

## EVALUATION OF THE IMPLEMENTATION OF TOTAL QUALITY MANAGEMENT ON PT. AKSAKINDO MANUFACTURING

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### ABSTRACT

In this global era, only companies that are able to produce quality goods or services in accordance with customer demands can win the competition. Integrated quality management (total quality management) is a very appropriate strategy in the company's efforts to achieve world class performance. PT. Aksakindo Manufacturing has implemented TQM, but there are still defects or imperfections that require further research. The purpose of this study was to analyze the significance of the influence of the Strategic construct (leadership, organizational culture, continuous improvement, benchmarking, quality goals and policies), analyze the significance of the influence of the Tactical construct (team development and problem solving, employee empowerment, engagement and training, use of information technology, supplier management) as well as analyzing the significance of the influence of Operational constructs (design of goods and services, process control, consumer orientation) on the construct of product quality produced by PT. Aksakindo Manufacturing. Determination of the sample using purposive sampling method, namely the selection of samples with a specific goal or target. Based on the regression analysis that has been done, it can be concluded: Strategic, Tactical and Operational Constructs have a positive and significant effect on the quality of the resulting product. That is, the better the strategic, tactical and operational constructs run by the company, the better the quality of the products produced by PT. Aksakindo Manufacturing.

**Keywords:** Total Quality Management, Construction, Strategy, Operations

### Introduction:

In the global era, a country can no longer limit or inhibit the entry of foreign products, which causes competition to become increasingly sharp. In such circumstances only companies that are able to produce quality goods or services in accordance with customer demands can win the competition. Therefore, quality is one of the company's important policies in increasing the competitiveness of products that must provide satisfaction exceeding or at least equal to competing products. Quality is the suitability of product use (fitness for use) to meet customer needs and satisfaction (Juran, 2008). Meanwhile, according to Crosby (2007) quality is conformance to requirements, which is in accordance with what is required/standardized. Quality standards include raw materials, processes, finished products. Similarly, Deming (2010), quality is conformity to market/consumer needs. From the three definitions there are several similarities, namely quality includes efforts to meet or exceed customer expectations, quality includes products, labor, processes and the environment and quality is an ever-changing condition. One of the sciences that is oriented towards quality and redesigning organizational systems in achieving its goals is Total Quality Management (TQM).

Integrated quality management (total quality management) is a very appropriate strategy in the company's efforts to achieve world class performance, which usually uses the Just In Time (JIT) strategy. TQM signifies a paradigm shift in how to structure an organization and manage everything related to products, people, processes and tasks as well as the organizational environment. TQM is a set of management principles that focus on quality improvement as a driving force in all functional areas at all levels of the organization. James (1996) stated that the overall implementation can be seen from several indicators such as the existence of a global market, empowerment and active employee involvement, the existence of a work team, responsiveness, customer orientation and continuous improvement of quality, and quality is the responsibility of all components within the company. (Warnock, 1996). Anderson (1994) said that customer satisfaction and company survival can be achieved through continuous improvement of processes, products, services, and all employees (Continuous Improvement). Andrea Chiarini (2011), states that Japanese total quality control (JTQC), Total quality management (TQM), Deming's system of profound knowledge, Business process reengineering (BPR), Lean thinking and Six Sigma are quality and operations improvement systems are all oriented towards process improvement. Further stated, in general they have applied several factors with results such as; continuous improvement, customer satisfaction, people and management involvement to mention a few. Nonetheless, the systems also present different and important characteristics due to their different origins and the historic path of implementation inside companies.

Salaheldin in Evangelos (2009) examined 139 small- and medium-sized enterprises (SMEs) in the industrial sector in Qatar. The data were analyzed using the application of TQM with three levels of critical success

factors. First, strategic factors (leadership, organizational culture, continuous improvement, benchmarking, quality goals and policies). Second, tactical factors (team development and problem solving, employee empowerment, engagement and training, use of information technology, supplier management). Third, operational factors (design of goods and services, process control, customer orientation, value added resources in the process). The results show that there is a substantial effect in the implementation of TQM on operational performance (internal operations in terms of cost and waste reduction, improving product quality, flexibility, delivery, and productivity) and organizational performance (revenue growth, net profit, profit to revenue ratio and turnover). assets, investment in research and development, new product development, development and market orientation).

This finding also confirms the significant relationship between the operational and organizational performance of SMEs and the main role rather than strategic factors in the successful implementation of TQM in SMEs. PT. Aksakindo Manufacturing as one of the manufacturing companies engaged in the handicraft business and has a world market. The company is located on Jalan Raya Mas Ubud Gianyar, has started its business since 1972. Apart from being a producer of handicrafts, it also carries out export, packaging, and shipping activities (cargo business) for handicrafts. Marketing of this company's products, more than 90 percent for foreign markets, while 10 percent for the domestic market. The domestic market is marketed through retailers in various locations on the island of Java, especially in Jakarta. Of the 90 percent of overseas markets: 70 percent are marketed in the US, the remaining 30 percent are to Europe, such as Germany, Sweden, the Netherlands, France, the UK, and the Australian market. Up to now, the delivery of handicraft products has been able to reach more than 2000 m<sup>3</sup> per year, which is quite a large amount. As an export-oriented manufacturing company, PT. Aksakindo Manufacturing has its own Quality Control Department which has been able to carry out quality control, for example in measuring the humidity of wood used with international standards of 14 percent, paint color standards.

In addition, PT. Aksakindo Manufacturing also has a product research and development department (Research & Development) which functions to monitor the development of foreign market interests or tastes and create products according to consumer desires. Creech (1995) says that the successful implementation of TQM must have four criteria: first, it must be based on quality awareness and quality-oriented in all its activities, including in every process and product; Second, must have a strong human nature to bring quality to the way employees are treated, included and inspired; third, it must be based on a decentralized approach that gives authority at all levels, especially at the front line (employees) so that enthusiastic engagement and common goals become a reality. Fourth, it must be applied thoroughly so that all principles, wisdom, and habits reach every nook and cranny of the organization. Thus, the role of employees on product quality is very important, especially employees of the production division who are at the forefront of the production process.

Blackburn and Rosen (1993) say that success in integrating human resource management and TQM implementation is due to reduced costs, increased product reliability, greater customer satisfaction, and shorter product development cycles. PT. Aksakindo Manufacturing has implemented TQM, but still found defective or imperfect products. In addition, there are also a number of products that can still be reprocessed (rework) and damaged or discarded products (scrap/waste). From the results of interviews with the head of the quality control department, a product is classified as imperfect if the product: 1) the size does not match the agreed order, both the thickness and length or width of the material, 2) the special moisture of the wood is not in accordance with the specifications. international standard, which is 14% so that the finished product appears in the form of mushrooms or the product is curved, 3) the color does not match the agreed order, 4) the ornament (carving motif) does not match the order, 5) the finished product does not match the buyer's design, 6) there are errors in the manufacturing process so as to make the product defective, such as errors in painting, sculpting and 7) delays in workmanship and delivery to the buyer. The product is classified into rework if the imperfection product has a fault that can be tolerated or can still be repaired. Meanwhile, products classified as scrap/waste are products that have a fatal error rate, such as broken, damaged paint, defective products that can no longer be repaired or made into other products. Of the imperfection products that occur, some can still be reworked, an average of 87 percent and 13 percent are scrap products. Although the products produced by PT. Aksakindo Manufacturing can still be reworked but that means that quality control still needs to be studied and then followed up so that the error rate can be eliminated.

According to the results of interviews with the quality control department on initial observations, operational factors (product design, product supervision in process, raw material inventory handling, and inspections), human resources, machinery and equipment factors are the causes of product quality errors. The human resource factor is caused because production employees do not understand the quality, the infrastructure or supporting equipment needed to overcome quality problems is not yet available properly. The active involvement of managers with employees is still lacking in terms of discussing quality issues. Employee training has not been going well. (Su et al. 2008) conducted a study of 151 ISO 9001 certified manufacturing and service companies in China. The results of the study state that quality management (such as consumer, employee training, leadership and top management commitment, cross-functional quality team, employee involvement in continuous improvement, innovation, information quality, performance measurement and statistical quality control) has a positive influence on company performance ( sales growth, market share, and market share growth) directly.

However, it has an indirect effect on business performance mediated by performance quality (eg defective product, product quality, durability, reliability and on-time delivery) and R&D performance (rate of design errors, research and development time, competence and cost). From several previous research results where operational factors (product design, product supervision in process, handling of raw material inventory, machinery and equipment), and human resource factors are said to be the cause of quality errors. Seeing the phenomenon that occurred at PT. Aksakindo Manufacturing raises a strong suspicion of the effect of the application of TQM on the quality of the products produced by PT. Aksakindo Manufacturing, so further research is needed.

**Methodology:**

This research was conducted at PT. Aksakindo Manufacturing which is located at Jalan Raya KH. Ahmad Dahlan Sibolga Sambar. This location was chosen because this company is an export-oriented manufacturer and has implemented TQM.

**Research Results and Discussion:**

**1. Research Instrument Test**

a) Validation Test

An instrument in research is said to be valid if it is able to measure what it wants to measure. An instrument is said to be valid if it has a correlation coefficient between items and the total score in the instrument is greater than 0.30 with an Alpha error rate of 0.05.

**Table 1. Recapitulation of Research Instrument Validity Test Results for Strategy Variables**

No	Indikator	Pearson Correlation (r)	Sig. (2-tailed)	Keterangan
1	Kepemimpinan	0.881	0.000	Valid
2	Budaya organisasi	0.847	0.000	Valid
3	Perbaikan berkelanjutan	0.822	0.000	Valid
4	Benchmarking	0.803	0.000	Valid
5	Kualitas sasaran dan kebijakan	0.894	0.000	Valid

Table 1 shows that the research instrument used to measure the strategy variable is valid because all indicators have a correlation value (r) above 0.3 with a significance below 0.05.

b) Reliability Test

The reliability test of this research instrument uses Cronbach's Alpha value, which is to determine the unidimensionality of the statement items on the latent variables studied (Strategy, Tactical, Operational and Product Quality). Cronbach's Alpha value is declared reliable if the value is greater than or equal to 0.60 (Ghozali, 2004). The recapitulation of the research instrument reliability test can be seen in Table 4.5.

**Table 2. Recapitulation of Research Instruments Reliability Test**

No	Variabel	Alpha	Keterangan
1	Strategi	0,901	Reliabel
2	Taktis	0,912	Reliabel
3	Operasional	0,890	Reliabel
4	Kualitas produk	0,875	Reliabel

Table 2. shows that the value of Cronbach's Alpha for each variable is greater than 0.60. So it can be stated that all variables have met the requirements of reliability or reliability.

**2. Description of Research Data**

The description of the research data presents the respondent's assessment for each of the questions posed in the respondent's assessment questionnaire based on the variables Strategy, Tactical, Operational and Product quality using a measurement scale of 1 to 5. To describe the average assessment of respondents regarding the variables in the study , the results of respondents' answers are adjusted to the design of the measurement scale that has been determined and then formulated into several class intervals (Suharsono, 2010:21).

### 3. Measurement Model

The measurement model test in this study uses a model validity test. The validity of the measurement model is to determine whether all loading factors have good validity. Confirmatory Factor Analysis was used to determine the validity of the model.

**Table 3. Strategic Model Validation Value Measurement Model**

Nilai Validitas	Cut - Off - Value	Hasil Analsis	Kete-rangan
KMO ( <i>Kaiser Meyer Olkin</i> )	≥ 0,50	0,827	Valid
X2 ( <i>Chi Square</i> ), α=0,05; df=10	≥ 18,31	222,949	Valid
<i>Significance Probability</i>	< 0,05	0,000	Valid
<i>Eigen Value</i>	>1,00	3,714	Valid
Varians kumulatif	≥ 60 %	74,281	Valid
<i>Anti Image</i>	≥ 0,50	0,785 sampai dengan 0,926	Valid
<i>Loading factor</i>	≥ 0,50	0,833 sampai dengan 0,895	Valid

Table 3. above shows that all the assessment criteria regarding the validity of the Strategic model are met (valid) so that it can be concluded that the five indicators are valid in forming the Strategic model or construct.

### 4. Reporting Regression Analysis Results

Based on the results of data analysis in Appendix 7, the results of the regression analysis can be reported as follows:

Persamaan Regresi:  $Y = 0,336X_1 + 0,344X_2 + 0,304X_3$   
 Std Error : 0,102      0,109      0,084  
 T hitung : 3,304      3,145      3,612  
 Sig uji t : 0,002      0,003      0,001  
 R square = 0,830  
 F<sub>hitung</sub> = 100,684  
 Sig Uji F = 0,000

Based on the obtained regression equation, it can be explained that the independent variables Strategy (X1), Tactical (X2) and Operational (X3 Valid Valid 54) have a significant positive effect. This is indicated by the value of the regression coefficient with the significance value of the t-test all below 0.05. If the Strategic, Tactical and Operational variables have increased, then the Product Quality variable will also increase significantly.

### 5. Fulfillment of Classical Assumption Test

The regression model will be more appropriate to use and produce more accurate calculations, if the following assumptions can be met. Classical assumption tests that must be met in simple linear regression analysis include Normality Test, Multicollinearity Test and Heteroscedasticity Test.

#### a) Data Normality Test

Is a test that aims to test whether the residuals of the regression model made are normally distributed or not. A good regression model is one that has a normal or close to normal residual distribution. In this study, the normality test was carried out by testing the normality of the residuals by using the Kolmogorov-Smirnov test, namely by comparing the cumulative distribution of the relative observations with the cumulative distribution of the theoretical relative. If the significance probability of the residual value is greater than 0.05, it means that the residual is normally distributed. Vice versa, if the residual significance probability is lower than 0.05, it means that the residuals are not normally distributed. The significance value of the Kolmogorov-Smirnov test is above 0.05, so it can be concluded that the data is normally distributed.

**Figure 1. Kolmogorov-Smirnov Test**

One-Sample Kolmogorov-Smirnov Test		Unst. Residual
N		66
Normal Parameters <sup>a,b</sup>	Mean	-.0052716
	Std. Deviation	.40255264
Most Extreme Differences	Absolute	.107
	Positive	.080
	Negative	-.107
Kolmogorov-Smirnov Z		.870
Asymp. Sig. (2-tailed)		.435

a. Test distribution is Normal.

b. Calculated from data.

**b) Multicollinearity Test**

The multicollinearity test aims to test whether in one regression model there is a correlation between independent variables. A good regression model is that there is no correlation between the independent variables. To detect whether or not there is a correlation between independent variables, it can be seen from the tolerance value and the value of the variance inflation factor (VIF). If the VIF value is less than 10, it can be said that the model is free from multicollinearity. Based on data analysis, the strategic variable VIF value is 3.774, the Tactical Variable VIF value is 4.359 and the Operational variable VIF value is 2.572. Because the VIF value is less than 10, it can be said that the model is free from multicollinearity.

**c) Heteroscedasticity Test**

Is a test that aims to test whether in the regression model there is an inequality of variance from the residuals of one observation to another observation. A good regression model is one that does not contain symptoms of heteroscedasticity or has a homogeneous variance. To detect the presence or absence of heteroscedasticity, the Glejser test is carried out, by regressing the independent variable to the absolute residual. If the independent variables studied do not have a significant effect on absolute residuals, it means that the regression model does not contain symptoms of heteroscedasticity. Based on the Heteroscedasticity test in Appendix 9, the significance value of the t-test for the Strategic variable = 0.712, the Tactical variable = 0.226 and the Operational variable = 0.061. Because the significance value of the t test on the heteroscedasticity test is above 0.05, it can be concluded that the data does not contain heteroscedasticity.

**Conclusions, Proposals, Recommendations:**

Based on the analysis that has been done, the following conclusions can be drawn:

1. Strategic constructs have a positive and significant effect on product quality. The better the strategic construct, the better the quality of the product.
2. Tactical constructs have a positive and significant effect on product quality. The better the Tactical construct, the better the quality of the resulting product.
3. Operational Construct has a positive and significant effect on product quality. The better the Operational construct, the better the quality of the resulting product.

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