integration had a positive and significant correlation with supply chain performance. In addition, according to Hanggara et al., (2019), supplier integration has an impact on supply chain performance, while internal integration and customer integration have no influence on supply chain performance in the study. This study aims to ascertain how the supply chain performance of SRC partners in Cilegon City is affected by internal, supplier, and customer integration.

LITERATURE REVIEW, RESEARCH FRAMEWORK, AND HYPOTHESES

Supply Chain Performance

According to Delic & Eyers., (2020) Performance of the supply chain is a framework that it evaluates and evaluates the performance of supply chain processes to improve market position. Supply chain management evaluation is necessary to create a productive and successful supply chain. In the view of Asrol et al., (2017) Supply chain performance is a measure of how well a business executes its business procedures because it reflects the effectiveness of operational activities, and therefore measuring to regain control and understand the company's performance position is essential as supply chain performance measurement aims to support goal setting, performance evaluation, and strategic, tactical, and operational decision making, which is necessary to identify and resolve problems in the supply chain before their impact becomes significant, while through performance measurement, coordination in enhancements to the supply chain might be made to consumer demands, evaluate overall chain performance, and increase efficient supply chain integration, and in addition measuring supply chain performance is also important for determining the direction of future improvements, creating competitive advantages, and optimizing supply chain models in certain industries.

Several factors play a part in how well the supply chain performs, according to (Mufaqih et al., 2017), namely: (1) Achieve superior performance compared to competitors; (2) Increasing responsiveness in meeting consumer needs and requests, both general and specific; (3) Able to achieve the target number of deliveries on the specified date; and (4) Can collaborate effectively with suppliers.

Internal Integration

According to Ataseven & Nair., (2017), collaboration between different departments inside a business that share information through coordinated processes is known as internal integration, as it involves the cooperation among organizational functions such as marketing, sales, operations, and logistics to meet supply chain goals, and when a business arranges its functional departments' practices, methods, and behaviors into interconnected and coordinated processes to satisfy customer needs, it can be referred to as internal integration. Following the approach of Zhang et al., (2018), internal integration aids in translating improves material flow and incorporates manufacturing

demands into purchase specs and order processing. Poor internal integration results in weak communication, reduced teamwork, and increased intra-company conflicts, thereby complicating integration and communication between suppliers and customers (Vermeulen et al., 2016).

Supplier Integration

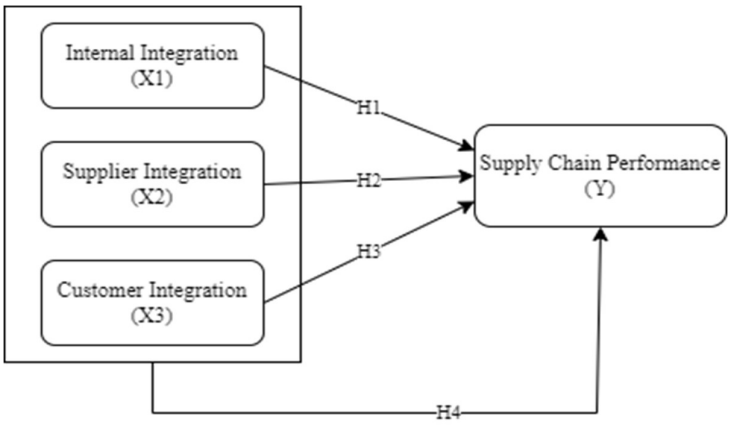
The focus on strategic collaboration between suppliers and manufacturers in managing cross-company business operations, supplier integration, which includes joint product development, project collaboration, information sharing, and strategic collaborations (Yeh et al., 2020). Coordination and information sharing with important suppliers are necessary for supplier integration in order to comprehend their capabilities, limitations, and procedures, with these practices being implemented within production facilities to enhance increased effectiveness in transaction management, product and process design, and planning (Cheng et al., 2016). The aim of he goal of supplier integration is to increase the efficacy and efficiency of the information and product flow between suppliers and manufacturers. This may lead to seamless operations and cohesive supply networks that are challenging for rivals to replicate (Zhang et al., 2018).

Customer Integration

According to Amoako-Gyampah et al., (2020) Integration with customers is a company's focused integration with its clients directly. Company focus refers to organizations such as manufacturers with primary supplier (upstream) and customer (downstream) segments in their supply chain. Following the approach of Shukor et al.,(2020) A company's supply chain is aligned and coordinated with its major customers through customer integration, which includes sharing market data and setting up shared ordering systems using existing networks or communication channels.

Research Framework

The theoretical framework applied in this research is based on the theoretical basis described previously, with the aim of directing the explanation and understanding of the framework so that it can be interpreted with the help of previous researchers' paradigms, forming clear guidelines for carrying out research. So the results of the framework of insight into the influence of independent variables are; Internal Integration (X1), Supplier Integration (X2), Customer Integration (X3) on Supply Chain Performance (Y). The relationship between these variables is illustrated in Figure 1, which presents the conceptual framework of this research :



Source : Contructed by authors, 2024

Figure 1
Research Framework

Hypotheses

The hypothesis in this research is based on the framework:

H1 : Internal integration significantly influences supply chain performance at Sampoerna Retail Community (SRC) Stores in Cilegon City

H2 : Supplier integration significantly influences supply chain performance at Sampoerna Retail Community (SRC) Stores in Cilegon City

H3 : Customer integration significantly influences supply chain performance at Sampoerna Retail Community (SRC) Stores in Cilegon City

H4 : Internal integration, supplier integration, and customer integration significantly influence supply chain performance at Sampoerna Retail Community (SRC) Stores in Cilegon City

METHOD

In this research, the method quantitative research is employed, which requires concrete empirical evidence, carried out by collecting data in numerical form, and then analyzing it using a mathematical or statistical approach (Rohman et al., 2023). In principle, a population is any individual living in a given location that belongs to a group of people, animals, events, or items that will be the focus of any conclusions drawn from the study's final findings. Meanwhile, the sample is a certain portion of the population that has been chosen (Sudrajat., 2020).

The method of saturation sampling was chosen in this study because the population of this study was less than 100. The process of saturated sampling involves taking samples from every member of the population, as mentioned by Hamid & Patra., (2019). The 67 SRC Shop Partners in Cilegon City comprise the study's population. The population data presented here was gathered from Cilegon City survey findings. The data used were primary and secondary data, with data collection techniques including observation, interviews, and questionnaires. Data analysis in this study included validity and reliability tests, classical assumption tests, and multiple linear regression analysis.

RESULTS AND DISCUSSION

Validity Test

According to Olivia and Nurfebiaraning., (2019), only when the collected data and actual data about the study object are similar can the validity test be considered a genuine research result. Validity testing is done to ascertain whether the information gathered after the research is valid using the measuring instrument used (questionnaire). A legitimate questionnaire is one that can provide information about what is intended to be measured. As stated by Olivia and Nurfebiaraning., (2019), to test validity, the calculated r and table r values are compared for df = n-2, n is the number of samples. This research uses validity assessment criteria, namely if (1) r count is greater than r table and r value is positive, then it is considered valid; It is considered invalid if (2) r count is negative or r value is less than r table.

In this research, the author used a validity test calculated using SPSS version 20, if the computed r value was greater than the r table, the question item was deemed valid. with n=67 obtained an r table of 0.2404 with sig. 0.05. The following table displays the validity test results.

Table 1
Validity Test Results

Statement	Korelasi Rank Spearman	Sig (2-Tailed)	R	Sig	Explanation
Internal Integration (IIN)					
IIN1	0,779	0,000	>0,2404	<0,05	Valid
IIN2	0,810	0,000	>0,2404	<0,05	Valid
IIN3	0,747	0,000	>0,2404	<0,05	Valid
IIN4	0,703	0,000	>0,2404	<0,05	Valid
Supplier Integration (IPM)					
IPM1	0,740	0,000	>0,2404	<0,05	Valid
IPM2	0,816	0,000	>0,2404	<0,05	Valid
IPM3	0,735	0,000	>0,2404	<0,05	Valid
IPM4	0,748	0,000	>0,2404	<0,05	Valid
Customer Integration (IPL)					
IPL1	0,757	0,000	>0,2404	<0,05	Valid
IPL2	0,728	0,000	>0,2404	<0,05	Valid
IPL3	0,585	0,000	>0,2404	<0,05	Valid
IPL4	0,757	0,000	>0,2404	<0,05	Valid
Supply Chain Performance (KRP)					
KRP1	0,722	0,000	>0,2404	<0,05	Valid
KRP2	0,699	0,000	>0,2404	<0,05	Valid
KRP3	0,863	0,000	>0,2404	<0,05	Valid
KRP4	0,817	0,000	>0,2404	<0,05	Valid

Source: Data Analyzed, 2024

Table 1 illustrates how the size of the correlation coefficient (r computed) > r table (0.2404) for all items related to the research variables. All of the research instrument's questions can be deemed legitimate in this way.

Reliability Test

Reliability Test is employed to evaluate a research instrument's degree of dependability in each construct. The Cronbach's Alpha test was utilized in the reliability assessment process, utilizing the SPSS 20.0 software. If an instrument's Cronbach Alpha value is greater than 0.6, it is considered good or dependable; if it is less than 0.6, it is considered

not good or reliable (Sudrajat., 2020). The following table displays the reliability test results.

Table 2
Reliability Test Results

Variabel	Cronbach Alpa	Critival Value	Explanation
Internal Integration (IIN)	0,754	0,60	Reliable
Supplier Integration (IPM)	0,756	0,60	Reliable
Customer Integration (IPL)	0,666	0,60	Reliable
Supply Chain Performance (KRP)	0,779	0,60	Reliable

Source: Data Analyzed, 2024

Based on Table 2, Internal Integration (X1) shows a Cronbach's Alpha value of 0.754 > 0.60, indicating that the questionnaire items are reliable. Supplier Integration (X2) records a Cronbach's Alpha value of 0.756 > 0.60, signifying the reliability of the question items. Customer Integration (X3) obtains a Cronbach's Alpha value of 0.754 > 0.60, which also confirms item reliability. Meanwhile, Supply Chain Performance (Y) has a Cronbach's Alpha value of 0.779 > 0.60, indicating that the items are reliable. Therefore, all variables in this study can be considered reliable.

Classic Assumption Test

1. Normality Test

According to (Sahir., 2022) the normality test is conducted to determine whether the independent and dependent variables are normally distributed or not. In this study, the normality test was performed using the Kolmogorov-Smirnov test processed with SPSS version 20. A good regression model should include both graphical and statistical analyses, with the following criteria: if the significance or probability value is greater than 0.05, the hypothesis is accepted, indicating that the data are normally distributed; conversely, if the significance or probability value is less than 0.05, the hypothesis is rejected, meaning that the data are not normally distributed. The test results using the Kolmogrov Smirnov test are shown in the following table:

Table 3
Kolmogorov-Smirnov Normality Test Results

One-Sample Kolmogorov-Smirnov Test

		Unstandarized Residual
N		67
Normal Parametersa,b	Mean	0E-7
	Std. Deviation	1.53969184
	Absolute	.078
	Positive	.078
	Negative	-.055
Kolmogorov-Smirnov Z		.0642
Asymp.Sig. (2-tailed)		.084

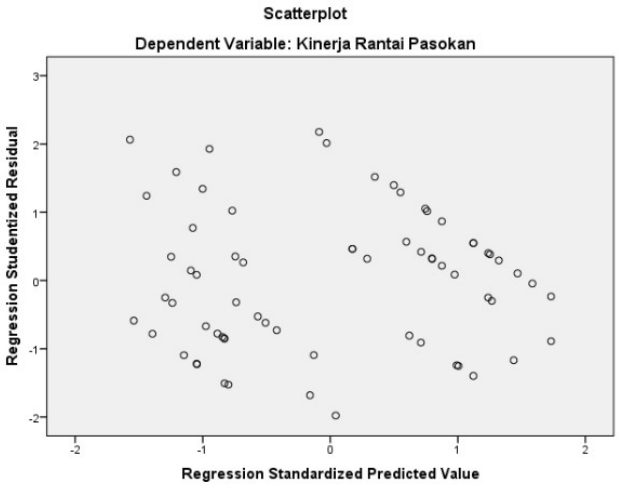
Source: Data Analyzed, 2024

The Asymp.Sig value was derived from the results of the data normalcy test using the Kolmogorov-Smirnov test. With two tails, 0.804. This figure indicates that the asymptotic significance value (2-tailed) is higher than the significance level of 0.05 (0.804

> 0.05). This finding suggests that the data on the teacher performance variable has a normal distribution.

2. Heteroscedasticity Test

In accordance with Juliandi et al., (2016) the heteroscedasticity test is used to determine whether the variance of the residuals from a different observation is unequal in the regression model, It is referred to as homoscedasticity if the residual variation between observations stays constant and heteroscedasticity if the variance varies. The underlying principle of decision making is that heteroscedasticity arises when specific patterns, like existing dots, establish a regular pattern. Heteroscedasticity does not arise if the points are dispersed below and above the number 0 on the Y axis and there is no discernible pattern. The findings of the heteroscedasticity test are as follows:



Source: Data Analyzed, 2024

Figure 2
Heteroscedasticity Test Results with Scatterplot

The aforementioned graphic illustrates how the points are dispersed randomly, without forming an obvious or consistent pattern, and above and below the 0 on the Y axis. Therefore, the regression model does not exhibit heteroscedasticity.

3. Multicollinearity Test

According to (Ahmaddien & Syarkani., 2019) Finding out whether or not there is a very strong relationship between the independent variables is the goal of the multicollinearity test, **as** a regression model is considered to be good if there is not an excessive correlation among the independent variables, and multicollinearity in a model can be evaluated using tolerance and variance inflation factor (VIF) values, where the regression model does not exhibit multicollinearity symptoms when tolerance is greater than 0.1 and VIF is less than 10. The results of the multicollinearity test are shown in the following table:

Table 4
Multicollinearity Test Results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.250	1.671		.150	.882		
	Integrasi Internal	.229	.110	.228	2.087	.041	.504	1.986
	Integrasi Pemasok	.289	.115	.259	2.523	.014	.570	1.755
	Integrasi Pelanggan	.487	.113	.434	4.318	.000	.593	1.686

Source: Data Analyzed, 2024

It is clear from the computation results that there is no multicollinearity issue in the regression model because the tolerance value is over 0.10 and the VIF value is below 10.

Multiple Linear Regression Test

Multiple linear regression analysis is a statistical analysis used to test the relationship between more than one independent variable or estimator variable and one dependent variable or dependent variable. The multiple linear regression test aims to determine whether variable X has a significant effect on variable Y (Zahriyah et al., 2021). The results of the multiple linear regression test are shown in the following table:

Table 5
Multiple Linear Regression Test Results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.250	1.671		.150	.882
	Internal Integration	.229	.110	.228	2.087	.041
	Supplier Integration	.289	.115	.259	2.523	.014
	Customer Integration	.487	.113	.434	4.318	.000

Source: Data Analyzed, 2024

Using the SPSS software, multiple linear regression computations in Table 5 above produced the following outcomes:

$Y = a + b1X1 + b2X2 + b3X3 + e$ ➔ $Y = 0.250 + 0.229X1 + 0.289X2 + 0.487X3 + e$

The interpretation of the regression equation is:

a = The supply chain performance variable will rise or be satisfied when the positive influence of the independent variable increases or has an effect in one unit, as shown by a positive constant value. This indicates that if all independent factors, such as internal integration (X1), supplier integration (X2), and customer integration (X3), remain constant or have a value of 0%, supply chain performance (Y) is equal to 0.250.

b1 = Internal integration variable (X1) influences supply chain performance with a positive beta coefficient of 0.229. The existence of this positive influence shows that the better the internal integration, the greater the supply chain performance. Every 1% increase in internal integration will cause supply chain performance to increase by 0.229 units assuming other variables remain constant.

b2 = Supplier integration variable (X2) influences supply chain performance with a positive beta coefficient of 0.289. The existence of this positive influence shows that the

better supplier integration, the greater the supply chain performance. Every 1% increase in supplier integration will cause supply chain performance to increase by 0.229 units assuming other variables remain constant.
b3 = The customer integration variable (X3) influences supply chain performance with a positive beta coefficient of 0.487. The existence of this positive influence shows that the better customer integration, the higher the supply chain performance. Every 1% increase in customer integration will cause supply chain performance to increase by 0.487 units assuming other variables remain constant.

T Test (Partial)

A partial test to prove the influence of the independent variable on the related variable uses the t test. By comparing the p value (sig-t) with a significance level of 5%, it can be used to conclude whether to reject or accept the hypothesis (Sahir, 2022). The results of the T-test are shown in the following table:

Table 6
Partial Test Results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.250	1.671		.150	.882
	Internal Integration	.229	.110	.228	2.087	.041
	Supplier Integration	.289	.115	.259	2.523	.014
	Customer Integration	.487	.113	.434	4.318	.000

Source: Data Analyzed, 2024

Based on the results of Table 6, It fits the following description:The estimated t value of 2.087, which is bigger than the t table value of 1.998, and the significant value of 0.041 < 0.05 for the internal integration variable (X1) show that H1 is accepted and that internal integration (X1) has a positive and substantial impact on supply chain performance (Y). Supply chain performance (Y) is positively and significantly impacted by supplier integration (X2), as demonstrated by the supplier integration variable (X2), which also has a significant value of 0.014 < 0.05 and a calculated t value of 2.523, which is greater than the t table value of 1.998. These results support the acceptance of H2 in the study. Furthermore, the customer integration variable (X3) has a computed t value of 4.318, which is greater than the t table value of 1.998, and a significant value of 0.000 < 0.05, supporting H3 and indicating that customer integration (X3) has a positive and significant impact on supply chain performance (Y).

F Test (Simultaneous)

The simultaneous impact of the factors supplier, customer, and internal integration on supply chain performance is assessed using the F test. Testing was carried out by comparing Fcount with a significance level of 5% (Ahmaddien & Syarkani, 2019). The following are the test results:

Table 7
Simultaneous Test Results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	257.298	3	85.766	34.534	.000b
	Residual	156.463	63	2.484		
	Total	413.761	66			

Source: Data Analyzed, 2024

Based on table 7, it is known that the Fcount value is 34.534 with a significance of 0.000. At a significance level of 5%, the results are significant because the sig value. 0.000 < 0.05, and the value of Fvalue>Ftable (34.534> 2.75), in this case H4 is accepted. This shows that the variables internal integration (X1), supplier integration (X2) and customer integration (X3) simultaneously influence supply chain performance (Y).

Coefficient of Determination

According to Nuryanti and Satpatmantya (2021), the determination test in this study aims to determine the percentage effect of the independent variable over the dependent variable, the degree to which the independent variable can influence the dependent variable is essentially expressed by the coefficient of determination. The coefficient of determination is obtained by squaring the correlation coefficient, also referred to as R Squared (R2). The results of the determination test using SPSS 20 are shown in the following table:

Table 8
Coefficient of Determination

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.789a	.622	.604	1.576

Source: Data Analyzed, 2024

The supply chain performance (Y) is influenced by internal integration (X1), supplier integration (X2), and customer integration (X3) by 60.4%, according to the results of the determination test above, where the Adjusted R Square value is 0.604. Meanwhile, factors not included in this study had an impact on the remaining 39.6%.

Discussion

The results indicate that internal integration, supplier integration, and customer integration have a positive and significant effect on supply chain performance, both partially and simultaneously. These findings emphasize that the success of supply chain management largely depends on the extent to which all elements within the chain can coordinate and share information effectively.

This result is consistent with the research conducted by Mukhsin (2021), who also found that supplier integration, internal integration, and customer integration have a positive and significant influence on supply chain performance among small and medium-sized enterprises in Banten Province. The present study is also in line with the findings of Rusmana and Setyawan (2021), who concluded that overall supply chain integration has a significant impact on improving supply chain performance. Similar results were reported by Kumar et al (2017) in the context of the food industry in the

United Kingdom, where effective supply chain integration enhanced overall supply chain performance.

Nevertheless, the findings of this study differ from those of Mufaqih et al. (2017), who discovered that supplier and customer integration did not have a significant effect on supply chain performance in the batik industry in Indonesia. This discrepancy is likely due to differences in business characteristics and scale. The batik industry, which is more craft-based and dominated by traditional small-scale enterprises, may not have fully implemented adequate integration systems and information technology. In contrast, the SRC partner network has adopted a more structured management and communication system, making the effectiveness of integration among parties more evident in improving supply chain performance.

CONCLUSION AND SUGGESTION

The results of the study on The Effect of Supply Chain Integration on Supply Chain Performance at Sampoerna Retail Community (SRC) Stores in Cilegon City indicate that internal integration, supplier integration, and customer integration have a positive and significant effect on supply chain performance, both partially and simultaneously.

The concurrent integration of suppliers, customers, and internal resources also has a beneficial and significant impact on the supply chain's performance. This implies that the performance of the supply chain as a whole might be enhanced when these integrations are carried out correctly. When combined, these three forms of integration have a very positive impact on supply chain efficiency. The findings of the determination test indicate that the Adjusted R Square value is 0.604, which suggests that internal integration, supplier integration, and customer integration account for 60.4% of the variation in supply chain performance (Y), with variables not covered in this study accounting for the remaining 39.6%.

Based on the findings of the Case Study on Sampoerna Retail Community (SRC) Stores in Cilegon City, which examined the effects of supply chain integration on supply chain performance, the following recommendations can be considered. First, with the acceptance of all research hypotheses, SRC partners can enhance internal integration by strengthening communication and coordination among teams. Additionally, they are advised to build closer relationships with suppliers and establish more intensive communication with customers to understand their needs and expectations, thereby providing better services. Second, in order to get more representative results and take into account additional elements that might affect supply chain performance, it is advised that future research broaden the scope of the data. This is essential to guarantee that later studies offer a more thorough and precise representation of the dynamics of supply chain performance at SRC and in other contexts.

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