

## **The Impact of Total Quality Management Practices towards Competitive Advantage and Organizational Performance: Case of Fishery Industry in South Sulawesi Province of Indonesia**

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### **Abstract**

This study attempt to test the effect of Total Quality Management (TQM) practices towards competitive advantage and organizational performance. The design of this research has quantitative approach. Data was collected by questionnaire instrument. The unit of analysis is big and medium scale fishery companies. The respondents in this research are the managers of fishery companies. The study utilized primary data which is obtained through questionnaire. The number of population was 66 fishery companies in South Sulawesi Province, Indonesia. Random sampling is used in the study. 55 complete questionnaires were returned as a final sample. Three hypotheses have been developed through literature review and tested using Path Analysis performed by SPSS 18.00 software. The results show that TQM practices have positive and significant effect both on organizational performance and competitive advantage. Competitive advantage has a positive and significant effect on organizational performance. Organizational performance is more influenced by competitive advantage than TQM practices.

**Keywords:** TQM practices, competitive advantage, organizational performance, operation management, fishery industry, Indonesia.

### **1. Introduction**

Economic globalization brings both challenges and opportunities for industrial companies in Indonesia. Especially, manufacturing companies are confronted with a challenging and increasingly competitive environment. Therefore, they should be able to create conditions that support them both in the domestic and international markets. Both adopting and implementing a set of operations management practices was one of many ways to win the competition in the marketplace (Heizer and Render, 2004). There were many forms of best management practices in operation management area i.e. Just In Time (JIT) systems, Material Requirement Planning (MRP), Six Sigma, Lean Manufacturing, Enterprises Resources Planning (ERP), Supply Chain Management (SCM), and Total Quality Management (TQM). One of the best forms of operations management practices is Total

Quality Management (TQM). It has received great attention in the last two decades (Jung and Wang, 2006).

Total quality management (TQM) principles and techniques are now a well accepted part of almost every manager's "tool kit". According to Powel (1995), most large firms have adopted TQM in some form, and official quality awards are a badge of honor whether a company is operating in Japan, the USA, Europe, or Australia. Implementing TQM is a major organizational change that requires a transformation in the organization's culture, processes, strategic priorities, and beliefs, among others.

Quality aspect has become one of the most important factors in global competition today. Increasing demand by customers for better quality of product in market place has encouraged many companies to provide quality product and services in order to compete in the marketplace successfully. To meet the challenge of this global competition, many businesses have invested substantial resources in adapting and implementing total quality management (TQM) practices in their operations. TQM is defined as an action plan to produce and deliver commodities or services, which are consistent with customers' needs or requirements by better, cheaper, faster, safer, easier processing than competitors with the participation of all employees under top management leadership (Lakhal et al., 2006). Therefore, manufacturing companies should be focus to quality. Attention to quality generates positive impact to business performance through both the impact on production costs and earnings (Gaspersz, 2005).

Generally, competitive advantage suggests that each organization have one or more of the following capabilities when compared to its competitors, such as lower prices, higher quality, higher dependability, and shorter delivery time. These capabilities will enhance the organization's overall performance (Mentzer *et al.*, 2000). Organization can charge premium prices and increase its profit margin on sales and return on investment (ROI), if they can able to offer the high quality products consistently. Each organization has a short time to market and rapid product innovation can be the first in the market, so they will enjoy a higher market share and sales volume (Li *et al.*, 2006).

The previous studies which test the relationship between TQM practice and organizational performance have been done by researchers. For example, Samson and Terziovski (1999) examine the effect of total quality management practices on operational performance of a large number of manufacturing companies (1200 Australian and New Zealand manufacturing organizations). The study reveals that the relationship between TQM practice and organizational performance is significant in a cross-sectional sense, but not all of the categories of TQM practice were particularly strong predictors of performance. The categories of leadership, management of people and customer focus were the strongest significant predictors of operational performance.

The other empirical studies that test the relationship between TQM practices and company performance (e.g. Terziovski and Samson, 1999; Flynn and Saladin, 2001; Sila and Ibrahimpour, 2005; Li *et al.*, 2006; Lakhal *et al.*, 2006). Mostly researchers find out a positive relationship between TQM practices and performance. Empirically, there were lack of the studies which test the relationship between TQM practices, competitive advantage and organizational performance in the literature.

The aim of this study is to test the relationships among TQM practice, competitive advantage, and organizational performance. TQM practice construct can both directly and

indirectly related to organizational performance. In addition, this study investigates the mediating role of competitive advantage in explaining the relationship between TQM practices and organizational performance at Fishery Industry in South Sulawesi, Indonesia.

## **2. Literature Review**

### *2.1 Total Quality Management*

There is no consensus on the definition of quality. The notion of quality has been defined in different ways by different authors. Gurus of the total quality management disciplines such as Garvin, Juran, Crosby, Deming, Ishikawa and Feigenbaum defined the concept of quality and total quality management in different ways. Garvin proposed a definition of quality in terms of the transcendent, product based, user based, manufacturing based and value based approaches. Garvin also identified eight attributes to measure product quality (Garvin, 1987). Juran defined quality as “fitness for use”. Juran focused on a trilogy of quality planning, quality control, and quality improvement. Crosby defined quality as “conformance to requirements or specifications”. According to Crosby, requirements are based on customer needs. Crosby identified 14 steps for a zero defect quality improvement plan to achieve performance improvement (Kruger, 2001).

According to Deming, quality is a predictable degree of uniformity and dependability, at low cost and suited to the market. Deming also identified 14 principles of quality management to improve productivity and performance of the organization. Ishikawa also emphasized importance of total quality control to improve organizations’ performance. He contributed to this area by using a cause and effect diagram (Ishikawa diagram) to diagnose quality problems (Kruger, 2001).

Feigenbaum described the concept of organization wide total quality control. He was the first user of total quality control concept in the quality literature. He defined quality as “the total composite product and service characteristics of marketing, engineering, manufacturing and maintenance through which the product and service in use will meet the expectations by the customer” (Kruger, 2001). Major common denominators of these quality improvement plans include management commitment, strategic approach to a quality system, quality measurement, process improvement, education and training, and eliminating the causes of problems. Total quality management is the culture of an organization committed to customer satisfaction through continuous improvement. This culture varies both from one country to another and between different industries, but has certain essential principles which can be implemented to secure greater market share, increased profits, and reduced costs (Kanji and Wallace, 2000).

Management awareness of the importance of total quality management, alongside business process reengineering and other continuous improvement techniques was stimulated by the benchmarking movement to seek study, implement and improve on best practices (Zairi and Youssef, 1995). The commitment to continuous improvement historically originated in manufacturing firms; but spread quickly to the service sector (e.g. teller transactions in banks, order processing in catalog firms, etc.).

Furthermore, to determine critical factors of total quality management, various studies have been carried out and different instruments were developed by individual researchers

and institutions such as Malcolm Baldrige Award, EFQM (European Foundation For Quality Management), and the Deming Prize Criteria. Based on these studies, a wide range of management issue, techniques, approaches, and systematic empirical investigation have been generated.

Accordingly, Saraph *et al.* (1989) developed 78 items, which were classified into eight critical factors to measure the performance of total quality management in an organization. These critical factors are: Role of divisional top management and quality policy, role of the quality department, training, product and service design, supplier quality management, process management, quality data and reporting, and employee relations.

Flynn *et al.* (1994) developed another instrument to determine critical factors of total quality management. Flynn *et al.* identified seven quality factors. These are top management support, quality information, process management, product design, workforce management, supplier involvement, and customer involvement. As it is seen, this instrument is very similar to the preceding instrument that was developed by Saraph *et al.* (1989). Flynn *et al.* (1995) measured the impact of total quality practices on quality performance and competitive advantage.

In another noteworthy study, Anderson *et al.* (1994) developed the theoretical foundation of quality management practice by examining Deming's 14 points. They reduced the number of concepts from 37 to 7 using the Delphi Method. These are visionary leadership, internal and external cooperation, learning, process management, continuous improvement, employee fulfillment, and customer satisfaction.

Black and Porter (1996) also identified critical factors of the total quality management using the Malcolm Baldrige Award criteria and investigated their validity by empirical means. They developed 32 items, which were classified into ten critical factors. These factors are: Corporate quality culture, strategic quality management, quality improvement measurement systems, people and customer management, operational quality planning, external interface management, supplier partnerships, teamwork structures, customer satisfaction orientation, and communication of improvement information. Various authors have also assessed the validity of Malcolm Baldrige Award Criteria (Flynn and Saladin, 2001).

Ahire *et al.* (1996) developed twelve integrated quality management constructs through detailed analysis of literature to determine critical factors of quality management of organizations. They identified twelve factors. These are supplier quality management, supplier performance, customer focus, statistical process control usage, benchmarking, internal quality information usage, employee involvement, employee training, design quality management, employee empowerment, product quality, and top management commitment.

Motwani (2001) visualizes TQM as constructing a house. First, putting top management commitment to TQM as the base or foundation. Without a strong foundation, the house will never stand. Once the foundation is in place, attention should be given to employee training and empowerment, quality measurement and benchmarking, process management, and customer involvement and satisfaction. These factors can be viewed as the four pillars of a house. Once the pillars are being put in place and enriched, it is time

to incorporate the factors of vendor quality management and product design. These are the final elements to achieving TQM.

Therefore, the problem in reaching consensus on dimensions is the broad range of approaches used by various TQM authors. For example, some authors focus on the technical and programmatic properties of TQM, while others look at the general management philosophy. Very few authors (Saraph *et al.*, 1989; Anderson *et al.*, 1994; Flynn *et al.*, 1994; Ahire *et al.*, 1996; Black and Porter 1996; Motwani, 2001; Sila and Ebrahimpour, 2005; Demirbag *et al.*, 2006) have looked at the holistic picture when formulating constructs of TQM. So, the examination of TQM constructs accordance with the goals of each investigator, but these concept will complement one another.

Based on the description above, the TQM practices construct uses in this study consists of leadership, strategic planning, customer focus, information and analysis, people management, process management, and supplier management.

### 2.2 *Competitive advantage*

There are two complementary models of competitive advantage (Reed *et al.*, 2000). The first model is the market-based model, focuses on cost and differentiation and contends that the environment selects out firms that are inefficient or that do not offer products for which consumers are prepared to pay a premium price. The second model focuses on the firm's resources and is driven by factors that are internal to the firm.

There is an agreement between Deming and Juran that the purpose of quality management is to reduce costs and improve customer satisfaction. These ideas fit closely with the market based view of competitive advantage arising from a superior cost structure or being able to differentiate products in a way that adds value for customers.

Competitive advantage is the extent to which an organization is able to create a defensible position over its competitors (Porter, 1985; Barney 1991). It comprises capabilities that allow an organization to differentiate itself from its competitors and is an outcome of critical management decisions. The empirical literature has been quite consistent in identifying price/cost, quality, delivery, and flexibility as important competitive capabilities (Tracey *et al.*, 1999).

On the basis of prior literature, Koufteros *et al.* (Li *et al.*, 2006) describe a research framework for competitive capabilities and define the following five dimensions: competitive pricing, premium pricing, and value to customer quality, dependable delivery, and production innovation. These dimensions are also described by Li *et al.* (2006). Based on the description above, the competitive advantage constructs uses in this study consists of price or cost, delivery dependability, product innovation, and time to market.

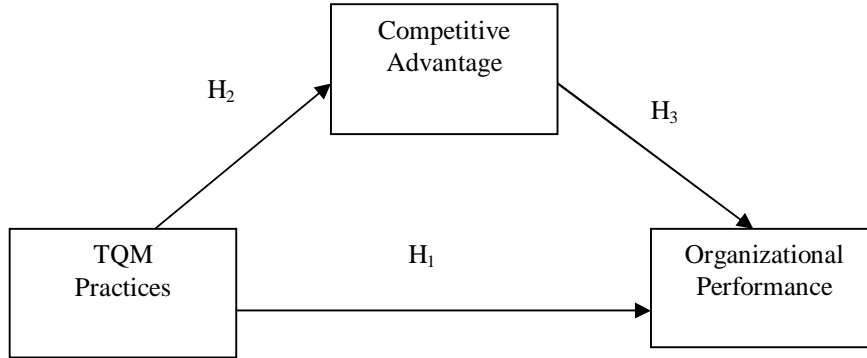
### 2.3 *Organizational performance*

Performance measurement is very important for the effective management in organization. According to Deming without measuring something, it is impossible to improve it. Organizational performance refers to how well an organization achieves its market-oriented goals as well as its financial goals (Li *et al.*, 2006). Corporate performance is not often described in detail by academics. The traditional approach to performance measurement using solely financial performance measure is flawed. A number of prior studies have measured organizational performance using both financial

and market criteria, including return on investment (ROI), market share, profit margin on sales, the growth of ROI, the growth of sales, and the growth of market share (Stock *et al.*, 2000). In line with the above literature, the same items will be adopted to measure organizational performance in this study.

### 3. Research Framework and Hypotheses

The figure below is the research framework developed in this research. The framework shows that TQM practices can improve the organizational performance both directly and indirectly through the role of competitive advantage. The research framework could be seen as follows.



**Figure 1: Research Framework**

Research framework above generates three hypotheses will be tested in the study. Therefore, the hypotheses could be formulated as follows:

- H<sub>1</sub> : Total Quality Management (TQM) practices has significant effect toward organizational performance
- H<sub>2</sub> : Total Quality Management (TQM) practices has significant effect toward competitive advantage
- H<sub>3</sub> : Competitive advantage has significant effect toward organizational performance

### 4. Research Method

This study uses a quantitative approach. Quantitative approach is an approach that emphasizes testing theories or concepts through the variable metric measurements and performing data analysis procedure with statistical tools and aims to test the hypothesis (Sugiyono, 2008). The data used in this study were obtained from a questionnaire method. Respondents are manager who have the best knowledge about the operation and quality management in organization. So, it was decided to choose managers who are relevant for the current study such as quality managers, and production/operation managers. The information about the companies was obtained from the Statistical Bureau Center of South Sulawesi Province, Indonesia. The population of this study consisted of registered fishery companies. There were 66 fishery companies registered officially (BPS South Sulawesi, 2009). As many as 66 units of fishery companies were surveyed. The questionnaires mailed by post in part, and the rest delivered directly by researchers at

company sample. A number of 55 questionnaires were collected until the end of survey. Therefore, the final sample for the study is 55 fishery companies. Sampling method uses population sampling or census (Sugiyono, 2008).

There were three variables studied, namely: Total Quality Management (TQM) practices, competitive advantage, and organizational performance. Total Quality Management (TQM) practices are taken as exogenous variables. While, competitive advantage, and organizational performance are endogenous variables. Seven items were used to measure TQM practices in organizations based on the aspects leadership, strategic planning, customer focus, information and analysis, people management, process management, and supplier management (Sila and Ebrahimpour, 2005). The competitive advantage variable was measured by price/cost, delivery dependability, product innovation, and time to market (Li *et al.*, 2006). While organizational performance was measured based on the aspects return on investment (ROI), market share (Stock *et al.*, 2000).

Furthermore, overall indicators in the questionnaire of the study uses five-point Likert scale was employed for scoring responses (1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree). For easier interpretation of the results of the study, the scale is changed into interval class as follows: (1) 1.00 to 1.80 = Very Low; (2) 1.81 to 2.60 = Low; (3) 2.61 to 3.40 = high enough, (4) 3.41 to 4.20 = High; and (5) 4.21 to 5.00 = Very High (Sugiyono, 2008).

The validity instrument tested by Pearson Product Moment Correlation. An instrument has high validity if the correlation value of each indicator to total correlation more than 0.30 or  $r$ -value  $> 0.30$  (Cooper and Emory, 2002). Reliability of constructs were tested with Cronbach's Alpha. As suggested by Hair *et al.* (1998), the cut off point for Cronbach's Alpha was  $> 0.60$ . The results of validity and reliability test presented in table 1. Based on the table, value of correlation ( $r$ ) and Cronbach's  $\alpha$  were well above the criteria. So, it can be concluded that the instrument used in this study was valid and reliable.

**Table 1: Results for Validity and Reliability Test**

No.	Variables/Indicators	Corrected item-total correlation	Cronbach's $\alpha$	Description
1.	TQM Practices (X)		0.716	Reliable
	Leadership	0.577		Valid
	Strategic planning	0.640		Valid
	Customer focus	0.444		Valid
	Information and analysis	0.508		Valid
	People management	0.711		Valid
	Process management	0.488		Valid
	Supplier management	0.543		Valid
2.	Competitive Advantage (Y <sub>1</sub> )		0.699	Reliable
	Cost/Price	0.466		Valid
	Delivery dependability	0.678		Valid
	Product innovation	0.552		Valid
	Time to market	0.445		Valid
3.	Organizational Performance (Y <sub>2</sub> )		0.772	Reliable
	Return on investment (ROI)	0.398		Valid
	Market share	0.482		Valid
	Sales	0.445		Valid

According to the research objectives, the data analysis uses both Descriptive statistical analysis and Inference statistical analysis, namely Path Analysis. Descriptive statistical analysis aims to provide a snapshot of demographic research respondents i.e. age, sex, education level, and position. While, path analysis is used to test the hypotheses. Path analysis uses simple bi-variate correlations to estimate causal relations in a structural equation system. One advantage of path analysis over conventional regression analyses is the ability to extend the single-multiple-regression-equation treatment to a network of equations involving more than one equation. In addition, this method can differentiate direct and indirect effects (Hair *et al.*, 1998).

### 5. Results and Discussions

Respondents of this study have quite different characteristics. Diversity can be seen from the personal data of respondents including sex, age, position, and educational level in the organization. A total 55 respondents who participated in this study. The majority of respondent who participated in this research was male gender (84%), aged between 30 to 40 years (63%), having position within the company as a production manager and operations (53%), and having level of education Bachelor degree (75%).



Furthermore, the research variables tested in this study consisted of three variables, namely Total Quality Management (TQM) practices, competitive advantage, and organizational performance. Respondents answered each item on the TQM practices variable (X), competitive advantage (Y1), and organizational performance (Y2) from strongly disagree (scale 1) to strongly agree (scale 5). Thus, the level perception of respondent on variables/constructs can be seen from mean value of items or indicators (Table II).

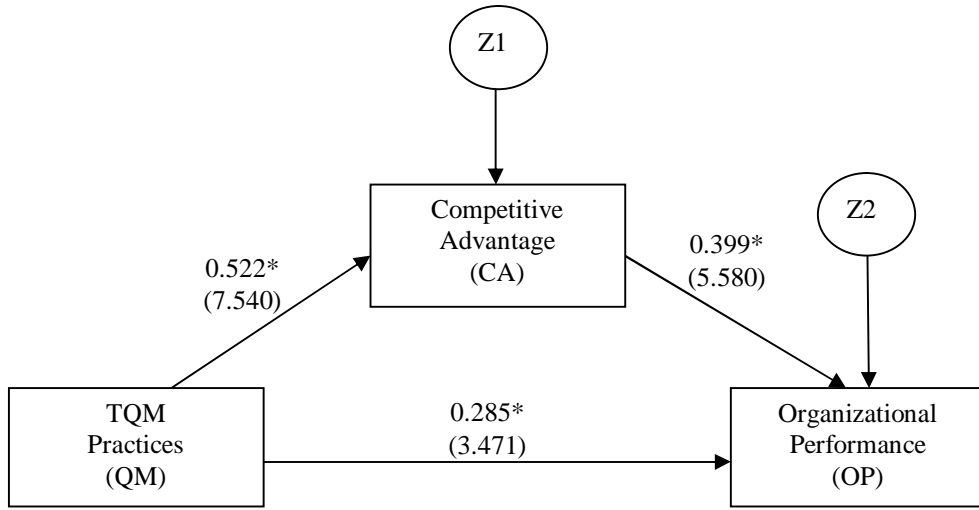
**Table 2: Results for Mean Value of Research Variables/Indicators**

No.	Variables/Indicators	Mean	Description
1.	TQM Practices (X)	<b>3.83</b>	High
	Leadership	4.45	Very high
	Strategic planning	4.11	High
	Customer focus	3.88	High
	Information and analysis	4.10	High
	People management	3.66	High
	Process management	3.20	Enough
	Supplier management	3.44	High
2.	Competitive Advantage (Y1)	<b>3,70</b>	High
	Cost/Price	4.08	High
	Delivery dependability	4.16	High
	Product innovation	3.36	Enough
	Time to market	3.18	Enough
3.	Organizational Performance (Y2)	<b>3.71</b>	High
	Return on investment (ROI)	3.77	High
	Market share	3.65	High
	Sales	3.71	High

Source: Primary data processed by the author

According to table 2, it can be reveals that average value (mean) of TQM practices variable was in high/good category (3.83), leadership as the higher indicator than others (4.45), and process management as lower indicator (3.20). Variable of competitive advantage was in high/good category (3.70), delivery dependability as the higher indicator than others (4.16), and time to market as lower indicator (3.18). Organizational performance was in high/good category (3.71), Return on investment (ROI) as the higher indicator than others (3.77), and market share as lower indicator (3.65).

The theoretical framework illustrated in Figure 1 has three hypothesized relationships among the variables TQM practices, competitive advantage, and organizational performance. Figure 2 and Table 3 display the path diagram resulting from the path analysis using SPSS for windows.



**Figure 2. Results of the Path Model (Standardized)**

\*) Significant at :  $\alpha \leq 0.05$ ; t-table = 1.960.

**Table 3: Results for the path model**

Hypothesis	Relationship	Direct Effect	Indirect Effect	Total Effect	Description
H <sub>1</sub>	QM ---→ OP	0.285 (3.471)	0.208 (2.230)	0.493	Supported
H <sub>2</sub>	QM ---→ CA	0.522 (7.540)			Supported
H <sub>3</sub>	CA ---→ OP	0.399 (5.580)			Supported

Source: Primary data processed by the author

The results of the path analysis are also presented in Table indicating support for all the hypotheses. The results support Hypothesis 1, which states that Total Quality Management (TQM) practices has significant effect toward organizational performance. The standardized coefficient is 0.285, which is statistically significant at Prob. < 0.05 (t =3.471). The statistical significance of Hypothesis 1 confirms that the implementation TQM practices may directly improve an organization’s financial and marketing performances in the long run period.

Hypothesis 2 is also supported, which indicates that Total Quality Management (TQM) practices have significant effect toward competitive advantage. The standardized coefficient is 0.522, which is statistically significant at Prob. < 0.05 (t =7.540). The implementation of TQM practices may provide the organization a competitive advantage on cost, dependability, innovation, and time to market dimensions. The results also

indicate that competitive advantage has significant effect toward organizational performance. So, higher levels of competitive advantage may lead to improved organizational performance. Therefore this finding has confirms Hypothesis 3. The standardized coefficient is 0.399 which is statistically significant at Prob. < 0.05 ( $t = 5.580$ ).

Furthermore, the standardized coefficient of the indirect effect of the TQM practices toward organizational performance is 0.208 ( $t = 2.230$ ), which is significant at 0.05 level. An analysis from Table III shows that the TQM practices have direct and positive influence on organizational performance as well as an indirect one through the competitive advantage.

The results show that organizational performance is more influenced by competitive advantage than TQM practices. These finding indicates that TQM practices produce competitive advantage to the organization in the first place, then competitive advantage will improve the organizational performance in the second place.

Generally, top management and quality managers in these companies regarded TQM as the first priority for the survival of the company. Quality management is defined as one element of operations management and as a management method designed to reach organizational objectives more efficiently, thus enhancing the quality of business resources as well as the competitiveness and vitality of the organization (Krajewski *et al.*, 2006).

If TQM practices are implemented properly, it produces variety of benefits such as understanding customers' needs, improved customer satisfaction, improved internal communication, better problem solving and fewer errors. The success of TQM program can increase when its implementation is extended to the overall company. Thus, effective implementation of TQM is valuable asset in each organization. TQM practices can produce important competitive capabilities and become important source of competitive advantage. Implementing TQM practices as a competitive weapon can improve the competitive advantage and organizational performance gradually.

These findings were in line with previous studies. In the literature, TQM practice, mostly, has been linked directly to organizational performance (Terziovski and Samson, 1999; Sila and Ibrahimpour, 2005; Demirbag *et al.*, 2006; Lakhali *et al.*, 2006; Li *et al.*, 2006). The findings of this research also indicate the presence of an intermediate role of competitive advantage between TQM practices and organizational performance.

### **6. Conclusion**

The aim of this study was to test the impact of TQM practices on competitive advantage and organizational performance at fishery companies in South Sulawesi Province, Indonesia. TQM practices have positive and significant effect toward organizational performance and competitive advantage. Competitive advantage has positive and significant effect toward organizational performance. Therefore, organizational performance is more influenced by competitive advantage than TQM practices. TQM practices provide best explanation in improving organizational performance through competitive advantage dimensions such as price or cost, delivery, innovation and time to market. The better competitive advantage can produce best performance.

## 7. Suggestions, Limitations and Future Directions

The role of top management is important factor in implementing TQM in organization. Therefore, the success or fail of TQM practices implementation in organization is part of top management responsibility. Quality improvement program not only emphasize the commitment of top management, but also employee involvement, and other TQM practices dimensions. Managers have to responsible in determining appropriate organization capabilities to support their competitive advantage. Besides that, managers should also determine quality policy and develop specific measurable goals to meet customer expectations and improve their organizations performance.

These research finding indicate the number of factors can mediate TQM practices and organizational performance relationship. Although this study establishes relationship among TQM practices, competitive advantage and organizational performance, other factors such as size, organizational culture, innovative capacities and market orientation of sample firms may also have some impact on organizational performance. Market orientation, consumer satisfaction, organizational culture and level of innovation seem to be highly relevant to TQM practices implementation and performance for further research on manufacturing companies. Thus, this study focused on manufacturing companies. So, the next research also could be carried forward with a focus on service companies in order to obtain more specific results

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