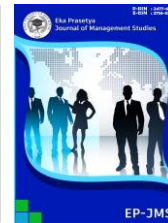




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Keys to Business Performance: Improving Product Quality and Implementing Total Quality Management in Manufacturing

Kunci Kinerja Usaha: Peningkatan Kualitas Produk dan Penerapan Manajemen Kualitas Total pada Manufaktur

*Elisabeth Nainggolan¹, Cecilia², Sri Rezeki³

^{1, 2, 3}Program Studi Manajemen, Sekolah Tinggi Ilmu Ekonomi Eka Prasetya, Indonesia

Keywords:

*business performance;
customers;
demand;
product quality;
total quality
management;*

Abstract. In the current era of globalization, there is intense competition among companies so that these companies compete in meeting the needs and demands of their customers. To be able to meet customer demand, the company must be able to improve product quality and quality control or total quality management in the company so as to improve company performance and meet customer demand. The purpose of this study is to determine whether there is an effect of product quality and total quality management on business performance. The object of this research is the customers of PT. Budi Tamora Permai which consists of companies that buy semi-finished products which are then processed in the form of finished materials. The sampling technique used is saturated sampling where all members of the population are used as research samples and the data collection method in this study uses Quantitative methods by distributing questionnaires to respondents measured on a Likert scale. The results show that there is an effect of product quality and total quality management on business performance.

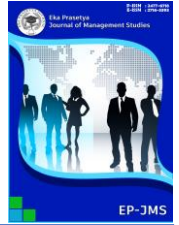
Corresponding author*

Email: elisabeth.golan@gmail.com



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1. INTRODUCTION

In the current era of globalization, there is intense competition among companies. Therefore, companies must be able to satisfactorily fulfil the demands and expectations of their customers (Bolatan et al., 2016). To maintain market share, the company is developing a customer-orientated approach to designing and manufacturing high-quality and high-value (Gunasekaran, 1998). Therefore, this increasingly fierce level of competition requires business actors to be able to produce high productivity through quality control and be able to maintain production quality in order to survive in the competition.

The challenge that companies will face in today's digital era is the opening of regional boundaries and competition boundaries that make economic activities dependent on free and open global competition, where only strong business actors will be able to win and survive (Permana et al., n.d.) Rapid technological advances and high levels of competition require companies to be able to continuously improve the quality of their products and carry out continuous improvement strategies through total quality management by adjusting to existing changes where there is skilled human involvement and the machines used in the production process at the company so as to meet customer needs for the desired product quality which in turn can improve the business performance of a company.

PT. Budi Tamora Permai is one of the manufacturing companies that produces wood with its main product FJLB (Finger Joint Laminated Boards) which consists of several grades and special sizes that can be used to make final products such as : stair sets, kitchen tables, solid wood furniture, profile products for interior use, home materials, and wood flooring. In running its business, the industry remains focused on improving and maintaining the quality of its products so that customers do not have to worry about product damage and feel comfortable in using the product.

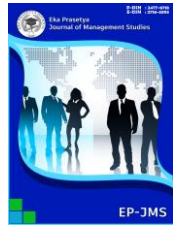
In addition to local sales to various regions in Indonesia, such as Tanjung Morawa, Medan, Jakarta, Surabaya, Banten, Bali, Semarang, PT. Budi Tamora Permai has also exported to various countries, including America, several Asian countries such as Japan, South Korea, China, India, and several European countries such as the Netherlands, France, and Germany. Thus, PT Budi Tamora Permai must be able to meet global demand and improve the quality of its products in order to survive in global competition with other similar companies.

Based on data obtained by researchers, overall there is a decrease in sales at PT. Budi Tamora Permai. This is because the company cannot meet customer demand caused by internal problems, namely regarding the quality of the products produced and the control carried out by quality control and members. Problems in product quality are seen in the lack of even distribution of colours in the materials produced and there are product defects in the form of a decrease in production grade so that the grade produced is not in accordance with the standards desired by consumers. In addition, the grade of the material produced also affects the durability of the product. Grade A material has the characteristics of 2 good and smooth sides, grade AB material has the characteristics of 1 good side and 1 defective side such as pulp, eyes, red lines on wood, while grade C material has 2 defective sides such as pulp, eyes, and red lines on wood. Based on production volume data from 2018-2022, there was an average decrease in production of grade A materials by 14% and an increase in the production of grade AB materials by 3% and an increase in grade C by 11%.



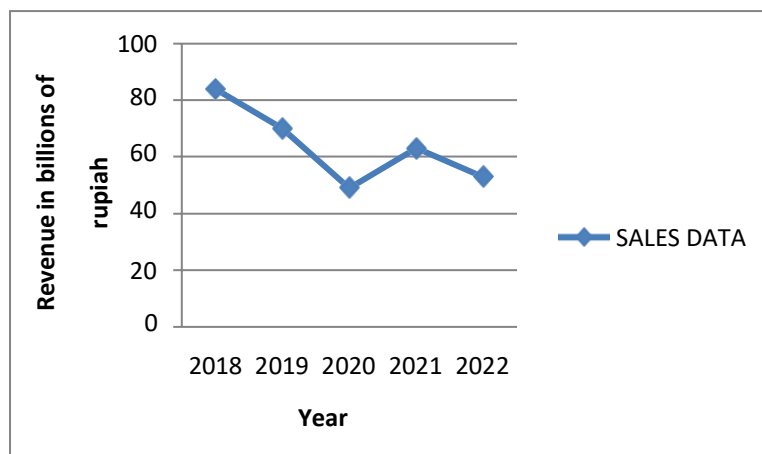
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Employees have also not fully implemented the standard operating procedures set by the company where making improvements to the product takes a long time because it starts at the initial stage of the production process, so that the setting of improvement targets is hampered. In addition, employee involvement and responsibility in controlling quality is still somewhat lacking in carrying out the established SOP so that fulfilment of customer needs and satisfaction is hampered. (Psarommatis et al., 2020) stated that quality improvement requires everyone to be dedicated to having the initiative to give their best. This means ensuring the commitment of all employees to quality improvement is important for increased success. (Vidananda & Setiawan, 2021) stated that given the increasingly fierce business competition, to minimise customer complaints, it is necessary for companies to pay more attention to performance through providing better quality so that customers feel satisfied and ultimately affect the company's performance assessment.

Figure 1. Sales data of PT. Budi Tamora Permai



Based on the sales data presented above, in 2018 to 2019, PT Budi Tamora Permai had a decrease in total sales of 17%, in 2020 it decreased by 30% and in 2021 it experienced a slight increase of 23% and in 2022 it decreased again by 15%.

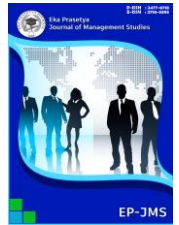
This condition is a problem where there is a mismatch of expectations from customers on the quality of products produced and the lack of quality control in the production process carried out so that this problem underlies the research to look at production quality and total quality management on business performance at PT Budi Tamora Permai.

The purpose of this study is to determine whether there is an effect of product quality on business performance and effect of total quality management on business performance and for the results of this study are expected to add insight and knowledge about product quality and total quality management on the performance of a business, especially in the manufacturing industry and it is hoped that companies can run and maintain better quality in accordance with customer demand in order to overcome the current business competition.



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2. LITERATURE REVIEW

2.1. Product Quality

Product quality must have additional features and quality perceived by consumers, because product quality is a very important factor that influences the creation of customer satisfaction and determines consumer satisfaction after buying products produced by business actors (Nurhayati et al., 2023). Quality is determined by a set of uses or functions, including durability, dependence on other products or components, exclusivity, comfort, external form (colour, shape, wrapping and so on) which has an important role both from the point of view of consumers who are free to choose the level of quality or from the point of view of producers who are starting to pay attention to quality control in order to maintain and expand marketing reach (Agustina et al., 2018). According to Kotler and Keller (2009:14), indicators in product quality are form, durability, and conformance.

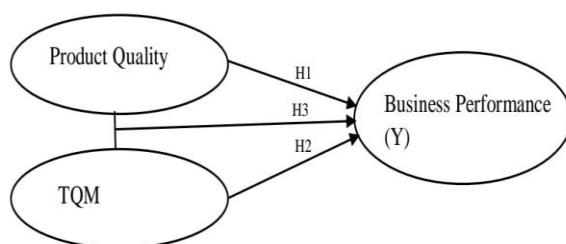
2.2. Total Quality Management

Total quality management is a management method in running a business that prioritises quality by continuously improving products, services, and the environment and is oriented towards customer satisfaction (Sulijaya & Bangun, 2017). TQM is defined as the identification and management of enterprise management to produce desired performance changes to improve quality, productivity, customer satisfaction, and profitability which are the activities required to achieve quality in an organization (Riaz et al., 2023). According to Muslikum Mashadi (2019), the indicators in TQM are customer-focus, continuous improvement, and employee engagement.

2.3. Business Performance

The company's business performance is one of the goals of every entrepreneur which can be interpreted as the level of success in achieving the expected goals / objectives and can be seen from various aspects, such as: financial performance, company image, and others (Chamdan Purnama & Suyanto, 2010). Business performance is a concept to measure the market performance of a product or service, which is a reflection of the success of its business in the world of business competition (Hidayati, 2011). The concept of measuring company performance is important for management to evaluate the company's operational activities so that the efficient use of resources to produce products or services and consumer satisfaction in using the quality of products provided can provide more optimal achievements in the future (Vidananda & Setiawan, 2021). According (Munizu et al., 2012), the indicators in business performance are sales growth, productivity improvement, and customer satisfaction.

Figure 2. Theoretical Framework

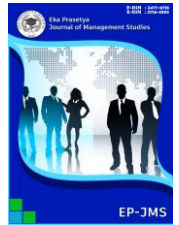


Based on the above framework, the hypothesis of this study is:



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H1: Product quality affects business performance.

H2: TQM affects business performance.

H3: Product quality and TQM simultaneously affect business performance.

3. RESEARCH METHOD

The type of research method used in this research is quantitative method, where the problem will be researched and collect data in the form of numbers or numerical. The data obtained from the questionnaire was processed using the SPSS (Statistical Product and Science Solution) computer application program version 25. For each respondent to answer the questionnaire using a Likert scale, which consists of a score of 5 (strongly agree), 4 (agree), 3 (undecided), 2 (disagree), 1 (strongly disagree).

The sample is a part or representative of the population studied (Arikunto, 2006: 131). In this study, a saturated sampling technique was used, namely a sampling technique in which all members of the population were used as samples (Sugiyono, 2011:68). The total population is 32 respondents, namely customers consisting of companies that buy semi-finished products from PT Budi Tamora Permai which are then processed into finished products, so that researchers use the entire number of respondents as research samples.

The analysis used is multiple linear regression analysis. The formula for multiple regression analysis is:

$$Y = a + b_1 X_1 + b_2 X_2 + b_n X_n$$

Y = Business Performance

X₁ = Product Quality

X₂ = Total Quality Management

X_n = Independent variable to...n a and b₁ along with b₂ = constants

4. RESULT AND DISCUSSION

Test of Classical Assumptions

Table 1. One-Sample Kolmogorov-Smirnov Test

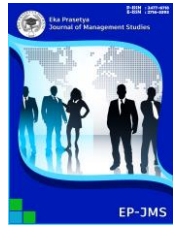
Unstandardized Residual	
N	32
Asymp. Sig. (2-tailed)	0.119 ^c

Source: Research Results, 2023 (Data Processed)



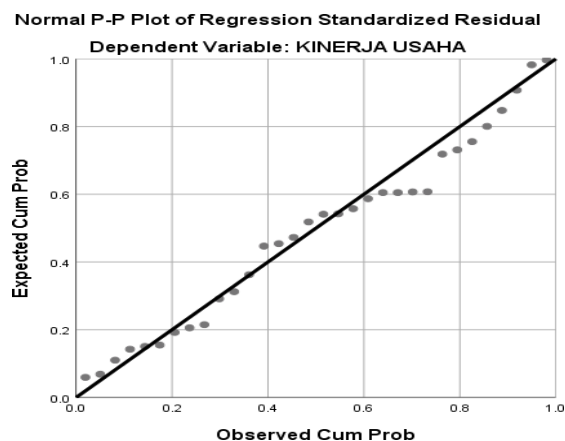
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Based on the output above, it is known that the result of one-sample kolmogorov- smirnov has a significance value of 0.119 greater than 0.05, so it can be concluded that the data we tested is normally distributed.

Figure 3. Normal Probability Plot of Regression



Source: Research Results, 2023 (Data Processed)

Based on the graph output above, it can be seen that the point is close to the diagonal line of normality which proves that the data is normally distributed and can be used for further testing.

Table 2. Multicollinearity Test Result

Coefficients^a

Model	Collinearity Statistics	
	Tolerance	VIF
1 (Constant)		
Product Quality	0.468	2.135
TQM	0.468	2.135

a. Dependent Variable: Business Performance

Source: Research Results, 2023 (Data Processed)

Based on the output above, it is known that the VIF value on product quality and TQM is 2.135 < 10 and the Tolerance Value is 0.468 > 0.10, it can be concluded that there is no multicollinearity in the regression model.



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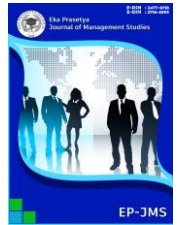
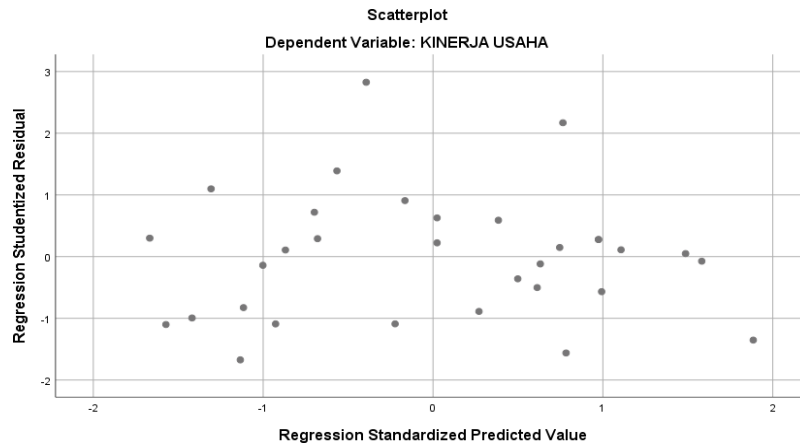


Figure 4. Scatterplot



Source : Research Results, 2023 (Data Processed)

Based on the figure above, it can be seen that the data is scattered randomly or does not form a certain clear pattern, both above and below the number 0 on the Regression Studentized Residual (Y) axis, which means that there is no heteroscedasticity in the regression model so it is feasible to be used to predict business performance based on product quality and total quality management.

Table 3. Multiple Linear Analysis Test

Model	Unstandardized Coefficients	
	B	Std. Error
1 (Constant)	6.314	2.463
Product Quality	0.346	0.142
TQM	0.403	0.162

a. Dependent Variable: Business Performance

Source: Research Results 2023,(Data Processed)

$$Y = a + b_1 X_1 + b_2 X_2$$

$$Y = 6.314 + 0.346 + 0.403$$

Based on this equation, it can be concluded as follows:

1. A constant of 6.314 means that if the variables Product Quality and Total Quality Management are 0, then Business Performance remains at 6.314.
2. Variable X1 of 0.346 means that every increase in the Product Quality variable by 1 unit, the value of Business Performance will increase by 0.346.
3. Variable X2 of 0.403 means that every increase in the Total Quality Management variable by 1 unit, the value of Business Performance will increase by 0.403.



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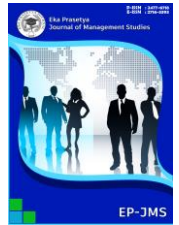


Table 4. Partial Significance Test (t Test)

Model	t	Sig.
1 (Constant)	2.563	0.016
Product Quality	2.439	0.021
TQM	2.491	0.019

a. Dependent Variable: Business Performance

Source: Research Results 2023, (Data Processed)

1. It is known that the significant value for the effect of Product Quality (X1) on Business Performance (Y) is $0.021 < 0.05$ and the calculated t value is $2.439 > t$ table 2.045, so it can be concluded that H1 is accepted which means there is an influence of Product Quality (X1) on Business Performance (Y).
2. It is known that the significance value for the effect of Total Quality Management (X2) on Business Performance (Y) is $0.019 < 0.05$ and the calculated t value is $2.491 > t$ table 2.045, so it can be concluded that H2 is accepted which means there is an influence of Total Quality Management (X2) on Business Performance (Y).

Table 5. Simultaneous Significant Test (F Test)

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	285.169	2	142.585	22.432	.000 ^b
Residual	184.331	29	6.356		
Total	469.500	31			

a. Dependent Variable: Business Performance

b. Predictors: (Constant), TQM, Product Quality

Source: Research Results 2023, (Data Processed)

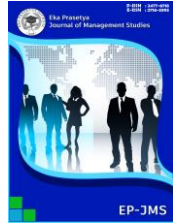
Based on the output above, it is known that the significance value for the effect of Product Quality (X1) and Total Quality Management (X2) simultaneously on Business Performance (Y) is $0.000 < 0.05$ and the F value is calculated at $22.432 > F$ table 3.32, so it can be concluded that H3 is accepted which means that there is a simultaneous influence of Product Quality (X1) and Total Quality Management (X2) on Y.

Table 6. Coefficient of Determination Test



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Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.779 ^a	0.607	0.580	2.521

a. Predictors: (Constant), TQM, Product Quality

b. Dependent Variable: Business Performance

Source: Research Results 2023,(Data Processed)

Based on the output above, it can be concluded that business performance is proven to be influenced by product quality and total quality management by 60.7%.

DISCUSSION

The Effect of Product Quality on Business Performance

Based on the results of the research conducted, it was obtained that H1 was accepted, which means that partially the Product Quality variable has a significant influence on Business Performance at PT. Budi Tamora Permai with a significance value of $0.021 < 0.05$ and a calculated t value of $2.439 > t \text{ table } 2.045$. This shows that the higher the quality of the products owned by the company, the higher the business performance produced in meeting customer demand and satisfaction.

This is also in accordance with what is described in research conducted by (Vidananda & Setiawan, 2021) which states that product quality has a significant positive influence on company performance which means that the better the quality of products provided by the company, the better the assessment of business performance carried out by customers.

The Effect of Total Quality Management on Business Performance

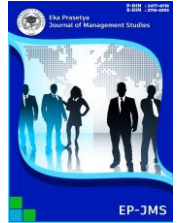
Based on the results of the research conducted, it was obtained that H2 was accepted, which means that partially the Total Quality Management variable has a significant influence on Business Performance at PT. Budi Tamora Permai with a significance value of $0.019 < 0.05$ and a calculated t value of $2.491 > t \text{ table } 2.045$. This shows that the higher the total quality management control in the company, the higher the business performance produced in order to meet customer needs and satisfaction.

This is also in accordance with what is described in research conducted by (Munizu et al., 2012) which states that the more effective Total Quality Management (TQM) practices are carried out, the more performance the company will achieve and the results show that the hypothesis is accepted and the influence of total quality management has a positive and significant value which means that the implementation of effective TQM practices can lead to improved business performance. In addition, in research conducted by (Sahoo & Yadav, 2018) and (Cetindere et al., 2015) which states that total quality management has a positive and significant effect on business performance.



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5. CONCLUSION

Based on the results of statistical test calculations on partial tests, Product Quality and Total Quality management variables have a partial and significant influence on Business Performance at PT. Budi Tamora Permai and from the results of the coefficient of determination, it shows that the influence of the variables Product Quality and Total Quality Management simultaneously on Business Performance. So overall it can be concluded that product quality and total quality management affect business performance in one of the manufacturing businesses, namely PT. Budi Tamora Permai significantly. Improving product quality and the application of total quality management in a company can improve business performance which will later meet the needs and desires of consumers and consumer satisfaction can be fulfilled, so that with this research, it is expected for companies to focus more on improving product quality accompanied by the application of good total quality management so as to make the higher the business performance produced in order to meet customer demand and survive the business competition that exists today.

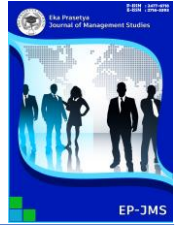
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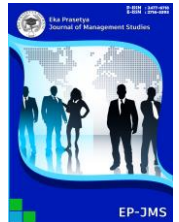


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