RELATIONSHIP BETWEEN TOTAL QUALITY MANAGEMENT ELEMENT, OPERATIONAL PERFORMANCE AND ORGANIZATIONAL PERFORMANCE IN FOOD PRODUCTION SMEs

JAM
17, 2
Received, February 2019
Revised, April 2019
Mei 2019
Accepted, Mei 2019

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Abstract: The system of improvement and quality management has a fairly rapid development to answer the needs of consumers in the future. TQM is a solution to improve quality in the SMEs food industry, which contributes greatly to the developing countries. The purpose of this paper is to explore the relationship between TQM elements consisting of "Soft" and "Hard" aspects, for operational performance and their impact on the performance of SME organizations. Empirical data was taken from 136 SMEs in food production in the East Java Region of the Republic of Indonesia. This study uses Confirmatory Factor Analysis to test construct reliability and validity, while the relationship between variables is examined through Partial Least Square. This research proves that improving operational performance is influenced by the element "Soft" and "Hard" TQM and organizational performance achievement is influenced by operational performance. The fact that this research is based on the quality perspective of SME owners of food production and is expected to have an impact on future research on operational management in SMEs. To achieve benefits and obtain sustainable competitive advantages for companies at the SME level, "Hard" TQM and "Soft" TQM are not enough, a quality-oriented organizational culture is needed to solve them.

Keywords: Total Quality Management, Operational Performance, Organizational Performance, SMEs, Food Production

Cite this article as: Sutrisno, Timotius F. C. W. 2019. *Relationship between Total Quality Management Element, Operational Performance and Organizational Performance in Food Production SMEs*. Jurnal Aplikasi Manajemen, Volume 17, Number 2, Pages 285–294. Malang: Universitas Brawijaya. http://dx.doi.org/10.21776/ub.jam.2019.017.02.11

Journal of Applied Management (JAM)
Volume 17 Number 2, June 2019
Indexed in Google Scholar

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Improvement systems and quality management have fairly fast development to answer consumer needs. System development has changed the pattern of determination and quality standards in each company. When Deming introduced Total Quality Management (TQM) in the 1950s, it became a contradiction where Japan adopted its philosophy while the USA rejected its principles (C. B. Fotopoulos & Psomas, 2009). This is the basis for the development of Japanese companies' process technology to be the best to date. Various organizations from each sector to their type plan to implement TQM and do it. But having the desire and enthusiasm for implementing TQM is not enough to ensure the success of the strategy in the context of Small and Medium Enter-

prises (SMEs). SMEs organizations have different production patterns with manufacturing production in quality implementation (Christian, et al., 2018). Basically, each organization must have a deep quality culture and make quality a source of organizational competitive advantage. In addition, although the spread of TQM adoption already exists throughout the world, not all organizations get the expected results.

Global competition brings challenges and opportunities for SMEs engaged in the food production sector in Indonesia. Therefore SMEs engaged in the food production sector in the Indonesian region must be able to create conditions to answer these challenges. They must focus on "Soft" and "Hard" elements in TQM that support their position in the domestic and international markets. Almost all TQM references state that there are two sides to the elements namely "Hard" and "Soft"(C. B. Fotopoulos & Psomas, 2009; Winston G. Lewis, Pun, & Lalla, 2006). The "Soft" side is related to management concepts and principles such as leadership, human resource management, process management, continuous improvement, while the "Hard" side refers to quality improvement tools and techniques (W. G. Lewis, Pun, & Lalla, 2006). The "Soft" element of TQM is a long-term problem and therefore, must be emphasized and handled properly. Thus, it is hoped that this paper can contribute to the development of guidelines that can be used in SME business organization strategies to obtain the expected results in operational performance.

Quality becomes a demand for every fulfillment of consumer needs by each provider of goods or services. Where consumers deserve to live with a very good level of quality, this requires hard work to find a dynamic path from meeting consumer needs and what makes life better for the next generation. The industrial revolution introduced many definitions in human life, where quality was considered as one of the most important definitions that appeared on the surface (Erformance & Mithas, 2011). According to Erformance & Mithas, (2011), quality is "the business of doing business", this competition is about capturing a larger segment of domestic and international business. To answer the challenge, more and more family businesses engaged in manufacturing focus their focus on customer needs by optimizing the internal factors of the organization, so quality is the answer.

Theories of Resource Base View (RBV) in companies focus on internal factors that influence organizational performance to achieve competitive advantage (Barney,1991; Wernerfelt, 2007). In addition, RBV develops as a set of resources that add positive value, is unique, difficult to imitate, and irreplaceable (Barney, 1991). In the development of TQM, it is seen as an intangible resource and capability that guides companies to achieve competitive advantage (Saleh, Sweis, & Mahmoud Saleh, 2018).

TQM develops with various approaches such as 14 points of Deming and the cycle of Plan Do Check Action (PDCA), Juran quality trilogy (Planning, control and improvement), Crosby's absolutes of quality management (compliance with requirements, prevention, zero defects and quality costs), Gravin's quality dimension, Ishikawa's cause and effect diagram, Feigenbaum's three steps for quality (quality leadership, modern quality technology and organizational commitment) and Taguchi's advice to the company, are the most important aspects of the TQM framework recommended by quality experts (C. B. Fotopoulos & Psomas, 2009).

Apart from differences in views about what constitutes TQM there is a number of common elements that run through various definitions to achieve business operational performance. Soft TQM elements as defined from various studies are as follows (Table 1): Top management commitment, continuous improvement, training and education, customer focus, process management, workforce management, supplier relationship.

Hard TQM practices are related to enhancement tools and quality management systems that are expected to be able to improve and support the implementation of the "Soft" TQM properly (Winston G. Lewis et al., 2006). The "Hard" aspects of TQM generally include the quality system, production management, and information feedback (Gadenne & Sharma, 2009). Hard TQM including Statistical process control, production management, quality tool and techniques, and product design

Table 1 "Soft" TQM element used in recent studies

	Article
Soft TQM	
Top management commitment (TMC)	(Abdallah, 2013a; Das, Kumar, & Kumar, 2011; C. B. Fotopoulos & Psomas, 2009; Gadenne & Sharma, 2009; W. G. Lewis et al., 2006; Winston G. Lewis et al., 2006; Psomas, Vouzas, & Kafetzopoulos, 2014)
Continuous improvement (CI)	(Abdallah, 2013a; Das et al., 2011; C. B. Fotopoulos & Psomas, 2009; Gadenne & Sharma, 2009; W. G. Lewis et al., 2006; Winston G. Lewis et al., 2006; Prajogo, 2005; Prajogo & Tan, n.d.; Psomas et al., 2014; Saleh et al., 2018)
Training and education (TE)	(Abdallah, 2013a; Albuhisi & Abdallah, 2018; Das et al., 2011; C. B. Fotopoulos & Psomas, 2009; Gadenne & Sharma, 2009; Winston G. Lewis et al., 2006)
Customer focus (CF)	(Abdallah, 2013a; Albuhisi & Abdallah, 2018; Das et al., 2011; C. B. Fotopoulos & Psomas, 2009; Gadenne & Sharma, 2009; Prajogo & Sohal, 2004; Psomas et al., 2014)
Process management (PM)	(Abdallah, 2013a; Das et al., 2011; C. B. Fotopoulos & Psomas, 2009; C. V Fotopoulos & Psomas, 2010; Prajogo, 2005; Prajogo & Sohal, 2004; Prajogo & Tan, n.d.; Psomas et al., 2014; Saleh et al., 2018)
Workforce management (WM)	(Abdallah, 2013a; Albuhisi & Abdallah, 2018; Gadenne & Sharma, 2009)
Supplier relationship (SR)	(Abdallah, 2013a, 2013b; Albuhisi & Abdallah, 2018; Das et al., 2011; Psomas et al., 2014)

(Abdallah, 2013b). These four things focus on general process control, which aims to achieve a continuous quality of products and systems (Table 2).

Operational performance is defined as "performance related to the organization's internal operations processes such as productivity, product quality, and customer satisfaction (W. G. Lewis et al., 2006). Some research papers studying the operational performance and practice of TQM elements are as follows (Table 3):

Table 2 "Hard" TQM element used in recent studies

	Article
Hard TQM	
Statistical process control (SPC)	(Abdallah, 2013a; C. V Fotopoulos & Psomas, 2010; Gadenne & Sharma, 2009; W. G. Lewis et al., 2006; Saleh et al., 2018)
Production management (PM)	(Abdallah, 2013a, 2013b; C. B. Fotopoulos & Psomas, 2009; C. V Fotopoulos & Psomas, 2010; Psomas et al., 2014; Saleh et al., 2018)
Quality tool and technique (QnT)	(C. V Fotopoulos & Psomas, 2010; Gadenne & Sharma, 2009; W. G. Lewis et al., 2006; Madi & Abdullah, 2015; Psomas et al., 2014; Saleh et al., 2018)
Product design (PD)	(Abdallah, 2013a; C. B. Fotopoulos & Psomas, 2009; C. V Fotopoulos & Psomas, 2010; Gadenne & Sharma, 2009; Psomas et al., 2014; Saleh et al., 2018)

Table 3 Operational performance according to recent studies

	Article
Operational performance	
Operational performance	(Prajogo & Tan, n.d.; Saleh et al., 2018; Temtime & Solomon, 2002; Youssef & Youssef, 2018; Zelbst, Green, Sower, & Abshire, 2014)

Consider the previous literature study, to form indicators as a measure of operational performance as follows: (1) improving product quality, (2) service quality, (3) increasing productivity, (4) reducing disability costs, (5) reducing waiting time (6) the accuracy of product delivery, and (7) inventory performance.

Some empirical evidence shows that TQM can help managers manage organizations to improve performance and effectiveness in achieving global markets (Deming, 1982). As a management philosophy, the success factors of TQM are identified and explained in many different studies according to the context of their studies. For example, Dahlgaard, et al. (2005: 18), identified five principles, namely, management commitment, customer focus, focus on facts, continuous improvement, and participation. In addition (Kr Singh, 2011) discusses TQM in SMEs considering five things, namely, management commitment, employee training, employee empowerment and participation, coordination between departments and supplier development, in this study measuring organizational performance includes (1) Financial performance, (2) Sales performance, (3) Customer Satisfaction and (4) Internal processes (Table 4).

Table 4 Organizational performance according to recent studies

	Article
Operational performance	
Organizationalperformance	(Cândido, n.d.; C. V Fotopoulos & Psomas, 2010; Winston G. Lewis et al., 2006; Prajogo, 2005; Prajogo & Sohal, 2004; Prajogo & Tan, n.d.)

The relationship between TQM and organizational performance has developed in the literature. A comprehensive review of the literature reveals that most support a positive and significant relationship between TQM and organizational performance (C. B. Fotopoulos & Psomas, 2009; Winston G. Lewis et al., 2006; Prajogo, 2005; Prajogo & Tan, n.d.) But other studies have found different results (Cieri, Samson, & Sohal, 1991; Prajogo & Sohal, 2004). These findings are not consistent in the literature, so further research is needed with different contexts, especially studies in SME organizations in developing countries where they are still looking for suitable models. Base on the above theoretical background and the research proposal suggested by many authors, the following research hypotheses are formulated:

1. Soft TQM element has a significant direct impact on operational performance.
2. Operational Performance has a significant direct impact on organizational performance.
3. Soft TQM element has a significant direct impact on organizational performance.
4. Hard TQM element has a significant direct impact on organizational performance.
5. Hard TQM element has a significant direct impact on organizational performance.

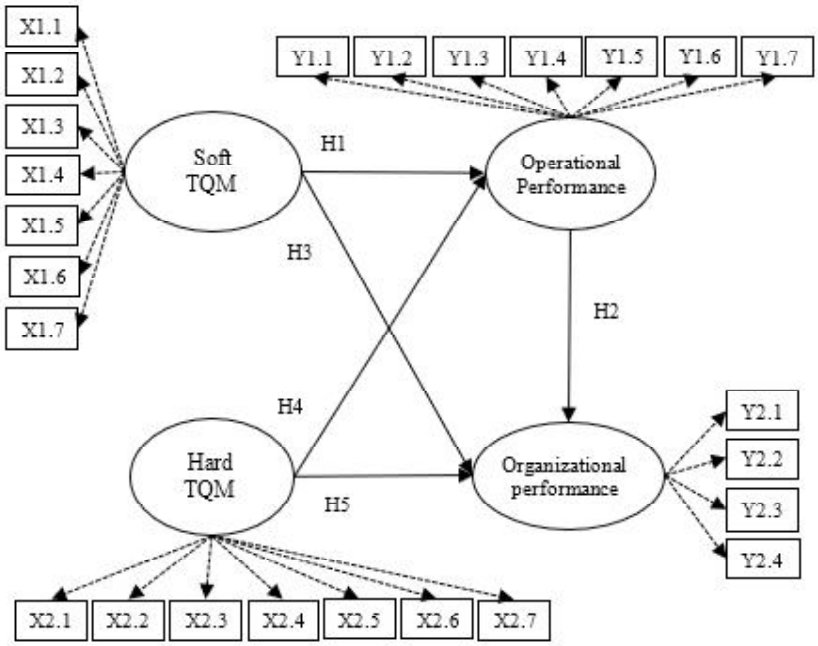

Figure 1 Structural model

METHOD

To test the hypothesized model, this study used a survey questionnaire research design and qualitative approach. Data were collected from respondents who are SMEs owners of food production in the East Java region which consists of 4 cities namely Sidoarjo, Pasuruan, Mojokerto, and Kediri, Indonesia which is registered with the Office of Cooperatives and SMEs of the Republic of Indonesia.

The measurement scale used in this study is a Likert scale. Likert scale is used to measure attitudes, opinions and perceptions of a person about social phenomena, where the answers to each instrument item have gradations (1) strongly disagree, (2) disagree, (3) neutral, (4) agree, (5) strongly agree.

Data collection by researchers was carried out by sending questionnaires to each SMEs owner of food production in East Java via e-mail and paper question as many as 136 SMEs registered at the East Java Cooperative and SMEs Service. The total respondents who responded were 102 SMEs (75%). This shows that the data taken can be said to represent the condition of East Java food production SMEs of the Republic of Indonesia.

According to Hair, et al. (2005), before multivariate data analysis, we must examine assumptions about sample size, variable scale, multicollinearity, their multivariate normal distribution, and outliers. Because the sample used is more than 100, it is recommended to use Partial Least Square (PLS) analysis (Ferdinand, 2012). According to Garson (2007) and Byrne (2001), we can use the Likert scale and the Maximum Likelihood method in PLS.

RESULT

Company profile

The majority of companies that participated in this study were micro and small companies (20-35 employees), most of them had legal production permits from the local government and guaranteed the quality of their products. Food production is chosen as a sample because food products have better growth than other sectors in the country. Finally, the response rate of 75 percent of companies mapped the desire to implement the TQM principle

system to achieve operational performance and organizational performance in the future.

Confirmatory factor analysis

The measured (observed) values for the questions, obtained from the respondents, constitute the measured variables of the model, which are used as the indicators of the respective latent constructs (factors). Table V describes the results of the criteria using Partial Least Square by involving Composite variables on the indicator, Validity test, and Reliability using the Product moment and Croncbach alpha. Whereas then, the latent variables are tested for validity and reliability through CFA for each latent variable. Based on Table 5. All indicators on variables have a value greater than 0.5, which means the indicator is valid in measuring latent variables.

The reliability of above laten constructs was checked according to Hair et al. (2005), by calculating the Cronbach's alpha coefficient that was higher than 0.7 (Tabel 4). Confirmatory factor analysis by evaluating convergent validity (factor loading > 0.5, Average variance extracted > 0.5, Composite reliability >0.7). The test results of the model get an R-square value that describes the goodness-of-fit of a model. The expected r-square value is greater than zero. Table 6 shows, the value of R-Square Operational performance (Y1) is 0.538, and Organizational performance (Y2) is 0.334. Means that this research model meets the requirements. The goodness of fit inner model measurement with the results of Q Square calculations from Table 6 are obtained using the following formulations:

$$Q^2 = 1-(1-0.538) \times (1-0.434) = 0.738$$

The results of the above calculations can be interpreted that the model can explain organizational performance (Y2) of 73.8% and 26.2% explained by other variables.

Tabel. 5 Confirmatory factor analysis

Laten constructs	Observed variable	Factor loading
"Soft" TQM element (X_1)	Top management commitment	0,848
	Continuous Improvement	0,874
	Training and education	0,907
	Customer focus	0,931
	Process management	0,932
	Workforce management	0,893
	Supplier relationship	0,646
"Hard" TQM element (X_2)	Statistical process control	0,924
	Production management	0,873
	Quality tool and technique	0,886
	Product design	0,880
Operational Performance (Y_1)	Improvement of product quality	0,918
	Service quality	0,719
	Increase in productivity	0,725
	Reduction in defective costs	0,854
	Reduction in waiting time	0,815
	Accuracy of product delivery	0,839
	Inventory performance	0,855
Organizational Performance (Y_2)	Financial performance	0,951
	Sales performance	0,881
	Customer satisfaction	0,906
	Internal processes	0,814

Tabel 6 Model reliability and validity

Laten construct	Cronbach's alpha	Average variance extracted	Composite reliability	R Square
X_1	0.913	0.794	0.939	
X_2	0.917	0.672	0.934	
Y_1	0.910	0.792	0.937	0.538
Y_2	0.943	0.751	0.954	0.434

Tabel 7 Hypothesis testing

Research Hypothesis	Description	Path coefficient	T Statistics	Information
RH1	Soft TQM → Operational performance	0.508	1.762	Supported
RH2	Operational performance → Organizational performance	0.520	3.839	Supported
RH3	Soft TQM → Organizational performance	0.183	7.016	Supported
RH4	Hard TQM → Operational performance	0.451	7.791	Supported
RH5	Hard TQM → Organizational performance	0.292	2.073	Supported

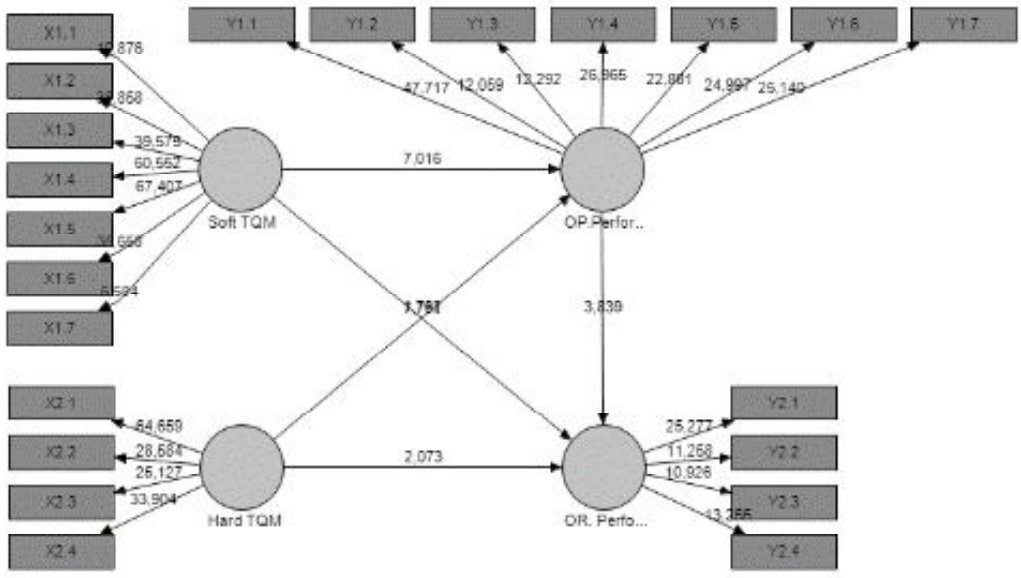

Figure 2 Partial Least Square Model

Hypothesis testing

The results of the inner path coefficient, along with the full significance values are shown in Table 7.

Based on Table 7, the interpretation of each coefficient with a sample of 102 respondents (t table: 1,659) paths then: (H1) "Soft" TQM has a significant effect with positive direction on operational per-

formance seen from the path coefficient of 0.508 with a t-statistic value of 1,762, (H2) Operational performance has a significant effect on the positive direction of organizational performance. It can be seen from the path coefficient of 0.520 with a t-statistic value of 3.389, (H3) TQM "Soft" has a significant positive direction towards organizational performance. With a t-statistic value of 7.016, (H4) "Hard" TQM has a significant effect with a positive direction on operational performance. It can be seen from the path coefficient of 0.451 with a t-statistic value of 7.791, (H5) organizational performance can be seen from the path coefficient of 0.2 92 with a t-statistic value of 2.703.

DISCUSSION

Broadly speaking, sampling SMEs in food production in the East Java region in this research, it can be concluded that they have a great desire to achieve a quality, considering that most of them start business trips from microclusters that are vulnerable to final quality. Furthermore, if we consider the wishes of most SMEs to incorporate the TQM principles into their quality systems, we are not talking about the future of hopeful quality management. But more on the company's concrete steps in optimizing the elements that have a major influence on operational performance and achievement of quality performance.

However, we must emphasize that quality management efforts undertaken by individual companies are not enough. To satisfy the final consumer, quality must be ensured to occur outside the company, such as the entire distribution network. Therefore, after quality is firmly established in the company, the company must turn its attention to the quality among retailers. Previous researchers believe that TQM can not only guarantee quality in the company but throughout the supply chain

The test results show that the two aspects of TQM, namely "Soft" and "Hard" played a significant role in achieving operational performance and organizational performance, both within and outside the firm's reach. However, it is clear that the "Soft" TQM element plays a major role, while the "hard" TQM is lower. Operational performance seems to be determined by process management quality, customer focus level, attention to workforce management, top management commitment, continuous improvement, and the importance of supplier relationship. This is consistent with findings by several previous researchers such as (Abdallah, 2013a; Gadenne & Sharma, 2009; W. G. Lewis et al., 2006). Not only that the achievement of operational performance was also influenced by the existence of simple statistical quality control, focus on Production management, Quality tool and technique, and Product design. This finding is consistent with a thorough review of the literature that largely supports a positive and significant relationship between TQM and organizational performance (C. V Fotopoulos & Psomas, 2010; Winston G. Lewis et al., 2006; Prajogo & Tan, n.d.). Based on the results of this study, the application of "Soft" and "Hard" TQM elements can lay the foundation for improving operational performance and achieving organizational performance.

Furthermore, an operational performance which is influenced by the aspects of "Soft" and "Hard" TQM has a significance for corporate organizational performance. This is not new in operation management. This finding is in line with (Wang et al., 2009; Zelbst et al., 2014). Operational aspects significantly affect the outcome of the running process, such as Improvement of product quality, Service quality, Increase in productivity, Reduction in defective costs, Reduction in waiting time, Accuracy of product delivery, and Inventory performance. Based on the results of this study, operational performance optimization can be the basis for the sustainability of the achievement of Financial performance, Sales performance, Customer satisfaction, and Internal processes that accumulate in organizational performance.

CONCLUSIONS AND RECOMENDATIONS

Conclusions

Obtaining a competitive advantage and ensuring the sustainability of the company, by achieving operational performance, satisfying customers and substantially improving the quality of its products, are significantly affected by the "Soft" and "Hard"

TQM elements. However, TQM is only a tool or "vehicle" for quality improvement. The use of quality tools alone cannot lead a company to improve quality on an ongoing basis, financial performance, sales performance, Customer satisfaction, and internal processes, without proper guidance by top management, employee participation in quality commitment and supplier support.

Recommendations

However, in this study, there are limitations. Data is a subjective proof of business originating from food production SME owners, a fact that carries the risk of accepting biased answers. This is also a study conducted on SMEs from the food production sector, and the proposed model has not yet been specifically examined for validity in the food sector. However, this can be the subject of future research on SMEs with specific types of food produced.

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