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Exploring the Influence of Total Quality Management in Putra Bali Rattan Furniture Industry

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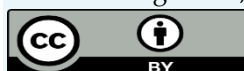
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Abstract: The globalization of the rattan furniture industry has heightened competition, presenting operational challenges for Putra Bali Rattan Furniture. Delays in raw material procurement have led to unmet customer expectations, hindering the implementation of Total Quality Management (TQM) principles and impacting operational efficiency. This study analyzes the influence of TQM indicators—customer satisfaction, employee empowerment, continuous quality improvement, and fact-based management—on operational performance in the Mayang District, Jember Regency. Using a mixed-methods approach, the findings reveal that customer satisfaction, employee empowerment, and continuous quality improvement positively and significantly enhance operational performance. Conversely, fact-based management negatively affects performance. Interviews corroborate these results, highlighting improvements in customer satisfaction aligning with operational performance gains. These findings emphasize the importance of prioritizing customer-centric and quality-driven strategies for operational success in competitive markets.

Keywords: Customer Satisfaction, Employee Empowerment, Continuous Quality Improvement, Fact Based Management, Operational Performance



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1. Introduction

Operations management is developing very rapidly, especially when it is associated with innovation and new technology applied in business operations. Therefore, many companies prioritize operations management aspects as a strategic model in competing with other companies. Operations management is closely related to the company's efforts to make continuous improvements to increase quality, productivity and customer satisfaction. Global competition makes demands for excellence in several things, such as quality, product development, and so on. The internet has also accelerated the globalization of business which has changed the way companies operate in meeting consumer expectations. Operations strategy must extend across operations functions. The way companies survive and compete is by using strategies that help the business operate sustainably. To produce the best quality, continuous improvement efforts are needed in employee capabilities and production processes. The best solution to improve these components is to implement Total Quality Management (TQM).

The TQM concept seeks to provide a quick and precise response to every change that occurs in a company, whether changes driven by external or internal forces. Companies that apply the concept of total quality management can ultimately increase company profits by doing the right thing the right way the first time and every time (Widyabakti et al, 2022). Companies can improve their competitive position so that their market share becomes larger and their selling prices can be higher. On the other hand, companies can also increase output that is free from damage through quality improvement efforts (Tjiptono & Diana, 2001). It is important for companies to implement TQM so that the operational performance of the company/organization can continuously obtain the best product quality. If the TQM pillar in a company can be implemented well, it will benefit by increasing operational performance (Islamy, 2017). (Carton and Hofer, 2006) operational performance can be measured using measurements such as market share, new product launches, product/service quality, marketing effectiveness, and customer satisfaction. So when the implementation of TQM can be carried out optimally, the implementation of operational performance in the company can also be carried out well.

However, the situation in the Putra Bali Rattan Furniture industry is currently feeling the impact of operations management challenges, namely globalization, which has caused increasingly tighter competition between countries. Several problems that arise at Putra Bali Rattan, such as delays in rattan raw materials, cause consumer expectations for rattan furniture products to not be met, so that one of the basic principles in TQM, namely customer satisfaction, cannot be met. This also has an impact on the company's operational performance which becomes inefficient. The number of sales in 2023 will vary. The number of sales in January was 180 units, smaller than in February, which increased by 79.9% (230 units), then increased rapidly by 100%, where 288 units were sold in March. Then it experienced a decline of 75%, namely only 216 units were sold. Similar to the previous month, May experienced a decrease of 50% (144 units). Following in June it was 37.5% (108 units), and in July it decreased again by 25% (72 units). This is due to delays in raw materials which cause the production process to stop so that operational performance is not optimal which ultimately has an impact on customer satisfaction and decreased sales.

Apart from the main problems caused by delays in raw materials, the process of drying rattan products which utilize solar heat also experiences obstacles during the rainy season. This is an obstacle, because the drying process should be dried in the sun for a day in sunny weather, but it can take longer. (Putra Bali Rattan Furniture Document). Based on the background above, the author's formulation of the problem is that this industry has a fairly high level of competition with several problems in implementing its operations management, thus encouraging companies to look for new strategies. The aim of this research is to determine the effect of total quality management with 4 variables, namely customer satisfaction, employee empowerment, continuous quality improvement, and management based on facts on operational performance.

2. Materials and Methods

This research uses a combination research approach or often called mix methods, while for data collection the data collection method is questionnaires and interviews and for analysis techniques using regression analysis. In processing research data, researchers used the SPSS version 22 application. The selection and use of research methods has a huge influence on the research that will be carried out based on the research subject. Researchers use methods that are considered most relevant to the subject of the research, namely data collection and analysis techniques mentioned above. According to Croswell (2009), a combination method is a research approach that combines or connects quantitative and qualitative research methods. Meanwhile, Mertens (2010) states that combination research is research that collects and analyzes data, interacts findings, and draws inferential conclusions using two quantitative and qualitative research approaches or methods in one study. (Subagyo, 2020) mix methods have realistic and pragmatic characteristics where the methods and institutions in research are flexible and flexible, which in this method complements the shortcomings of quantitative and qualitative methods.

In this research, the population was 65 employees of the Putra Bali Rattan Furniture Industry. The sampling technique used was a saturated sampling technique, which is a sampling technique that does not require a prior selection procedure, which means that the samples taken in this research were the entire population, namely the Putra Bali Rattan Furniture Industry employees, totaling 65 people. The data collection technique used by researchers in this research is using a survey method with a questionnaire distribution technique where a number of written questions are asked to respondents and using interview techniques to obtain an overview of the implementation of TQM at Putra Bali Rattan Furniture. This research uses statistical techniques because the data taken is quantitative data. Meanwhile, the data analysis technique used is the classical assumption test of multiple linear regression. Yuliara (2016) multiple linear regression is an equation model that explains the relationship between one dependent variable/response (Y) and two or more independent variables/predictor (X1, X2, ...Xn). So multiple linear regression is an analysis of the relationship between one dependent variable and two or more independent variables.

Classic Assumption Test by carrying out Normality Test, Multicollinearity Test and Heteroscedasticity Test. This research test used a multiple regression analysis model. The multiple regression model aims to predict the size of the dependent variable using independent variable data whose size is already known (Santoso, 2004). To test the hypothesis the tool used is multiple regression. In using the multiple regression test tool, several analyzes are used, namely: the t statistical test and the determination test (R²).

3. Results

Table 1. Quantitative Descriptive Test Results

	N	Minimum	Maksimum	Mean	SD
Total X1	65	8	10	35,88	3,37
Total X2	65	7	10	43,01	5,62
Total X3	65	9	10	28,54	1,5
Total X4	65	6	9	30,04	4,62
Total Y	65	8	10	72,07	6,59
Valid	65				

Table 2. Validity Test

Variable	Indicator	r count n=65	r table	Information
Customer satisfaction	KP 1	0,397	0,244	Valid
	KP 2	0,443	0,244	Valid
	KP 3	0,525	0,244	Valid
	KP 4	0,466	0,244	Valid
Employee Empowerment	PK 1	0,390	0,244	Valid
	PK 2	0,420	0,244	Valid
	PK 3	0,564	0,244	Valid
	PK 4	0,634	0,244	Valid
	PK 5	0,428	0,244	Valid
Quality Improvement Sustainable	PMB 1	0,510	0,244	Valid
	PMB 2	0,420	0,244	Valid
	PMB 3	0,440	0,244	Valid
Management Based on Facts	MBF 1	0,368	0,244	Valid
	MBF 2	0,340	0,244	Valid
	MBF 3	0,352	0,244	Valid
	MBF 4	0,418	0,244	Valid
Operational Performance	KO 1	0,403	0,244	Valid
	KO 2	0,379	0,244	Valid
	KO 3	0,377	0,244	Valid
	KO 4	0,403	0,244	Valid
	KO 5	0,427	0,244	Valid
	KO 6	0,484	0,244	Valid
	KO 7	0,472	0,244	Valid
	KO 8	0,476	0,244	Valid

Based on the validity test on the 65 samples above, it shows that all items or questions produced a value greater than the r table value, namely 0.244. The statement in this research is declared valid.

Table 3. Reliability Test

	Cronbach's Alpha	Standart Cronbach's Alpha	Information
Customer satisfaction	0,815	0,6	Reliabel
Employee Empowerment			
Continuous Quality Improvement			
Management Based on Facts			
Operational Performance			

Based on the table above, it can be seen that the Cronbach's Alpha value which has been combined into one is greater than 0.6 so that all statements in the research questionnaire are declared reliable/reliable.

Classic Assumption Test Results

Table 4. Normality Test

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		65
Mean		0E-7
Normal Parameters ^{a,b}	Std. Deviation	4.54892283
Most Extreme Differences	Absolute	.120
	Positive	.067
	Negative	-.120
Kolmogorov-Smirnov Z		.964
Asymp. Sig. (2-tailed)		.311

a. Test distribution is Normal.

b. Calculated from data.

The normality test results are above the Asymp value. Sig. (2-tailed) shows a figure of 0.311, thus this value is greater than 0.05 and it can be stated that the data in this study is normally distributed.

Table 5. Multicollinearity Test

Coefficients^a

Model	Collinearity Statistics	
	Tolerance	VIF
1 (Constant)		
Customer satisfaction	.790	1.265
Employee Empowerment	.704	1.420
Continuous Quality Improvement	.713	1.403
Management Based on Facts	.688	1.453

a. Dependent Variable: Operational Performance

Based on the table above, the results of calculating tolerance values show that there are no independent variables that have a tolerance value of less than 0.10 for each variable, which means that it can be stated that there are no symptoms of multicollinearity in these independent variables. Apart from that, the results of the VIF calculation also show the same thing, namely that none of the independent variables has a VIF value of more than 10. So, it can also be stated that there is no multicollinearity between the independent variables in the regression model of this research.

Table 6. Autocorrelation Test

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.592 ^a	.350	.307	4.698	1.808

a. Predictors: (Constant), Management Based on Facts, Employee Empowerment, Customer Satisfaction, Continuous Quality Improvement.

b. Dependent Variable: Operational Performance

The results of the autocorrelation test show that the model used in this research has a d (Durbin-Watson) value of 1.808 with dl (Durbin Lower) of 1.471 and du (Durbin Upper) of 1.732, and 4 - du of 2.192. Based on these data, positive autocorrelation in the data is declared non-existent because $d > du$. Meanwhile, negative autocorrelation was also not found because $(4-d) > du$. So, it can be stated that in the regression model of this research there is no positive and negative autocorrelation so it can be concluded that there is no autocorrelation.

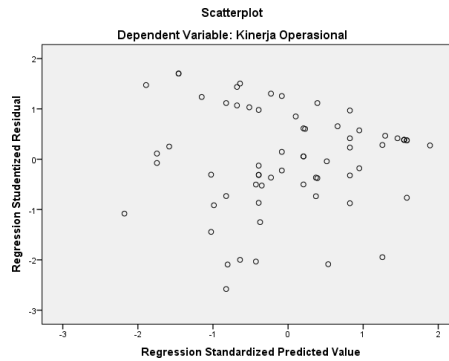


Figure 1. Heteroscedasticity Test

Based on Figure 1 above, according to the basis or characteristics for analyzing heteroscedasticity, it can be seen that the points are spread above and below the number 0 on the Y axis and do not form any pattern, so it can be stated that in this study this did not happen. heteroscedasticity and independent variables are suitable for predicting operational performance.

Results of Multiple Regression Analysis

Table 7. Multiple Linear Regression Test

Coefficients^a

Model	Unstandardized Coefficients	
	B	Std. Error
(Constant)	23.637	30.715
Customer Satisfaction (X1)	.002	.470
Employee Empowerment (X2)	.060	.203
Continuous Quality Improvement (X3)	.097	.903
Management Based on Facts (X4)	-.127	.178

a. Dependent Variable: Operational Performance (Y)

Based on the results of the multiple linear regression analysis, it can be explained as follows:

1. The constant (a) of 23.637 states that if the independent variables namely Customer Satisfaction, Employee Empowerment, Continuous Quality Improvement, and Management Based on Facts are considered constant, then Operational Performance has a value of 23.63
2. The Customer Satisfaction regression coefficient (X1) of 0.002 explains that every 1 unit increase in the Customer Satisfaction variable will increase Operational Performance by 0.002. A positive regression coefficient indicates that the more customer satisfaction increases, the more operational performance will increase, and vice versa.
3. The Employee Empowerment regression coefficient (X2) of 0.060 explains that every 1 unit increase in the Employee Empowerment variable will increase Operational Performance by 0.060. The positive regression coefficient indicates that the more employee empowerment increases, the more operational performance will increase, and vice versa.
4. The Continuous Quality Improvement regression coefficient (X3) of 0.097 explains that every 1 unit increase in the Sustainable Quality Improvement variable will increase Operational Performance by 0.097. The regression coefficient is positive indicating that the greater the Sustainable Quality Improvement, the greater the Operational Performance, and vice versa.

5. The Management Based on Facts regression coefficient (X4) of -0.127 explains that it has a negative value, which means that if the Management Based on Facts variable decreases by 1 unit, then the dependent variable, namely Operational Performance, will increase by -0.127.

Table 8. T Test

Coefficients^a

Model		t	Sig.
1	(Constant)	1.019	.045
	Customer Satisfaction (X1)	2.754	.008
	Employee Empowerment (X2)	2.616	.011
	Continuous Quality Improvement (X3)	2.209	.043
	Management Based on Facts (X4)	-.015	.988

a. Dependent Variable: Operational Performance (Y)

From the table above, the following results are obtained:

1. The Customer Satisfaction variable (X1) shows a t count of 2.745 with a significance level of 0.008. Because the calculated t value is greater than the t table which is 1.998 and the significance value is smaller than the significance level (α) which is 0.05, it can be stated that H_0 is rejected and H_a is accepted, which means that the regression coefficient on the Customer Satisfaction variable partially influences the Operational Performance.
2. The Employee Empowerment variable (X2) shows a t count of 2.616 with a significance level of 0.011. Because the significance value is smaller than the significance level (α) which is 0.05, it can be stated that H_0 is rejected and H_a is accepted, which means that the regression coefficient on the Employee Empowerment variable partially influences Operational Performance.
3. The Sustainable Quality Improvement variable (X3) shows a t count of 2.209 with a significance level of 0.043. Because the significance value is smaller than the significance level (α) which is 0.05, it can be stated that H_0 is rejected and H_a is accepted, which means that the regression coefficient on the Sustainable Quality Improvement variable partially influences Operational Performance.
4. The Management Variable Based on Facts (X4) shows a t count of -0.015 with a significance level of 0.988. Because the calculated t value is smaller than the t table which is 1.998 and the significance value is greater than the significance level (α) which is 0.05, it can be stated that H_0 is accepted and H_a is rejected, which means that the regression coefficient on the Fact Based Management variable is partially negative. influence on Operational Performance.

Coefficient of Determination Test

Table 9. Determination Coefficient Test

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.655 ^a	.507	.554	1.127

- a. Predictors: (Constant), Management Based on Facts (X4), Customer Satisfaction (X1), Employee Empowerment (X2), Continuous Quality Improvement (X3)

Based on table 4.12 above, the coefficient of determination (Adjusted R Square) is 0.554 or 55.4%. This means that 55.4% of the dependent variable, namely Operational Performance, can be explained or influenced by the four independent variables consisting of Customer Satisfaction (X1), Employee Empowerment (X2), Continuous Quality Improvement (X3), and Fact Based Management (X4). Meanwhile, the remaining 44.6% is explained by other variables outside this research model.

4. Discussion

The Effect of Customer Satisfaction on Operational Performance

The test results show that the Customer Satisfaction variable (X1) has a partial effect on Operational Performance (Y). The influence is directly proportional to the Operational Performance (Y) variable because the regression coefficient value is positive. In this research it was also found that the instrument (statement) in the questionnaire that had the most influence on the Customer Satisfaction variable was that the company made it easier for its customers to provide their suggestions, opinions and complaints. So it can be concluded that by making it easier for customers to provide suggestions, opinions and complaints they can improve Operational Performance (Y) in the Putra Bali Rattan Furniture Industry.

The Effect of Employee Empowerment on Operational Performance

The test results show that the Employee Empowerment variable (X2) has a partial effect on Operational Performance (Y). The influence is directly proportional to the Operational Performance (Y) variable because the regression coefficient value is positive. In this research it was also found that the instrument (statement) in the questionnaire that had the most influence on the Employee Empowerment variable was that employee activities were always supervised by management. So it can be concluded that always monitoring employee activities can improve Operational Performance (Y) in the Putra Bali Rattan Furniture Industry.

The Effect of Continuous Quality Improvement on Operational Performance

The test results show that the variable Sustainable Quality Improvement (X3) has a partial effect on Operational Performance (Y). The influence is directly proportional to the Operational Performance (Y) variable because the regression coefficient value is positive. In this research it was also found that the instrument (statement) in the questionnaire that had the most influence on the Sustainable Quality Improvement variable was that the company aimed to prioritize product quality. In addition, the Sustainable Quality Improvement variable has the highest mean value compared to other independent variables in this study. So it can be concluded that if the company continuously aims to prioritize product quality, it can improve Operational Performance (Y) in the Putra Bali Rattan Furniture Industry.

The Effect of Fact-Based Management on Operational Performance

The test results show that the Fact-Based Management variable (X4) has no partial effect on Operational Performance (Y). The effect is inversely proportional to the Operational Performance (Y) variable because the regression coefficient value is negative. The Fact-Based Management variable has a negative effect on Putra Bali Rattan's operational performance because companies often base customer satisfaction on making decisions, without the need to carry out research according to the instruments on the Fact-Based Management variable. Apart from that, coordinating between departments to minimize misunderstandings according to the instruments that also exist in the Fact-Based Management variable also makes things difficult for the company because the production location is located in two different locations. So it can be concluded that to improve operational performance at Putra Bali Rattan there is no need for Fact Based Management variables.

5. Conclusion

Based on the results of research with statistical analysis that has been carried out using multiple linear regression analysis and descriptive discussion of the interview results, it can be concluded that:

1. One of the principles of TQM (Total Quality Management), namely Customer Satisfaction (X1), partially has a positive and significant effect on Operational Performance (Y) in the Putra Bali Rattan Furniture Industry. And it is also supported by the results of interviews which state that the company has made it easier for its customers to provide complaints, suggestions and opinions every time they order and buy a product. The company routinely conducts customer satisfaction surveys by asking customers for testimonials. Ghost Shopping has also been carried out several times by the company, and lost customer analysis has also been carried out every time a customer stops subscribing.
2. One of the principles of TQM (Total Quality Management), namely Employee Empowerment (X2), partially has a positive and significant effect on Operational Performance (Y) in the Putra Bali Rattan Furniture Industry.
3. One of the principles of TQM (Total Quality Management), namely Continuous Quality Improvement (X3), partially has a positive and significant effect on Operational Performance (Y) in the Putra Bali Rattan Furniture Industry.
4. One of the principles of TQM (Total Quality Management), namely Management Based on Facts (X4), does not partially have a positive and significant effect on Operational Performance (Y) in the Putra Bali Rattan Furniture Industry. And if it has an effect, it will have an inverse effect on Operational Performance. This shows that the greater the influence of Fact Based Management, the smaller the Operational Performance will be, and vice versa.

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