

The Effect of Total Quality Management and Supply Chain Management on Operational Performance (Study on UKM Sanan Tempe Chips Malang City)

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Abstract

This study aims to determine the effect of total quality management, and supply chain management on operational performance. This research was conducted on MSME owners of Sanan tempeh chips in Malang City with a total sample of 72 respondents. Data collection uses a questionnaire and a Likert scale to measure each item on the variable. The analytical method uses multiple linear regression analyses. The results of this study show that total quality management has no significant effect on operational performance, while supply chain management has a significant effect on operational performance. The simultaneous test proves that total quality management and supply chain management have a simultaneous effect on operational performance.

Keywords: *Total quality management, supply chain management, operational performance*

Abstrak

Penelitian ini bertujuan untuk mengetahui pengaruh *total quality management, supply chain management* terhadap kinerja operasional. Penelitian ini dilakukan pada UMKM pemilik keripik tempe Sanan di Kota Malang dengan jumlah sampel sebanyak 72 responden. Pengumpulan data menggunakan kuesioner dan skala likert untuk mengukur setiap item pada variabel. Metode analisis menggunakan analisis regresi linier berganda. Hasil penelitian ini menunjukkan *total quality management* tidak berpengaruh signifikan terhadap kinerja operasional, *supply chain management* berpengaruh signifikan terhadap kinerja operasional. Uji simultan membuktikan bahwa *total quality management* dan *supply chain manajemen* berpengaruh secara simultan terhadap kinerja operasional.

Kata Kunci: *Total Quality Management, Supply Chain Management, Kinerja Operasional*

INTRODUCTION

Increasing business competition in Indonesia today has made business owners look for ways to make their products known and of high quality in the eyes of consumers. The application of good company operations management practices will make the company able to compete and excel. It can identify and respond to dynamic environmental changes by improving its operational functions to achieve operational performance (Roz et al., 2023).

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Operational performance, namely the ability of a company to achieve the effectiveness of the use of human resources working on it (Asnawi, 2019). In general, the goal of a company is to make a profit and increase its value over the long term. Competition in the business world is not only in terms of company productivity or how low the price level of products and services is, but rather in the quality of products or services, comfort and accuracy, and speed of time in achieving them. Therefore, to maintain and control quality within the company, it is necessary to apply total quality management.

TQM is a strategic tool used by business people to encourage everyone to focus on quality so that it can help organizations build a competitive advantage (Hondro et al., 2021). In addition to the implementation of TQM, the application of supply chain management is also needed to achieve good operational performance. Supply chain management is the management of the flow of goods and services which includes all processes that transform raw materials into finished products (Lukman, 2021). The aim of implementing SCM is to structure a supply chain to maximize competitive advantage and provide benefits and satisfaction for end consumers.

Malang City is a city known for its culinary tourism. This city also has a variety of unique souvenirs for tourists visiting Malang. One of the typical souvenirs from Malang is tempeh chips. Tempe chips are processed snacks made from soybean tempeh which are thinly sliced and then fried in seasoned flour. A souvenir center that is quite famous in Malang City, namely Sanan tempeh chips. This Sanan industrial center sells various kinds of souvenirs typical of Malang City such as tempeh chips, processed fruit chips, and various other snacks. Sanan is an area located in Purwantoro Village, Blimbing District, Malang City.

The activities of total quality management and supply chain management carried out by UMKM Sanan tempeh chips experienced several problems in the production process. Based on the researcher's interview with Mr. Arif, chairman of the Sanan Tempeh Chips Association, the quality of soybeans in MSMEs is uncertain which affects the taste and quality of the product. As well as the need for knowledge of MSME employees in the production process about the tempeh chip frying technique which will affect the quality and neatness of MSME products.

In connection with the above phenomena, it can be assumed that the constraints that occur in UMKM Tempe Sanan Chips are related to total quality management and supply chain management which have not been implemented optimally by UMKM. Based on the background that has been described, the authors are interested in conducting thesis research with the title "The Influence of Total Quality Management and Supply Chain Management on Operational Performance (Study on UKM Sanan Tempe Chips Malang City)".

LITERATURE REVIEW

Operational performance is the ability of manufacturing companies to produce and deliver products to customers. Broadly speaking, operating performance can be interpreted as an achievement resulting from the transformation of inputs into outputs as measured by standards of success in achieving predetermined goals (Labdhagati, 2017). According to Lestari et al., (2021), the measurement of operational performance consists of quality, delivery precision, waste treatment, frequency of occurrence of defective goods, procurement of supplies, and production cost-effectiveness. Quality is a dynamic condition related to products, services, and processes that meet what is expected. Accurate delivery and guaranteed goods ordered by consumers safely until they reach their destination are the spearheads of the business so that they can still gain consumer trust and loyalty.

Waste processing is the management of waste from production. Waste or trash is also a material that is not valuable, but can be reprocessed to become goods that have value or benefits. Defective goods are the result of production that is not by the quality standards applied but can still be repaired at a certain cost. Inventory in the industry is a stock of raw materials, goods in process, and finished goods. Effectiveness is a condition where the company can realize the goals that have been set. An effectiveness value starts with how a company runs a control. Control is achieved by comparing the plan and its implementation so that deviations can be determined. These deviations are used as a basis for evaluating future improvements.

Total quality management is overall quality management, meaning that the product is the result of the activities of all the components involved. Component involvement is not limited to the company but also includes suppliers and consumers (Utama et al., 2019). According to Ibrahim & Rusdiana (2021), there are ten characteristics in TQM, as follows: customer focus, obsession with quality, the quality set, scientific approach, long-term commitment, teamwork, continuous system improvement, controlled freedom, unity of purpose, employee engagement, and empowerment. External customers determine the quality of products or services delivered to them, while internal customers play a major role in determining the quality of people, processes, and the environment associated with products or services.

The organization must be obsessed with meeting or exceeding what is specified. Designing work in the process of making decisions and solving problems related to the work that is designed, is a scientific approach that is indispensable in the application of TQM. In conducting business, a new corporate culture is needed. Therefore, long-term commitment is very important to carry out cultural changes so that the implementation of TQM can run successfully. In organizations that implement TQM, teamwork, partnerships, and relationships are forged and fostered both among company employees and with suppliers, government agencies, and the surrounding community. Improve existing systems so that the quality produced can be increased. Education and training.

Education and training are fundamental factors. Everyone is expected and encouraged to continue learning so that companies can improve their technical skills and professional expertise. Employee involvement and empowerment in decision-making and problem-solving can increase employee responsibility for the decisions made. This element can also add insight and views to a decision because there are more parties involved. Every effort can be directed toward the same goal. However, this does not mean that there must always be an agreement between management and employees regarding wages and working conditions. Empowerment is not just involving employees, but also involving them by making a real impact.

Supply chain management is an integrative method or approach for managing the flow of products, information, and money in an integrated manner involving parties from upstream to downstream consisting of suppliers, factories, distributors, shops or retailers, and logistics services (Utama et al., 2019). According to Lestari et al., (2021), processes in an integrated supply chain are Strategic Supplier Partnerships, Customer Relations, and Information Sharing. Strategic supplier partnerships are long-term relationships between the company and the supplier. A supplier partnership strategy will enable companies to effectively partner with several suppliers who are willing to share responsibility for product creation and success. Customer relationships are a set of practices whose goal is to manage customer complaints, build good long-term relationships with customers, and increase customer satisfaction. Information sharing refers to the extent to which information is communicated to the company's business partners. By exchanging information between members of the supply chain, this information can be used as a source of competitive advantage.

Based on the problem formulation and theoretical explanation above, the conceptual framework is as follows:

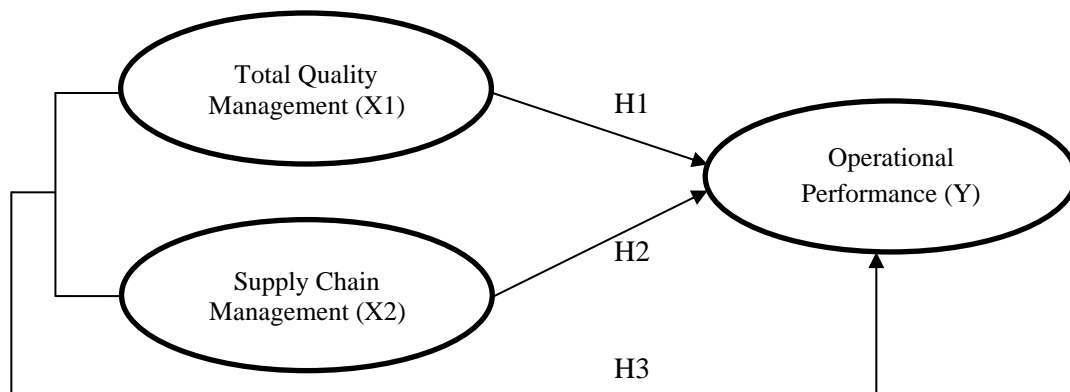


Figure 1. Research Framework

RESEARCH METHODS

This research was conducted at the Sanan tempeh chip MSME industry center located in Purwantoro, Blimbing, Malang City. This type of research uses explanatory research, through a quantitative approach. The population and sample in this study included all MSME owners of Sanan tempeh chips in Malang who were active and registered with the Sanan tempeh chips association, namely 72 UMKM. Data collection techniques are used by distributing questionnaires to respondents related to research variables. This research uses multiple linear regression analysis. The stages in this study were to test the research instruments, namely the validity test and reliability test, the classical assumption test, namely the normality test, the multicollinearity test and the heteroscedasticity test, the hypothesis test with the t-test and f-test.

RESULTS AND DISCUSSION

The research results are declared valid if the value of $r\text{-count} \geq r\text{-table}$. The $r\text{-table}$ value is obtained from the calculation of the degree of freedom ($df = n - 2$, ($df = 72 - 2 = 70$), and the $r\text{-table}$ value with an alpha significance level of 5% is 0.235. The results of the validity test can be seen in the following table:

Table 1. Validity Test Results

Variable	Items	r count	r table 5%	Information
Total Quality Management (X1)	X1.2.2	0.321	0.235	Valid
	X1.4.1	0.516	0.235	Valid
	X1.5.1	0.247	0.235	Valid
	X1.5.2	0.527	0.235	Valid
	X1.5.5	0.446	0.235	Valid
	X1.6.2	0.393	0.235	Valid
	X1.7.1	0.333	0.235	Valid
	X1.7.2	0.387	0.235	Valid
	X1.7.3	0.286	0.235	Valid
	X1.7.4	0.378	0.235	Valid
X1.8.1	0.552	0.235	Valid	
X1.10.1	0.425	0.235	Valid	

Supply Chain	X2.1.1	0.564	0.235	Valid
Management	X2.2.1	0.403	0.235	Valid
(X2)	X2.2.2	0.542	0.235	Valid
	X2.3.1	0.510	0.235	Valid
	X2.3.2	0.703	0.235	Valid
Operational	Y.1.1	0.488	0.235	Valid
Performance	Y.1.2	0.488	0.235	Valid
(Y)	Y.1.3	0.546	0.235	Valid
	Y.1.4	0.328	0.235	Valid
	Y.1.5	0.513	0.235	Valid
	Y.2.1	0.476	0.235	Valid
	Y.2.2	0.553	0.235	Valid
	Y.3.1	0.409	0.235	Valid
	Y.4.1	0.413	0.235	Valid
	Y.5.1	0.449	0.235	Valid
	Y.6.1	0.305	0.235	Valid

Source: Data processed (2023)

Considering the above table, it can be seen that the validity test of the total quality management, supply chain management, and operational performance variables contains 28 items showing valid results measured from the r-count value which is greater than the r-table value, which is 0.235. A variable is declared reliable if the Cronbach alpha value is greater than 0.6. The results of the reliability test can be seen in the following table:

Table 2. Reliability Test Results

Variable	Coefficient Cronbach Alpha	Information
Total Quality Management(X1)	0.642	Reliable
Supply Chain Management(X2)	0.698	Reliable
Operational Performance (Y)	0.694	Reliable

Source: Data processed (2023)

Derived from the aforementioned table, it can be seen that all variables have a Cronbach alpha coefficient value greater than 0.6. This proves that the results of this study are deemed reliable. Normality testing is carried out using the Kolmogorov-Smirnov test, where if the significance value is > 0.05 , the data has a normal distribution. The normality test results can be seen in the following table:

Table 3. Normality test results

Asymp Result Value. Sig (2-tailed)	Significance Limit	Information
0.200	0.05	Normal

Source: Data processed (2023)

Given the data in the aforementioned table, the Kolmogorov Smirnov test results show that the Asymp. Sig. (2-tailed) of 0.200 where the value is greater than 0.05. This shows that the data has a normal distribution. The multicollinearity test criteria can be known from the tolerance value and the variance factor (VIF) value. If the VIF value is < 1 or the tolerance value is > 0.10 , it can be concluded that the data is free from multicorrelation. The results of the multicollinearity test can be seen in the following table:

Table 4. Multicollinearity Test Results

Variable	Tolerance	VIF	Information
Total Quality Management	0.947	1.057	There is no multicollinearity
Supply Chain Management	0.947	1.057	There is no multicollinearity

Source: Data processed (2023)

Considering the above table, it can be seen that the tolerance value for each variable is 0.947 and the VIF value is 1.057. This shows that the tolerance value is greater than 0.10 and the VIF value is less than 10, so it can be said that there is no multicollinearity in the regression model in this study. Tests in this study used the Glesjer test through the SPSS program on the basis, that if the significant value is <0.05 , it can be said that there are symptoms of heteroscedasticity. The following are the results of the Glejser test:

Table 5. Glejser Test Results

Variable	Significance	Information
Total Quality Management	0.346	There is no heteroscedasticity
Supply Chain Management	0.113	There is no heteroscedasticity

Source: Data processed (2023)

Derived from the aforementioned table, it can be seen that the test results of the total quality management variable obtained a significance value of 0.346, and supply chain management obtained a significance value of 0.113 where both significance values were greater than 0.05. This shows that in the regression model of this study, there were no symptoms of heteroscedasticity.

Table 6. Multiple Linear Regression

Model	Unstandardized Coefficient	
	B	Sig
Constant	28,031	0.000
Total Quality Management	0.194	0.062
Supply Chain Management	0.403	0.045

Source: Data processed (2023)

The interpretation of the results of the multiple linear equations above is as follows: a) A constant value of 28.031 with a significance level of 0.000 indicates that the independent variables are considered constant. b) The total quality management variable (X1) has a regression coefficient of 0.194, which means that X1 has a positive and significant effect of 0.062. This shows that if MSMEs implement total quality management, operational performance will increase by 0.194. c) The supply chain management variable (X2) has a regression coefficient of 0.403, which means that X2 has a positive and significant effect of 0.045. This shows that if MSMEs implement supply chain management, operational performance will increase by 0.403.

Table 7. T Test Results

Variable Relations	T count	T table	Significance	Information
X1 against Y	1,894	1,996	0.062	Not significant
X2 against Y	2,043	1,996	0.045	Significant

Source: Data processed (2023)

In light of the table provided above, it can be seen the results of each hypothesis between the variables described as follows: (total quality management on operational performance) The effect of the total quality management variable on operational performance produces a Tcount of 1.894 which is smaller than the Ttable value of 1.996 and a significance value of 0.062 is obtained which is greater than 0.05. These results indicate that the total quality management variable partially has a positive but not significant effect on operational performance. (supply chain management on operational performance) The effect of the relationship between supply chain management variables on operational performance produces a Tcount of 2.043 which is greater than the Ttable value of 1.996, and a significance value of 0.045 is obtained which is less than 0.05. These results indicate that the supply chain management variable partially has a significant positive effect on operational performance.

Table 8. Test Results F

Variable Relations	F Count	F table	Significance	Information
X1 and X2 against Y	5,045	3,128	0.009	Significant

Source: Data processed (2023)

Considering the information presented in the table above, it can be seen from the hypothesis between the variables described that the influence of the total quality management and supply chain management variable relationships on operational performance produces an f-count of 5.045 which is greater than the Ftable value of 3.128 and a significance value of 0.009 is obtained which is smaller than 0.05. These results indicate that the total quality management and supply chain management variables simultaneously have a significant positive effect on operational performance.

The total quality management variable partially has a positive and insignificant effect on operational performance, which means that if the implementation of TQM in Sanan tempe chips MSMEs is implemented as a whole, then operational performance will be able to increase even though it will not have a big impact. This shows that if Sanan tempe chips MSMEs pay more attention to education and training aspects, employees will more easily follow the directions given by MSMEs in carrying out the production process so that they can reduce the frequency of defective goods, and improve operational performance.

Supply chain management variable partially has a significant effect on operational performance, which means that MSMEs can carry out good operational performance. This is proven by good relationships with customers, and the provision of facilities for interaction. The results of this research are supported by previous research conducted by Fitrianto et al., (2016) and Latuconsina et al., (2020) which stated that dimensions in supply chain management have a positive effect on operational performance.

The relationship between total quality management and supply chain management variables on the operational performance of Sanan tempe chips MSMEs simultaneously has a significant effect on

operational performance. This is proven by MSMEs that pay attention to product cleanliness and quality. By increasing the application of SCM and TQM in a business, higher operational performance will also be obtained (Labdhagati, 2017).

CONCLUSION

The conclusions from this study can be described as total quality management which has a positive but not significant effect on the operational performance of UMKM Sanan tempeh chips. These results indicate that the better the total quality management, the operational performance of MSMEs will increase, although it will not have a greater impact. Supply chain management has a positive and significant effect on the operational performance of Sanan tempeh chips SMEs. These results indicate that the better the MSME supply chain management, the better the operational performance. Total quality management and supply chain management affect the operational performance of UMKM Sanan Tempeh chips.

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