

## The Effect of Supply Chain Management on Operational Performance of Furniture Industry in Jombang Regency

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### **Abstract**

*This study aimed to determine the effect of supply chain management (supplier partnership, information sharing, customer relationship) on the operational performance of the furniture industry in Jombang Regency, and to find out the dominant variables that influenced the operational performance. The population and sample in this study were all furniture business owners in Mojowarno Sub-District, Jombang Regency. The total population was 163 and the total sample was 62 respondents. The data collection was conducted by distributing questionnaires to furniture business owners. In this study, the analytical tools used were scale range, multiple linear regression analysis, and a dominance test that showed that supply chain management with supplier partnership, information sharing, and customer relationship variables significantly influenced the operational performance. The dominant variable influencing operational performance was the customer relationship.*

**Keywords:** *supplier partnership; information sharing; customer relationship; operational Performance*

### **Abstrak**

Penelitian ini bertujuan untuk mengetahui pengaruh manajemen rantai pasok (kemitraan pemasok, berbagi informasi, hubungan pelanggan) terhadap kinerja operasional industri furnitur di Kabupaten Jombang, dan untuk mengetahui variabel dominan yang berpengaruh terhadap kinerja operasional. Populasi dan sampel dalam penelitian ini adalah seluruh pemilik usaha furniture di Kecamatan Mojowarno Kabupaten Jombang. Jumlah populasi 163 dan jumlah sampel 62 responden. Pengumpulan data dilakukan dengan menyebarkan kuisioner kepada pemilik usaha furniture. Alat analisis yang digunakan dalam penelitian ini adalah rentang skala, analisis regresi linier berganda, dan uji dominansi. Hal ini menunjukkan bahwa variabel manajemen rantai pasok dengan kemitraan pemasok, berbagi informasi, dan hubungan pelanggan berpengaruh signifikan terhadap kinerja operasional. Variabel yang dominan mempengaruhi kinerja operasional adalah hubungan pelanggan.

**Kata kunci:** *kemitraan pemasok, berbagi informasi, hubungan pelanggan, kinerja Operasional*

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## INTRODUCTION

Furniture industry competition is getting stricter and grows bigger in Indonesia. Product needs from the furniture industry are increasing; both local and international furniture companies offer many furniture products. To produce qualified products, the company should implement sound and structured supply chain management. Implementing the supply chain management concept is expected for the company to control and organize each input, process, and output. Three supply chain management aspects influence operational performance, i.e., supplier partnership, information sharing, and customer relationship (Chopra & Meindl, 2012).

The furniture industry growth in Jombang Regency is advancing. It is proven by the Furniture Small Medium Enterprises Center in Mojowarno Sub-District, Jombang Regency, displaying craft from wood. Jombang Regency's government supports industries to develop an enterprise and innovate to create each region's featured product by providing training. Entrepreneurs or furniture artisans in Mojowarno Sub-District gather in the association. The association acts as a body to share information and help each other during hard times. Product of the furniture industry is tables, doors, wardrobes, frames, and others. Several furniture industries experience an imbalance between declining raw materials demand from the supplier. Such a condition occurs due to the tough competition in obtaining raw materials, aided by the skyrocketing price and wood quality that does not meet their expectations, mainly teak wood. Besides, late raw materials delivery often forces artisans to wait for their availability or find another supplier. Here is the delivery data of wood materials:

**Table 1.** Late Delivery of Wood Materials from January to December 2019

The Name of the Furniture Industry	Wood Delivery	Late Delivery
UD Dwi Jaya	3 Times	2 Times
UD Yani Indah Jaya	5 Times	7 Times
UD Ecosae	8 Times	3 Times
UD Jaya Mandiri	6 Times	5 Times
UD Langgeng Sentosa	4 Times	7 Times
UD Rizza Jaya Mebel	8 Times	4 Times
UD Berkah Jati Mulyo	9 Times	4 Times
Kembali Jaya	9 Times	12 Times
Kiat Mebel	8 Times	14 Times
UD Jati Mulyo	12 Times	4 Times
Cahaya Indah	9 Times	10 Times
Pendowo Limo	5 Times	7 Times
UD Prasani	4 Times	8 Times
Sobat Mebel	7 Times	6 Times
Abadi Jaya	9 Times	11 Times

Source: Furniture Industry in Mojowarno Sub-District, Jombang Regency

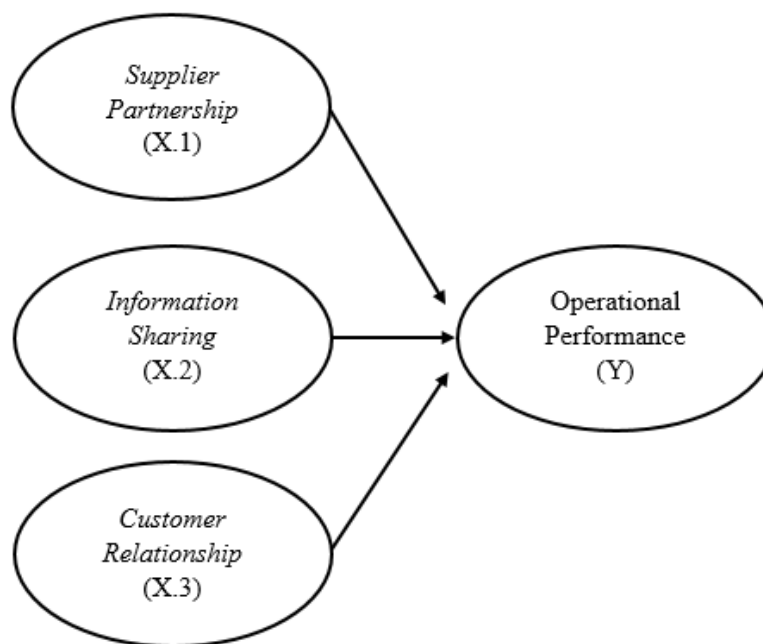
Based on the data above, it is discovered that the furniture industry had late deliveries from suppliers. The condition occurred because of the unscheduled raw materials order and communications gaps. Late delivery will hinder the production process, posing a risk of declining productivity and operational performance. Many furniture producers, especially on a small scale, are complaining about competing with bigger competitors only to get raw materials. Based on the explanation, the author was interested in conducting a study titled "The Effect of Supply Chain Management on Operational Performance of Furniture Industry in Jombang Regency".

## LITERATURE REVIEW

Heizer & Render (2016) defined that a supply chain management integrates all activities in a company from raw materials procurement to convert them to semi-finished goods and finished goods, and delivery to customers. By total coordination from the supply chain, a company must provide the best product and leave customers feeling satisfied. Chopra & Meindl (2012) argued that in an integrated supply chain, several processes are used to measure the supply chain success that influences the operational performance, i.e., supplier partnership, information sharing, and customer relationship. Supplier partnership is the relationship between suppliers and the company in the long-term. This relationship is conducted to improve quality, sustainable repair, and solving problems by including suppliers.

Information sharing is the company's intensity and capacity in interactions to share information with related coworkers concerning a shared business strategy (Chopra & Meindl, 2012). Information shared with business partners or suppliers are strategies, the market condition, and information concerning customers. Business partners in a supply chain share information regularly, cooperate, and understand the final customer's needs. Customer relationship is a collection of practices aiming to manage customer complaints, build a long-term relationship with customers, and improve customer satisfaction (Chopra & Meindl, 2012). Customer relationship is vital in implementing supply chain management. A company with a commitment to maintaining a relationship with its customers will benefit the company.

Operational performance is a management area that focuses on goods or service production activities by using equipment and particular strategies to solve production problems (Daft, 2010). In a manufacturing company environment, operational performance measurement appears to be essential. Operational performance measurement aims to focus on continuous improvement in each activity. According to, (Hansen & Mowen, 2004), three essential aspects are used to measure operational performance, i.e., efficiency, quality, and time.



**Figure 1.** Conceptual Framework

A study by (Ilmiyati & Munawaroh, 2016) revealed that supply chain management significantly affected operational performance. From this study, the hypothesis was:

*H<sub>1</sub>: Supply chain management (supplier partnership, information sharing, customer relationship) affects the operational performance of the furniture industry in Jombang Regency.*

A study (Pratama, 2019) demonstrated that supplier partnership dominantly affected operational performance. Based on this study, hypothesis 2 was:

*H<sub>2</sub>: Dominant supplier partnership affects the operational performance of furniture industry in Jombang Regency*

## RESEARCH METHOD

The study was located in Jombang Regency, particularly in Mojowarno Sub-District. This area is a Furniture Small Medium Enterprises Center of Jombang Regency. Three villages are included in the center i.e., Catak Gayam, Wringinpitu, and Selorejo Villages, which have many furniture producers. The author used a quantitative study type with a descriptive approach to describe study objects or study results (Sugiyono, 2015). Based on the data from Mojowarno Sub-District in 2018, the population in the study was 163 furniture industries in Mojowarno Sub-District included in the Furniture Small Medium Enterprises Center, from Catak Gayam, Wringinpitu, and Selorejo Village. The sample collection utilized the probability sampling technique, i.e., proportionate stratified random sampling using the slovin formula with an error tolerance of 10%. Based on the calculation above, the sample for the study respondents was 62. In determining the sample size of each class, a proportionate allocation was carried out to create a more proportional sample with the following calculation:

**Table 2.** Calculation Sample of Each Class

Village Name	Calculation	The Number of The Furniture Industry (Sample)
Selorejo	$\frac{18}{163} \times 62 = 6.84$	7
Catak Gayam	$\frac{97}{163} \times 62 = 36.89$	37
Wringinpitu	$\frac{48}{163} \times 62 = 18.25$	18
Total		62

This study used the measurement of the supply chain management variable on operational performance. The data obtained was qualitative data converted into quantitative data using the Likert scale. Instrument tests in this study were carried out using validity and reliability test, while data analysis was carried out using scale range and multiple linear regression. The dominant test was conducted to discover the most influential variable in the study.

## RESULT AND DISCUSSION

The instrument validity test result from the supplier partnership, information sharing, customer relationship, and operational performance variables are presented in the table below:

**Table 3.** Validity Test Result

Item	Error Level	$r_{\text{calculation}}$	$r_{\text{table}}$	Note
X1.1		0.861		Valid
X1.2	0.05	0.854	0.245	Valid
X1.3		0.853		Valid
X2.1		0.894		Valid
X2.2	0.05	0.913	0.245	Valid
X2.3		0.844		Valid
X3.1		0.743		Valid
X3.2		0.818		Valid
X3.3	0.05	0.827	0.245	Valid
X3.4		0.719		Valid
X3.5		0.755		Valid
Y1		0.777		Valid
Y2	0.05	0.850	0.245	Valid
Y3		0.862		Valid

Source: Processed Data, 2020

Based on the table above it is discovered that  $r_{\text{calculation}}$  of all instruments  $> r_{\text{table}}$  values, and therefore, all were declared valid. The reliability test result from the supplier partnership, information sharing, customer relationship, and operational performance variables are presented in the table below

**Tabel 4.** Reliability test

Variable	Cronbach's Alpha	Note
Supplier Partnership	0.810	Reliable
Information Sharing	0.856	Reliable
Customer Relationship	0.815	Reliable
Operational Performance	0.774	Reliable

Source: Processed Data, 2020

Based on the table above, it is discovered that all variables Cronbach's alpha were  $> 0.6$ . It is concluded that variable instruments of supplier partnership, information sharing, customer relationship, and operational performance on the study questionnaire were reliable. In other words, data on this study can be trusted. The scale range results of supplier partnership (X1), information sharing (X2), customer relationship (X3), and operational performance (Y) variables obtained from respondents through the questionnaire are as follow:

**Table 5.** Scale Range Test Result of Supplier Partnership

Variable	Question Item	Respondents' Answer					Score Indicator	Assessment Criteria
		VP (1)	P (2)	SG (3)	G (4)	VG (5)		
Supplier Partnership (X1)	X1.1	0	1	1	29	31	276	Very Good
	X1.2	1	0	3	34	24	266	Very Good
	X1.3	1	0	9	29	23	259	Good
Total Score Indicator							801	
Scale Range Average Score							267	Very Good

Source: Processed Data, 2020

The result of the supplier partnership scale range shows the question item X1.1 with a score of 276 in the very good criteria, X1.2 with a score of 266 in the very good criteria, and X1.3 with a score of 259 in the good criteria. From this result, it is included that the supplier partnership was included in the very good criteria.

**Table 6.** Scale Range test Result of Information Sharing

Variable	Question Item	Respondents' Answer					Score Indicator	Assessment Criteria
		VP	P	SG	G	VG		
		(1)	(2)	(3)	(4)	(5)		
Information Sharing (X2)	X2.1	1	0	4	20	37	278	Very Good
	X2.2	1	0	18	15	28	255	Very Good
	X2.3	0	1	8	27	26	264	Good
Total Score Indicator							797	
Scale Range Average Score							265.67	Very Good

The result of the information sharing scale range shows the question item X2.1 with a score of 278 in the very good criteria, X2.2 with a score of 255 in the good criteria, and X2.3 with a score of 264 in the very good criteria. From this result, it is included that information sharing was included in the very good criteria.

**Table 7.** Scale Range Test Result of Customer Relationship

Variable	Question Item	Respondents' Answer					Score Indicator	Assessment Criteria
		VP	P	SG	G	VG		
		(1)	(2)	(3)	(4)	(5)		
Customer Reallionship (X3)	X3.1	0	1	2	44	15	259	Good
	X3.2	0	1	10	37	14	250	Good
	X3.3	0	1	6	54	1	241	Good
	X3.4	0	1	14	37	10	242	Good
	X3.5	0	1	6	39	16	256	Good
Total Score Indicator							1248	
Scale Range Average Score							249.6	Good

The result of the customer relationship scale range shows the question item X3.1 with a score of 259 in the good criteria, X3.2 with a score of 250 in the good criteria, X3.3 with a score of 241 in the good criteria, X3.4 with a score of 242 in the good criteria, and X3.5 with a score of 256 in the good criteria. From this result, it is included that the customer relationship was included in the good criteria.

**Table 8.** Scale Range Test Result of Operational Performance

Variable	Question Item	Respondents' Answer					Score Indicator	Assessment Criteria
		VL	L	M	H	VH		
		(1)	(2)	(3)	(4)	(5)		
Operational Performance (Y)	Y1	1	0	21	39	1	225	High
	Y2	1	0	2	37	22	265	Very High
	Y3	1	0	7	38	16	254	High
Total Score Indicator							744	
Scale Range Average Score							248	High

Source: Processed Data, 2020

The result of the operational performance scale range shows the question item Y1 with a score of 225 in the high criteria, Y2 with a score of 265 in the very high criteria, and Y3 with a score of 254 in the high criteria. From this result, it is included that the operational performance was included in the high criteria. The multiple linear regression analysis results of this study are presented in the table below:

**Table 9.** Multiple Linear Regression Analysis

Model	Unstandardized Coefficients		Standardized Coefficients
	B	Std. Error	Beta
(Constant)	0.653	1.241	
Supplier Partnership (X1)	0.266	0.116	0.291
Information Sharing (X2)	0.218	0.076	0.283
Customer Relationship (X3)	0.254	0.088	0.345

From the multiple linear regression equation above, it is discovered that the constant value was 0.653, meaning if supplier partnership (X1), information sharing (X2), and customer relationship (X3) variables equal zero, the operational performance is 0.653.

**Table 10.** Determination Coefficient Result

R	R Square	Adjusted R Square	Std. Error of The Estimate
0.784	0.615	0.595	1.06177

Source: Processed Data, 2020

From the adjusted R Square table, it is discovered that supplier partnership (X1), information sharing (X2), and customer relationship (X3) variables could explain the operational performance (Y) variable of 59.5% while other variables explained the 40.5% rest. The t-test result is presented in the table below:

**Table 11.** T-Test Result

Research Hypothesis	T-calculation	T-table	Decision	Conclusion
Supplier Partnership (X1) on Operational Performance (Y)	2.291	1.999	H <sub>1</sub> Accepted	Significant
Information Sharing (X2) on Operational Performance (Y)	2.861	1.999	H <sub>1</sub> Accepted	Significant
Customer Relationship (X3) on Operational Performance (Y)	2.892	1.999	H <sub>1</sub> Accepted	Significant

Source: Processed Data, 2020

Based on hypothesis test results with a significance value of 0.05 and  $t_{table}$  1.999, it is discovered that supplier partnership (X1), information sharing (X2), and customer relationship (X3) partially significantly affected operational performance. The F-test result is presented in the table below:

**Table 13.** F-Test Result

Dependent Variable	Independent Variable	Value		Sig.
		F-calculation	F-table	
Operational Performance (Y)	Supplier Partnership (X1)	30.932	2.76	0.000
	Information Sharing (X2)			
	Customer Relationship (X3)			

Based on the F-test result above, it is discovered that  $F_{calculation}$  was bigger than  $F_{table}$  (30.932 > 2.76) with a significance level of < 0.05, i.e., 0.000. Based on the simultaneous test decision making in this multiple linear regression analysis, it was concluded that *supplier partnership (X1), information*

*sharing* (X2), and *customer relationship* (X3) variables if tested together, significantly affected operational performance (Y).

## **DISCUSSION**

Supplier partnership of the furniture industry was included in the very good category. It shows that the relationship between companies and suppliers was very good, where companies always include suppliers in producing the qualified product. Besides, a very good supplier partnership will improve operational performance. Although supplier partnership was very good, it did not necessarily mean that companies could solve all their problems with the supplier, including the problem of late raw materials delivery due to bad weather or other troubles during the delivery process. This possible problem caused companies to not only depend on one supplier and always look for other suppliers to ensure the continuity of the production process and finish all customer's demands promptly. Information sharing of the furniture industry was included in the very good category. It shows that companies always share information with business partners or suppliers about strategies, the general market condition, and information concerning customers. This information exchange affected the business to be better and more qualified, improve, competitiveness, and competitive advantages.

The customer relationship of the furniture industry was included in the good category. It shows that the relationship between companies and customers was good, where companies always strive to provide the best service for customers and companies continue providing qualified products to satisfy customers by giving critics and suggestions. Critic and suggestions will ease companies to evaluate and improve problems complained by customers. The operational performance of the furniture industry was included in the good category, where companies always provide the best quality and service to customers. Companies also try to have efficient activities from input to output. Although sometimes late raw materials delivery occurred, companies always try to finish demand in time. Based on the study's analysis result, it is discovered that the supplier partnership variable significantly affected operational performance. Because of the increasing effect of supplier partnership on operational performance, if the supplier partnership was excellent, operational performance became more productive. A good relationship between companies and suppliers can enhance business strategies and operational performance to achieve targeted goals. Creating a strategy by partnering with the supplier will ease companies to work effectively and productively in creating products that improve operational performance. This study result reinforces a study by (Ilmiyati & Munawaroh, 2016), asserting that the better the supplier partnership, the better the operational performance.

Based on the study's analysis result, it is discovered that the information-sharing variable significantly affected operational performance. Because of the increasing effect of information sharing on operational performance, if the information sharing was excellent, operational performance became more productive. Companies always consider information sharing implementation in the supply chain management flow because an improvement in supply chain management flow will improve operational performance. Information exchange can be used as a source for enhancing competitiveness. This study result strengthens a study of (Sugiharto et al., 2017), stating that the better the information sharing, the better the operational performance. Based on the study's analysis result, it is discovered that the customer relationship variable significantly affected operational performance. Because of the increasing effect of customer relationships on operational performance, if the customer relationship was excellent, operational performance became more productive. Companies always build a good relationship with their customers because they will help companies improve their products. Companies' methods to provide qualified products for their customer are discovering customer demands in the present and future times, listening to customers' critics and suggestions, and evaluating such critics and suggestions.



It is executed to improve operational performance; hence, producing qualified products and create values for customers. This study result reinforces a study by (Ilmiyati & Munawaroh, 2016), stating that the better the customer relationship, the better the operational performance.

Based on the dominant test analysis result, it is discovered that customer relationship (X3) possessed the most dominant effect on operational performance. From this study, customer relationships had a vital role in a company's operational performance. The relationship between the company and the customer was beneficial for the company. It eased the company to differentiate its products to compete with competitors through critics and suggestions from customers to repair and improve product quality. This study result reinforces a study by (Pratama, 2019), arguing that the customer relationship dominantly affected operational performance.

## CONCLUSION

The study result concluded that supply chain management with supplier partnership and information sharing variables was implemented well, meaning that companies had implemented supplier partnership and information sharing very well and improved operational performance. Customer relationships had been implemented in a good way; however, companies had not evaluated customer satisfaction by providing critics and suggestions. Supply chain management with supplier partnership, information sharing, and customer relationship variables significantly affect the furniture industry's operational performance in Jombang Regency. It was caused by the increasing effect of the three variables on operational performance; thus, when supplier partnership, information sharing, and customer relationship variables were excellent, operational performance became more effective and productive. The most dominant variable on the operational performance of the furniture industry in Jombang Regency was the customer relationship, meaning that the customer relationship variable had an essential role in a company's operational performance.

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