Effect of Total Quality Management Implementation on Business Performance of East Java Small and Medium Scale Manufacturing Companies

by Ellitan Lena

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Lena Ellitan, Dominicus Wahyu Perdana

Abstract— **TQM approach has long been known and applied to various organizations, but in Indonesia there is a lack of empirical studies that examine the relationship between TQM practices and the impact on the business, operational and human resource performance. This study aims to examine the relationship between TQM practices on the firms' performance. Samples were selected randomly from East Java Manufacturing Company directory. Total questionnaires of 400 questionnaires sent to manufacturing companies in the area of East Java. Of the 400 questionnaires have been sent through post, 6 companies are not willing to participate, 17 questionnaires were returned to the researchers with some of the reasons the company closed, change the address, and the address is not known. Researchers also sent a follow up letter after 2 weeks questionnaire submitted. The results of data analysis in this study showed that: management practices (i.e. leadership, management of supplier quality, vision and planning, evaluation, process control improvement, product design, quality system design, participation, reward and recognition, education and training, and customer focus) have a significant influence on financial performance, operational performance, and the performance of human resources. The result of partial analysis concluded that: (1). Leadership, supplier quality management, quality system design, education and training, and customer focus have significant influence on financial performance. (2). Leadership, supplier quality management, rewards and recognition, education and training, and customer focus have a significant influence on the operational performance. (3). Leadership and customer focus have a significant influence on the HR performance.**

Index Terms: **Total Quality Management, Business Performance, Small Medium Companies.**

I. Introduction

Total Quality Management (TQM) approach is getting familiar and used to achieve a competitive advantage of business organization. TQM leads any organization as an instrument to answer any global challenges, and to facing the challenges of business. With the adoption of TQM, the company is expected to be able to increase customer satisfaction through improved quality of product and process quality. TQM is considered as a way to manage organizations in an effort to improve the quality of the product, which in turn will be able to satisfy the consumers either internal or external.

Lena Ellitan, Faculty of Business, Widya Mandala Catholic University, Surabaya, Indonesia.
Dominicus Wahyu Perdana, Faculty of Business, Widya Mandala Catholic University, Surabaya, Indonesia

TQM leads the company towards continuous improvement and support the creation of total customer satisfaction. Customer-oriented process combines basic management practices with business improvement that is often used, as well as reliable technical equipment. TQM can be applied to large enterprises and small enterprises (Helper and Henderson, 2014). TQM can also be applied regardless of whether the company is a public or private company. This research needs to be done due to the scarcity of studies that examine the impact of the implementation of TQM on business performance and operational performance, especially in the manufacturing industry in Indonesia. This research is also driven by the absence of consensus on whether the implementation of TQM is really going to improve the performance of business and operational performance.

Research Questions

TQM is a management organization that makes a whole excels in all aspects of goods and services that are important for consumers that can be achieved through continuous quality improvement programs, which is a never ending, which is actively supported by management and involve everyone in the organization TQM approach has long been known and applied to various corporate organizations, but in Indonesia have not been many empirical studies that examine the relationship between TQM practices comprehensively and influence on the performance of the company. Likewise, there is no consensus or inconclusive results also motivate researchers to conduct further investigation on the implementation of TQM. Most studies on TQM also performed in a large company, while this research was conducted on small and medium scale enterprises. Therefore, problems in this study can be formulated as follows:

1. Do the practices of leadership (Leadership) have a positive effect on the company's performance?
2. Does quality control of suppliers (Supplier Quality Management) positively influence the company's performance?
3. Do the vision statement and planning (Vission and Plan Statement) positively influence the company's performance?
4. Do the practices of evaluation (Evaluation) positively influence the company's performance?
5. Do the process control and improvement (Process control and improvement) affect the performance of the company?

6. Does the design of the product (Product Design) influence the performance of the company?
7. Does Quality System Improvement influence the performance of the company?
8. Do the participation of employees (Employee Participation) influence the performance of the company?
9. Does the recognition and rewards (Recognition and Reward) influence the performance of the company.
10. Do education and training (Education and Training) influence the performance of the company?
11. Does customer Focus affect the performance of the company.

II. TEORITICAL FRAMEWORK AND HYPOTHESES

TQM is the optimization of performance at all operating functions of the organization, procedures, systems, control, structure, culture to achieve compatibility between the requirements to expectations (Gharakhani, Rahmati, Farrokhi, and Farahmandian, 2013). TQM is a continuous quality improvement program that never end, which is actively supported by management, and involve everyone in the organization. The most widely implemented TQM practices in the field of human resources and operational fields (Sohal and Terziovky, 2000). The study examines TQM and its implementation has been done by the previous studies. There is some empirical evidences indicate that the implementation of practice-practice quality improvement that will effectively lead to better performance, better productivity and profitability (Sohal & Terziovki, 2000). Empirical evidence suggests some studies show that effective implementation of TQM has a significant relationship with increasing quality and productivity can be improved by workers and customer satisfaction. Sun (2000) investigated the impact of TQM on the overall performance of the organization. This finding supports the argument that a TQM program must complete in the form contend (i.e. all enablers) and application level (ie fully implemented). If the company only implements one or a few enablers, then performance cannot be fully improved. Key TQM is a holistic approach to the organization, so organizations must implement TQM at the highest level to achieve the full benefit.

Indicators of TQM implementation can be known from the level of quality management practices that are carried out or the level of implementation of TQM in all parts of the organization. Customer gives ratings on quality management practices and training in quality management. Criteria TQM practices can be seen from the leadership quality, information quality, strategic planning about the quality, training on statistical methods, guarantee of product quality, to quality assurance processes, cooperation with suppliers, working closely with customers, consideration of customer satisfaction. Of the existing literatures can be summed that TQM is not something that is perfect but always changing in shape according to the demands of the times. TQM in an organization is an endless process. TQM is not merely a technique but a philosophy. For the successful implementation of TQM must be understood and disseminated to all parts of the organization. TQM is built on the principle that of continuous quality improvement will result in higher productivity, lower costs and more competition position.

For decades, researchers have developed several propositions concerning the practice of TQM practices such as Deming (1986), Crosby (1979), Juran and Gyrna (1993), Fibengaum (1991), Ishikawa (1985). Their views on TQM have provided a considerable role in favor of TQM as one of the strategies and management practices to improve performance. Based on a comprehensive literature review of eleven construct below is regarded as TQM implementation constructs. Eleventh this construct will also be used in assessing the implementation of TQM. The eleventh construct consists of:

1. Leadership .
2. Supplier Quality Management.
3. Vision and Plan Statement.
4. Evaluation.
5. Process control and improvement.
6. Product Design.
7. Quality Improvement System.
8. Employee Participation.
9. Recognition and Reward.
10. Education and Training
11. Customer Focus.

Based on the literatures, this study suggests the main hypotheses:

TQM implementation level positively affects the performance of the company (Business Performance, Operational Performance and Employee Performance)

As for the minor hypothesis can be formulated as follows:
H1: Leadership positively affects company performance.
H2: Supplier Quality Management positively influences the performance of the company.
H3: Vision and Plan Statement positively influence the performance of the company.
H4: Evaluation has a positive effect on the performance of the company
H5: Process control and improvement have a positive effect on the performance of the company
H6: Product Design has a positive impact on company performance
H7: Quality System Improvement has a positive impact on the performance of the company.
H8: Employee Participation influences the performance of the company.
H9: Recognition and Reward influence the performance of the company.
H10: Education and Training have positive impact on company performance
H11: Customer Focus has a positive impact on the performance of the company.

III. RESEARCH METHODS

Sample, Unit of Analysis and Data Collection Methods

Data about the profile of the respondents, the level adoption or implementation of TQM practices were obtained by distributing questionnaires to the CEO or top managers of companies. The unit of analysis of this research is the organization. Samples taken randomly from the companies listed in the Directory of Manufacturing published by the Central Bureau of Statistics, New Edition. For the purposes of this study, researchers will only focus on small and medium scale manufacturing enterprises are located in East Java, taken as a sample is a manufacturing company has a workforce of less than 500 workers.

Variables and Measures

This study uses various sources of available literature to measure the variables. The complete variables used in the study and measurement described in the following section. The independent variables in this study is the level of implementation of TQM consists of eleven construct: leadership, supplier quality management, vision and planning, evaluation and improvement process control, employee participation, recognition and rewards education and training and focus on the customer. 5-point Likert scale is used to measure the level of implementation of TQM (1 = strongly disagree and 5 = strongly agree). To measure the practice of leadership and improvement of the quality system, recognition and rewards, as well as improvements and process control, this study modifying the instrument developed by Zhang et al (1999), Flynn et al (1994) and Saraph et al (1989). Measurement vision and the planning, evaluation, product design, employee participation procedures and focusing on customer research using items developed by Zhang, et al (1999). While the supplier quality management and education and training is measured using items that have been built by a Seraph (1989), which combined with instrument Ahire, et al. (1996) and adapted to the purpose of this study. Dependent variable. The dependent variable in this study is the performance of the companies evaluated based on three dimensions: financial performance, human resource and operational performance. The firms' performance is seen from the perspective of its performance relative to its competitors to assess the positional advantage from this perspective Subsequently the company's performance is measured using a 5-point Likert scale (1 = performance is much worse than its competitors and 5 = performance is much better than competitor competitors) built by Zhang, et al (1999).

Multiple Linear Regression Analysis.

According to Tjiptono (2003), the regression analysis is useful to predict how far the influence of one or more independent variables (X) to the dependent variable (Y). Simple linear regression only examines the relationship between the independent variables and the dependent variable, while the multiple linear regression examines the relationship between a dependent variable and several independent variables (Manurung, 2005).

IV. DATA ANALYSIS

Data and Response Rate

Total questionnaires of 400 questionnaires sent to manufacturing companies in the area of East Java. Of the 400 questionnaires have been sent through post, 6 companies are not willing to participate, 17 questionnaires were returned to the researchers with some of the reasons the company closed, change the address, and the address is not known. Researchers also sent a follow up letter after 2 weeks questionnaire submitted.

Validity and Reliability Tests

The results of this study demonstrate the reliability of the instrument is quite high (Nunally, 1978). Cronbach's alpha for all instruments for measuring each variable ranging from 0.5615 to 0.9210. Judging from the homogeneity coefficient items significant questions at alpha .01 and .05, This indicates that the item - questions used in this study is reliable and valid. Of the total 105 item in question there is 1 item in question is excluded from the analysis (depro4) because it has a value homogeneity items were not significant.

Hypothesis testing

Hypothesis testing is done by using multiple regression analysis to see the effect of management practices on firm performance, all indicators i.e. the performance of financial, operational, and performance of human resources (HR). If the regression coefficient was significant at $P < 0.05$ means that the independent variables have a significant influence on the dependent variable. The regression coefficient indicates the accuracy of the regression line and measure the ability of the model to explain variations in the dependent variable. The larger the R2, the better the model describes the variation in the dependent variable. Results of testing the model using multiple regression analysis are summarized in Table 4.1-4.3. Various research findings can be summarized as follows: First, a regression model to financial performance as the dependent variable, the value of F test worth 3,879 with significance level of 0.001 indicates that management practices and quality (ie leadership, management of supplier quality, vision and planning, evaluation process control improvement, product design, quality system design, participation, rewards and recognition, education and training, as well as customer focus) simultaneously has significant influence on financial performance. 0516 R2 value indicates that jointly practices of quality management can explain the variation in financial performance as of 5.16%. Partial can be concluded that the only variable leadership, supplier quality management, quality system design, education and training, and customer focus have significant influence on financial performance.

Table 4.1.
Impact of TQM Implementation on Financial Performance

Dep Var	Para meter	B	SE	t	Sig	F	Sig	R2
Financial Performance	(Constant)	-1.489	1.845	-.807	.424	3.879	.001[a]	.516
	Leadership	.927	.347	2.672	.011			
	Supplier quality Management	-.694	.364	-1.905	.064			
	Vision and Planning	.278	.466	.596	.554			
	Evaluation	.061	.439	.139	.890			
	Process Control Improvement	.326	.365	.894	.377			
	Product design	-.425	.483	-.880	.384			
	Quality System Design	.654	.353	1.853	.071			
	Employee Participation	.180	.509	.354	.725			
	Reward	.576	.408	1.413	.165			
	Education dan training	-1.529	.542	-2.821	.007			
	Customer Focus	1.219	.382	3.190	.003			

Second, a regression model with operational performance as the dependent variable, the value of F test worth 3.430 with a significance level of 0.002 indicates that management practices and quality (ie leadership, management of supplier quality, vision and planning, evaluation, process control improvement, product design, quality system design, participation, rewards and recognition, education and training, as well as customer focus) simultaneously have a significant influence on the operational performance. The value of R2 = 0.485 indicates that jointly practices of quality management can explain the variation in financial performance by as much as 4.85%. Partial can be concluded that the only variable leadership, supplier quality management, rewards and recognition, education and training, and customer focus have a significant influence on the operational performance.

Table 4.2.
Impact of TQM Implementation on HR Performance

Dep Var	Para meter	B	SE	t	Sig	F	Sig	R2
Operational Performance	(Constant)	-.631	1.291	-.489	.628	3.430	.002[a]	.485
	Leadership	.655	.243	2.697	.010			
	Supplier quality Management	-.519	.255	-2.034	.049			
	Vision and Planning	-.197	.326	-.605	.549			
	Evaluation	.209	.307	.681	.500			
	Process Control Improvement	.416	.255	1.630	.111			
	Product design	-.098	.338	-.290	.773			
	Quality System Design	.228	.247	.922	.362			
	Employee Participation	.271	.356	.761	.451			
	Reward	.617	.285	2.161	.037			
	Education dan training	-1.015	.379	-2.677	.011			
	Customer Focus	.830	.267	3.106	.003			

Third, the regression model with HR performance as the dependent variable, the value of F test

worth 3,685 with significance level of 0.001 indicates that management practices and quality (ie. leadership, management of supplier quality, vision and planning, evaluation, process control improvement, product design, quality system design, participation, rewards and recognition, education and training, as well as customer focus) simultaneously have a significant influence on the performance of human resources. The R2 = 0515 shows that jointly practices of quality management can explain the variation in HR performance as of 5:15%. Partial can be concluded that the only variable leadership and customer focus have a significant influence on the performance of human resources. The result of this research seems to be consistent with the finding of Pudelko and Harzing, (2010) and also Firkola (2006), in the case of Japanese Human Resource Management who found that leadership and HRM have a significant impact on HR Performance.

Table 4.3.
Impact of TQM Implementation on Operational Performance

Dep Var	Para meter	B	SE	t	Sig	F	Sig	R2
HR Perfommance	(Constant)	-1.072	1.099	-.976	.335	3.865	.001[a]	.515
	Leadership	.458	.207	2.217	.032			
	Supplier quality Management	.011	.217	.052	.959			
	Vision and Planning	-.126	.278	-.452	.654			
	Evaluation	-.412	.261	-1.576	.123			
	Process Control Improvement	.165	.217	.760	.452			
	Product design	.260	.288	.904	.371			
	Quality System Design	.095	.210	.452	.654			
	Employee Participation	.381	.303	1.257	.216			
	Reward	-.281	.243	-1.155	.255			
	Education dan training	-.218	.323	-.675	.504			
	Customer Focus	.925	.228	4.065	.000			

V. CONCLUSIONS AND SUGGESTIONS

Results of testing the effect of the implementation of the management practices on the performance of small and medium scale manufacturing enterprises in East Java shows that: (1). Simultaneously shows that management practices and quality (ie leadership, management of supplier quality, vision and planning, evaluation, process control improvement, product design, quality system design, participation, rewards and recognition, education and training, as well as customer focus) have an influence significant to the financial performance, operational performance, and the performance of human resources. (2). Partial conclusions: First, variable leadership, supplier quality management, quality system design, education and training, and customer focus have significant influence on financial performance. Second, variable leadership, supplier quality management, rewards and recognition, education and training, and customer focus have a significant influence on the operational performance. Third, leadership and customer focus of variables that have a significant influence on the performance of HR

This study does have some limitations, among others: (1). The research sample includes some of the industry (multiple industry). The composition of the industry in the sample may indicate the variability in performance among the industry so

that the effect of the industry needs to be controlled. In this study, control over the effect the industry has not done. (2) .In the measurement of operating performance, respondents still use a method that can lead to perceptual bias in the measurement. In spite of some limitations of the study owned, research is expected to provide benefits to the company's consideration in implementing quality management practices integrated. The results of this study are expected to also contribute to academics and practitioners, especially in developing operations management literature in general and quality management in particular.

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