



Research Article

Implementation total quality management (TQM) to determine competitive advantage in small and medium enterprise (SME)

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ABSTRACT

The implementation of total quality management (TQM) always concerned by top management within organization. TQM are crucial elements in Small and Medium Enterprise (SME) sector due to it aimed to improve competitive advantage of organization. This research is aimed to explore the relationship between TQM and competitive advantage within SME sector of Malaysia. Quantitative research is used to conduct this research. Therefore, questionnaires would be distributed to the executive management level or above within SME organization in Malaysia randomly. The sample size is 124 respondent SMEs Malaysia. Smart-PLS are the software used to analyse the data gathering from respondents. The result of analysis shown that total quality management (TQM) has a significant positive impact to competitive advantage. Therefore, this research is expected to provide deep understanding regarding TQM and competitive advantage for the SME industry within Malaysia and acts as reference to future researchers.

Keywords: Total Quality Management (TQM); Competitive Advantage; SME Sector

1. INTRODUCTION

The competition in Small and Medium Enterprise (SME) sectors is getting more intensive from day to day worldwide. Therefore, competitive advantage is a must for a business company to sustain itself in the competitive environment. The company performances whether in financial and non-financial performance are always a concern for the management team as an analytical outcome. There are many ways to achieve a competitive advantage, but most companies adopt the strategic tools that are total quality management and innovation in the domain. The following tools ensure superior quality of product or service and excellent value proposition delivered to the customer.

The word "quality" is widely used in many fields and especially in the SME sector. Many academics and experts believe that quality refers to suitability for a purpose or fulfilment of an intended purpose, meaning that specific industry compliance and design specifications must be adjusted to function and ensure that output meets specifications. In addition, an attitude and a way of thinking are an integral part of booming industries, businesses, education, and personal growth. It means doing the right things right, doing the right things effectively, and taking the proper measurements to ensure the excellence of the

product or the service. Quality refers to customer satisfaction, stakeholder, and top management for a product or service that continuously improved from time to time according to market demand. It also designed to meets customer's specific needs and exceed the customer's expectations.

Moreover, total quality management is quality management that includes social and psychological perspectives aimed to improve staff and managerial objects in terms of awareness and controllability. Total quality management is a quality management approach in charge of designing and planning activities that lead to continuous improvement. It probably has a positive impact on the organization's negative impact.

Finally, applying TQM can improve manufacturing performance to gain further competitive advantage (Ahmad & Zamri, 2019). From my understanding, the competitive advantage can be described as the firm's performance resulting from implementing various practices in the manufacturing process and management. The competitive advantage can also be anything tangible and intangible that contribute a certain significant level to an organization.

Total quality management is always a concern for the management team within an organization because the following tools are crucial to an organization's achievement in competitive advantage. It is believed to enable to bring significant change for the organization's internal structure during the following conformance. The issue of TQM in the SME sector having the attention of many parties whether in customers and investors due to rate of innovation is lower if compared with other countries.

Martinez-Costa and Martinez-Lorente (2008) have shown that the practice involved in overall quality management produces synergy in the situation to implement innovation. In addition, all quality management empowers the organization to train employees as experts and incorporate these methods into innovation activities. After that, innovation creates continuous improvement within the internal organization. Thus, implementing all quality management helps an organization reduce the cost and time required to develop a product and eliminate processes that do not create value.

Companies that adopt process change methods achieve the improvements they have made, both operational and financial, while product innovation improves the financial performance of organizations. It has also been found that TQM practices encourage the definition of product and process innovation strategies. On the other hand, we know that only companies with innovative strategies in their processes promote TQM methods and have a statistically significant relationship between product innovation. and implementation of TQM procedures (Marina & Joaquín, 2017). The study aims to identify the effect of total quality management on the SME sector, to explore the impact of TQM on the competitive advantage of the SME sector and to examine and analyze which of these factors are the most influence on total quality management and competitive advantage within SME sector.

2. LITERATURE REVIEWS

Suryanto et al. (2018) had researched the definition of total quality management (TQM), and environmental management comes from the firm's experiences and procedure of organizational learnings. Supply chain management is a critical source for firms to gain superior performance. The supply chain is an increasingly important concern for all businesses, and the challenge is logistics management.

There will be a significant influence in total quality management (TQM) on Small and Medium Enterprises (SMEs). Firms with higher-level TQM implementation will be more successful in the international market and achieve better export performance. TQM is a valuable and dynamic intangible resource that can increase SME export performance. Practitioners and researchers will make better decisions about TQM implementation (Imran et al., 2018).

2.1 TOTAL QUALITY MANAGEMENT (TQM)

Table 1. Total Quality Management (TQM)

Author	Definitions / Explanations	Theme
Suryanto T., Haseeb M., Hartani N.H. (2018)	Supply chain management is a critical source for firms to gain superior performance. The supply chain is an increasingly important concern for all businesses, and the challenge is logistics management. Total quality management (TQM) and environmental management come from the firm's experiences and procedure of organizational learnings	Green supply chain management; Management support; Organizational learning; TQM
Imran M., Abdul Hamid S.N.B., Aziz A.B. (2018)	Firms with the higher-level implementation of TQM will be more successful in the international market and achieve better export performance. Thus, the study reveals that TQM is a valuable and dynamic intangible resource that can increase SME export performance. Practitioners and researchers will be able to make a better decision about the implementation of TQM	Export performance; Pakistan; PLS-SEM analysis; SMEs; Total quality
Imran M., Binti Aziz A., Binti Abdul Hamid S.N., Shabbir M.S., Salman R., Jian Z. (2018)	The results offer a better understanding of EO and TQM implementation to SMEs owners/managers. Thus, owners/managers of SMEs can make better decisions for the implementation of TQM practices. Furthermore, to the best of the researcher's knowledge, this study is the first work, which examines SMEs export performance in association with the TQM as the mediating factor between EO and SME export performance	Entrepreneurial orientation; Export performance; PLS-SEM analysis; SMEs; Total quality management
Honarpour A., Jusoh A., Md Nor K. (2018)	Confirmatory factor analysis was used to assess the reliability and validity of the measurement model, and in the next step, structural analysis was performed to evaluate the research model. that R&D firms by implementing TQM alongside KM are not only able to manage their activities efficiently, but also can effectively perform in an innovative manner	knowledge management; process innovation; product innovation; total quality management
Pambreni Y., Khatibi A., Ferdous Azam S.M., Tham J. (2019)	The research finding indicate that TQM elements; namely customer focus, continuous improvement, strategically based, and total employee involvement, have a positive and significant effect on organization performance	Organizational performance; Quality practices; Total quality
Ali G.A., Hilman H., Gorondutse A.H. (2020)	TQM has contributed the most to enhancing organizational development, followed by entrepreneurial orientation (EO) and, finally, market orientation (MO). Developing economies consider	Entrepreneurial orientation; KSA; Market orientation;

Author	Definitions / Explanations	Theme
	SMEs as an approach to generate new jobs and enhance economic growth. owners/managers are guided to develop improved and further effective decisions for the implementation of TQM practice	Performance; SMEs; Total quality management
Yap Y.L., Rahman M.S.A. (2019)	the role of the quality management system in the field of real estate. Most previous studies focused on property development, and few quality management studies in property management and facility management. In general, the quality management system improves the performance of the real estate industry	Estate Agency (EA) Property Valuation (PV); Total quality management (TQM)

Suryanto et al. (2018) had researched the definition of total quality management (TQM), and environmental management comes from the firm's experiences and procedure of organizational learnings. Supply chain management is a critical source for firms to gain superior performance. The supply chain is an increasingly important concern for all businesses, and the challenge is logistics management.

There will be a significant influence in total quality management (TQM) on Small and Medium Enterprises (SMEs). Firms with higher-level TQM implementation will be more successful in the international market and achieve better export performance. TQM is a valuable and dynamic intangible resource that can increase SME export performance. Practitioners and researchers will make better decisions about TQM implementation (Imran et al., 2018).

The researcher investigated using total quality management (TQM) to improve entrepreneurial orientation (EO) in SME performance. Owners or managers of SMEs can make better decisions after the implementation of TQM practices. The study also examines SMEs export performance in association with the TQM as the mediating factor between EO and SME export performance. (Imran, Binti Aziz, Binti Abdul Hamid 2018)

Honarpour, et al. (2018) mention that research and development (R&D) firms that implement TQM will have Knowledge Management that can manage their activities efficiently and effectively perform innovatively in the organization. Confirmatory factor analysis was used to assess the reliability and validity of the measurement model, and in the next step, structural analysis was performed to evaluate the research model.

Pambreni, et al. (2019) researched the four critical elements of TQM; customer focus, continuous improvement, strategically based, and total employee involvement positively and significantly affect organizational performance.

The result of the study by Ali, et al. (2020) is that total quality management (TQM) has contributed the most to the enhancement of organizational development, which is followed by entrepreneurial orientation (EO) and, finally, market orientation (MO). Developing economies consider SMEs as an approach to generate new jobs and enhance economic growth. Owners and managers have to beguile to improve and further effective decisions for the implementation of TQM practice.

In their research, Yap and Rahman (2019) said the role of the quality management system in real estate. They made more focused on property development, few quality management studies in property management and facility management. This research

had to make because of a lack of investigation of the implementation of quality management. Players should be made more aware of the practice of quality management systems to increase their performance.

Therefore, TQM practices are chosen and included in this research, such as leadership management, training and education, employee involvement, supplier management, process management, and customer focus.

2.2. HYPOTHESES DEVELOPMENT

The foundation of accurate research results is hypothesis testing. On the other hand, a hypothesis is a particular prediction of a new occurrence that can be seen if a specific theory is valid. It is an interpretation based on just a few primary ideas. Hypotheses are also precise projections about what will happen in a particular sample. They are developed by looking at empirical facts and by using logic to assess what may arise in a specific sense of interest. Sometimes, but not necessarily, ideas are extracted from theories. Thus, a hypothesis is always a theory-based inference, although most theories are speculative, and an approach is not established before a series of findings has been produced. It is because hypotheses are general in nature, and broader data groups are clarified. Therefore, if our study issue is original, we could gather some details and make an inference before establishing a more comprehensive hypothesis.

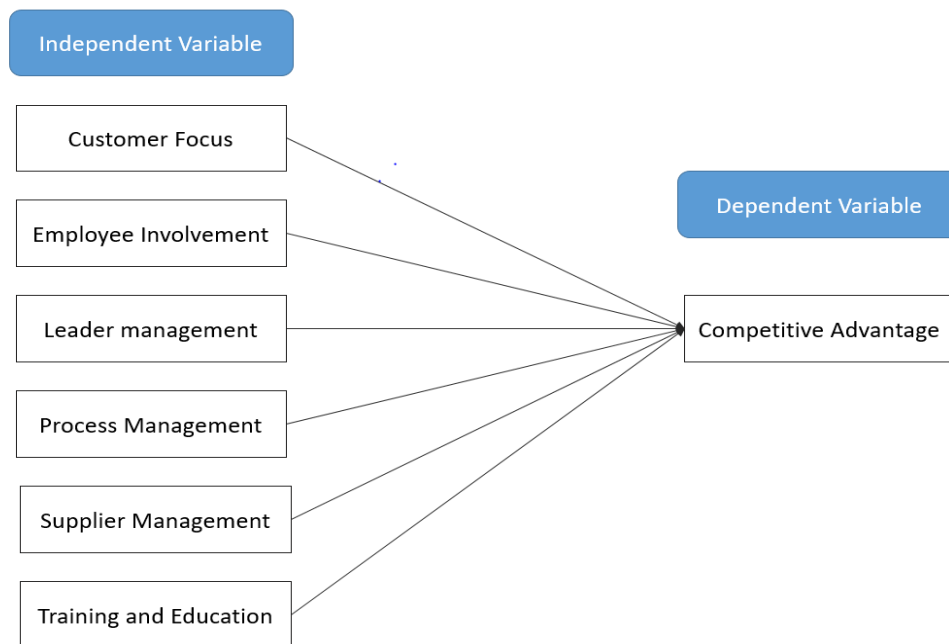


Fig. 1. conceptual framework based on framework

The impact of business excellence that includes key functions can be a tool for identifying opportunities and obtaining information for the organization. Customer attention is an example of business excellence. This will help the company learn how to achieve high performance and gain a competitive advantage. Companies can use business excellence models to implement their plans to identify, predict and thrive in a highly competitive

market (Masrom et al., 2017). According to Norouzi, et al. (2011), one of the essential stages of using and applying the knowledge is to identify the individual's existing ability is by customer knowledge management (CKM). CKM is a way of identifying the state of the organization in the eyes of the customer and being familiar with customer needs. Benchmarking can help companies improve operations and achieve higher levels of performance. This technology enables companies to conduct timely benchmark tests and improvements based on customer perception and happiness, which is the most critical factor for the organisation's survival.

H1: There is a significant relationship between customer focus and competitive advantage of SME sector.

Basheer, et al. (2019) discussed the impact of employee participation and participation through vocal behaviour on organizational innovation. This research solves many problems faced by the textile industry by showing how the textile industry can improve its competitive advantage through employees' self-innovation. According to this researcher, employee participation and participation, as evidenced by their voice and idea-sharing, positively impact organizational innovation. According to Shatat and Udin (2013), enterprise resource planning (ERP) systems have become one of the most important prerequisites for many companies to compete in the local and global markets. This is the cost of gaining a competitive advantage. The backbone of the global economy, e-commerce and the entire supply chain. Many companies are still hesitant to deploy ERP systems, resulting in them being unable to join the supply chains of some global and local companies. ERP has become a necessity and cost for conducting business in the global market.

H2: There is a significant relationship between employee involvement and competitive advantage of SME sector.

The greatest competitive advantage of SMEs in the coming years will not be products, financial or technological resources, but managers, according to Beková and Havlek (2014), who investigate that leader management and personnel control in small and medium-sized companies (SMEs) must perform in strategic and operational perspectives. Strategic controlling involves organisational architecture related to management assumptions both of which are important to be embraced if company success should be realised

H3: There is a significant relationship between leader management and competitive advantage of SME sector.

2.2.1. Process Management

Tamam, et al. (2020)'s attention to organizational decision-making and its impact on competitive advantage and performance has created a lot of research in the field of operational management strategy. However, there are few studies on the operational capabilities of food companies, especially the food processing industry. Due to the differences in the research environment of various industries, more research is needed to discover the important things in the dimensions that constitute operational capabilities. The study also identified the dimensions of operational capabilities in the business and which capabilities the company should prioritize in order to maintain its competitive

advantage. Wong W.P. stated that the company has begun to use business process management (BPM) to gain a competitive advantage. (2013). Many companies are still confused about this concept. Furthermore, due to a lack of awareness of the initiative's nature, most businesses have not tackled it intentionally and formally.

H4: There is a significant relationship between Process Management and competitive advantage of SME sector.

According to Nawi, et al. (2017), many companies are concerned about rising material and operating costs for manufacturers in the medical device business. Therefore, it is essential to evaluate procurement and supplier performance to gain a competitive advantage and provide stakeholders with a framework for continuous development. Purchasing and supplier performance measurement creates a procurement and supplier performance measurement system for the company. Through the basic components of the supply chain, including resources, procedures and outputs. The implementation of the supplier development plan also shows that the supply chain department has made significant progress in measuring the procurement process. Supply cycle time, order processing time, efficacy, efficiency, and reliability are just a few characteristics that need to be monitored. While it took a lot of effort to set up a measurement system, the benefits far surpass the costs and time it took to do so.

H5: There is a significant relationship between supplier management and competitive advantage of SME sector.

The concept of human capital is used to investigate the factors that affect the ability of small businesses to obtain certification. One of the four independent variables mentioned is training and education. The importance of obtaining certification is not only to convince customers that the goods are good or bad or to meet religious obligations, but also that it can be used as a business growth strategy. On the other hand, human capital is a factor that influences the decision to seek halal certification. Rafiki & Abdul (2016).

H6: There is a significant relationship between training and education and competitive advantage of SME sector.

3. METHODOLOGY

3.1. POPULATION AND SAMPLING

The sample size is referring to managerial size derived from target population, and it has an effect on accuracy of sample represent the target population. The generalization and accuracy of data collected could be achieved through a large number of samples. Time and cost constraints take into consideration when determine the sample size of research. A small or large sample size would have a negative impact to data analysis session. This is because a small sample size leads to inaccurate findings and lacking generalization while a large sample size leads to difficult for statistical conclusion

The total number of Small and Medium Enterprise employees in 2019 was 7.3 million to compare with 7.1 million in 2018 (Department of Statistic Malaysia,2019). Researcher will

follow the sample size table for different population by Krejcie & Morgan (1970). Most researchers set a level of certainty of 95% that is sufficient for research (Saunders et al., 2009). the total population of SME employees in Malaysia exceeds 1,000,000 people, the sample size suitable for this study is 384 respondents. A simple statistical analysis method with the help of a computer package will be used, for instance, Smart-PLS software will be used to collect and analyse the data. A simple analysis will be carried out into simple statistical analysis, for example, frequency, percentage, mean, and standard deviation. Besides that, mean analysis and reliability testing can also be carried out. Reliability testing can help to determine the validity of the data source and use. According to Kumar, (1999) have stated that reliability also uses to measure the proper instrument

3.2. QUESTIONNAIRE DESIGN

Mark Saunders et al. (2016) mentioned that the researcher needed to develop the questionnaire after the test design and methods were selected. The questionnaire is reasonably important in collecting data since the data obtained are valuable in answering research questions and completing research objectives. The questionnaire for this study is built based on previous research with variations in the title. In addition, some of the problems are self-structure directed at meeting research goals.

The questionnaire is divided into three parts. The first part of the questionnaire focused on respondent's demographic profile such as gender, management level within organization, department, and educational level. This part aimed to identify the general characteristics of respondents. The second part is concerned about the TQM. The third part focused on the competitive advantage.

The researcher lists the questions in the demographic element of the respondent. Each query will consist of a list of answers. It is intended to ensure that the respondents accept all potential responses before completing the questionnaire (Mark Saunders et al., 2012). Subsequently, a formal questionnaire was built for the purpose of data collection to measure variables in this study that are TQM, creativity and competitive advantage. The 40 elements will be measured using the 10-point scale of the interval. The Ten-Point Interval Scale will be introduced with the intention of offering a broader answer choice that would be acceptable to their highest judgement (Zainudin, 2014). In this study, the researchers use five-point interval scale designed to examine the extent of subjects agreed and disagreed with statements on the scale with anchors which ranged from "strongly disagree" (1) to "strongly agree" (5).

A pilot test for this research was done with 30 Small and Medium Enterprise respondents. The validity and reliability of the pilot test were determined using Alpha values and Cronbach's correlation. Smart PLS is used to describe the outcomes of this test.

Validity and Reliability of Pilot Test

Table 2. Validity and Reliability Test of Pilot Test

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Competitive Advantage	0.958	0.96	0.964	0.73
Customer Focus	0.941	0.951	0.952	0.74
Employee Involvement	0.935	0.937	0.951	0.795
Leadership Management	0.911	0.915	0.934	0.738
Process Management	0.903	0.905	0.928	0.721
Supplier Management	0.905	0.905	0.929	0.724
Training and Education	0.905	0.908	0.93	0.727

Table 2 displays the findings of the pilot test validity and reliability for 30 samples of respondents. Each variable's correlation value is the outcome of data analysis using Smart PLS. Based on the answers, the questionnaire can be accepted and the research can be continued. Reliability is necessary to ensure that the data gathered can be trusted by the research. The Cronbach's Alpha test for Pilot is acceptable since all variable values greater than 0.7 are within the range of the association's strength.

4. RESULTS

4.1. DEMOGRAPHIC ANALYSIS

The total number of respondents is 124 respondents for this research paper. From that, there are 70.2% executive management, 24.2% middle management and 5.6% of them are top management. Mainly, 22.6% of them are in the manufacturing sub-sector, 15.3% in assembling sub-sector, 50.3% in services sub-sector and 11.3% of them are other sub-sector. From the 124 respondents, majority of them (80.8%) are sole proprietorship, 23.4% are private limited and 25.8% are partnership. Furthermore, most of them are organization sales turnover which is equal to 54.8% for less than RM 300,000, 43.5% for RM 300,000 to RM 1,500,000 and only 1.6% respondent form RM 1,500,000 to RM 50,000,000. Additionally, 38.7% have less than 5 people in organisation and 61.3% have 5 to 75 people in organisation. Last but not least, from the results, 35.5% respondents Less than 5 years in organization operation, 50.8% for 5 to 10 years' organization operation, 11.3% for 11 to 15 years' organization operation and 2.4% for 16 to 20 years' organization operation.

4.2. ASSESSMENT AND GOODNESS OF MEASUREMENT MODEL

For this part, use measurement models to examine the relationship between latent variables and indicators. The project is tested by confirmatory factor analysis to determine the contribution of the confirmed construct project to the model proposed in this research. The evaluation of the measurement model includes internal consistency reliability, convergence validity and discriminative validity. For convergence validity, it is composed of factor loading, average variance extraction (AVE) and composite reliability (CR), and discriminant validity is composed of Fornell-Larcker criterion. Fig. 2 below shows the measurement model for this study.



Fig. 2. Measurement Model

4.2.1. Convergent Validity

Convergence validity is essential to assess the correlation between two measures. The convergence validity of this study needs to consider three factors, namely the external load factor of the indicator, the extracted average variance (AVE) and the composite reliability (CR). For the external load factor, to ensure that the project is structurally significantly loaded, the value of this indicator should be exactly 0.7 or greater. At the same time, for AVE, at least 0.5 or higher is required to avoid measurement errors. As for the composite reliability (CR), the acceptable value is 0.7 and above.

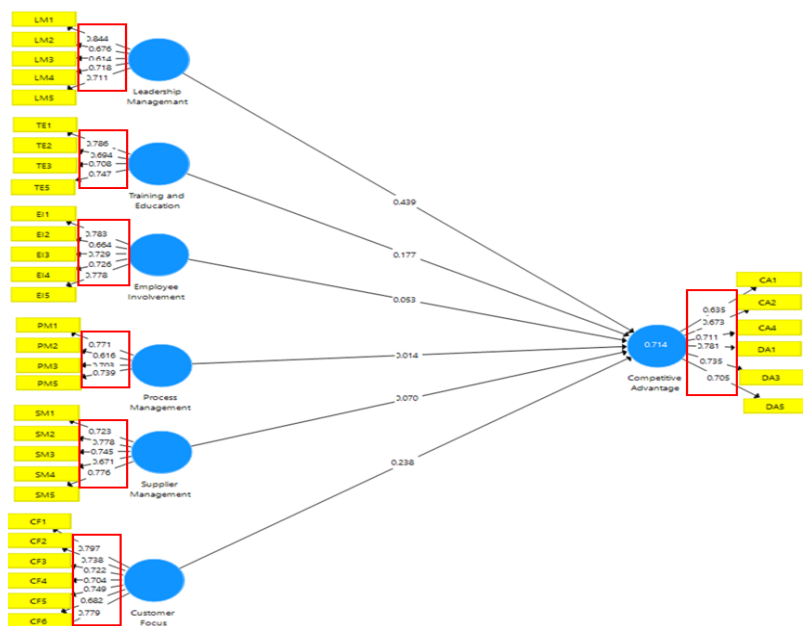


Fig. 3. Outer loading of the measurement model

Fig. 3 above shows the external load diagram in the measurement model of this study. The external load is used to estimate the relationship between the latent variable and its index. Variables with an external load of 0.7 or higher are considered very satisfactory, while variables with an external load of 0.5 are considered acceptable, and values below 0.5 should be deleted. The following table 3 shows the external load values of the measurement model.

Table 3. Outer loading of the measurement model

	Competitive Advantage	Customer Focus	Employee Involvement	Leadership Management	Process Management	Supplier Management	Training and Education
DA1	0.781						
DA3	0.735						
CA4	0.711						
DA5	0.705						
CA2	0.673						
CA1	0.635						
CF1		0.797					
CF2		0.738					
CF3		0.722					
CF4		0.704					
CF5		0.749					
CF6		0.682					
CF7		0.779					
EI1			0.783				
EI2			0.664				
EI3			0.729				
EI4			0.726				
EI5			0.778				
LM1				0.844			
LM2				0.676			
LM3				0.614			
LM4				0.718			
LM5				0.711			
PM1					0.771		
PM2					0.616		
PM3					0.703		
PM5					0.739		
SM1						0.723	
SM2						0.778	
SM3						0.745	
SM4						0.671	
SM5						0.776	
TE1							0.786
TE2							0.694
TE3							0.708
TE5							0.747

4.2.1.1. Average Variance Extraction (AVE)

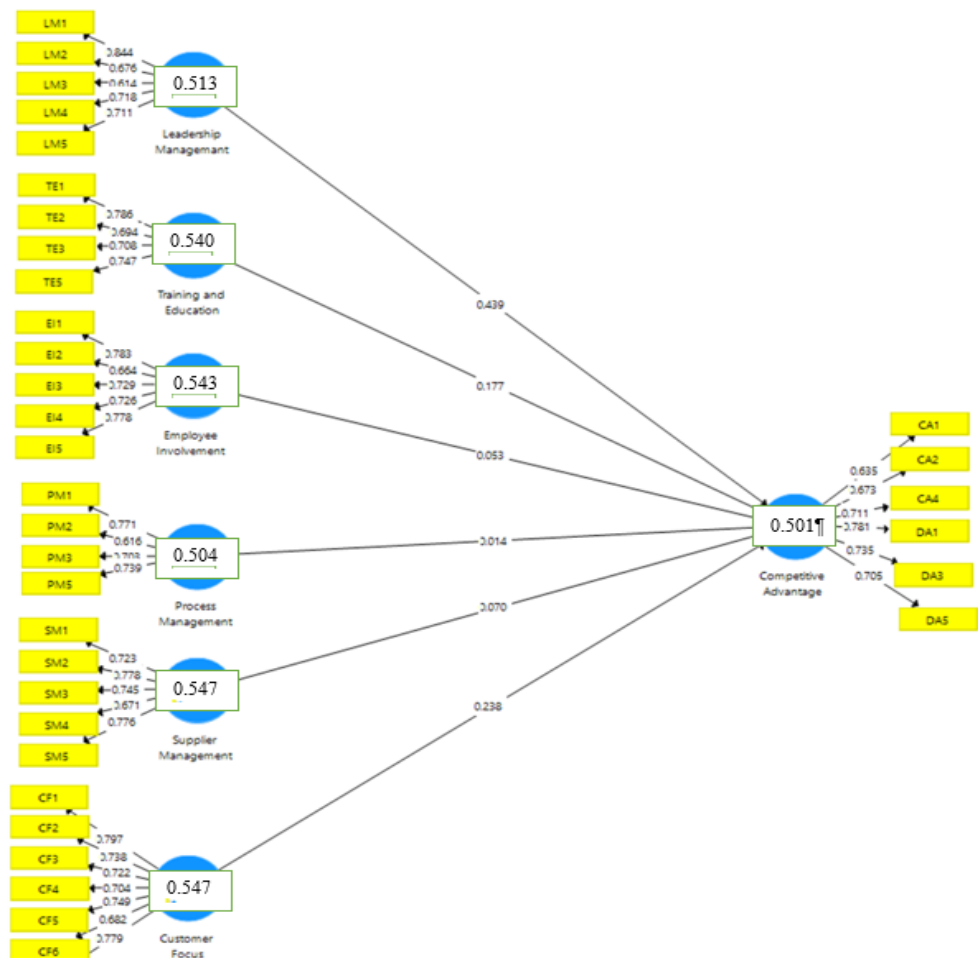


Fig. 4. Average Variance Extraction (AVE) of all variables

Fig. 4 above shows the measurement model with Average Variance Extraction (AVE) values of the variables. AVE defines as the indicator of convergent validity that measures a construct's variance amount in relation to the measurement error's variance amount. As mentioned above, a value of 0.5 or higher is demanded for AVE to consider as sufficient and able to prove the constructs are convergent valid. When the value is lower than 0.5, it is known as variance of error is greater than variance explained, hence, it is unacceptable. Table 4 below shows the average variance extraction values of all constructs.

Table 4. Average Variance Extraction (AVE) of all variables

Variables	Average Variance Extracted (AVE)
Competitive Advantage	0.501
Customer Focus	0.547
Employee Involvement	0.543
Leadership Management	0.513
Process Management	0.504
Supplier Management	0.547
Training and Education	0.54

4.2.1.2. Composite Reliability

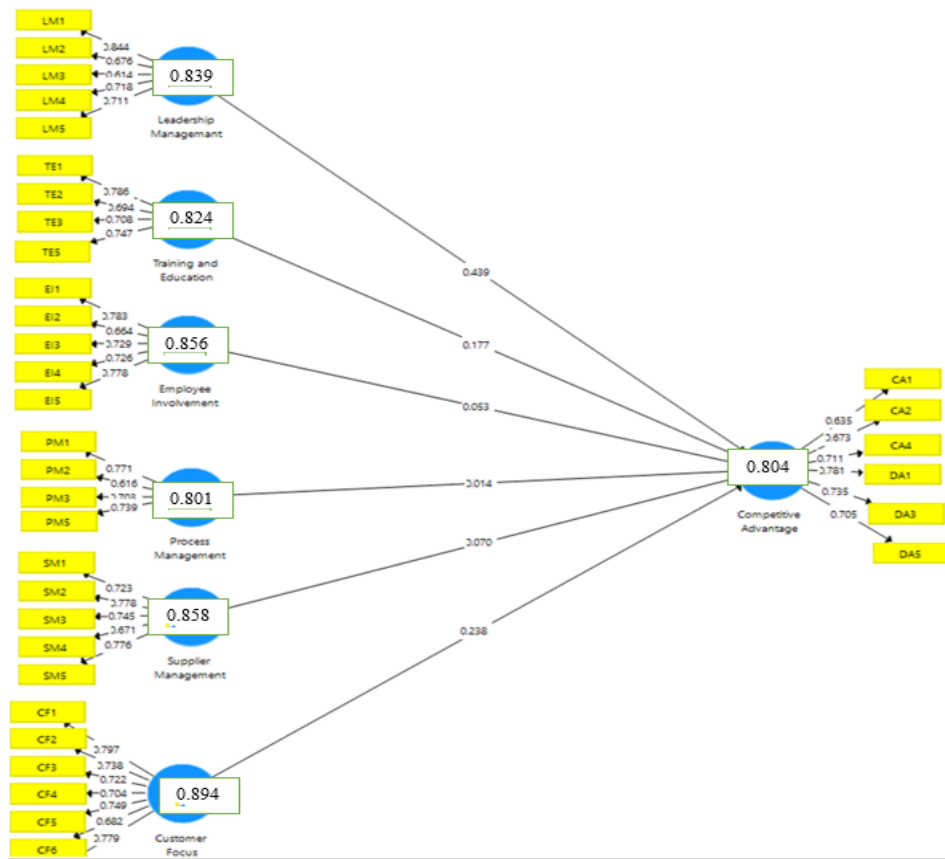


Fig. 5. Composite Reliability (CR) of all variables

Fig. 5 shows the composite reliability (CR) value of all variables. The internal consistency of the combination of indicator variables related to all constructions is obtained from the combined reliability (CR). Other elements of reliability testing are Cronbach's Alpha, rho_A, and composite reliability. The acceptable value of CR is 0.7 and above. Table 5 below shows the reliability values of all variables. These values are between 0.801 and 0.856, indicating that all structures are sufficiently reliable.

Table 5. Reliability values of all variables

Variables	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Competitive Advantage	0.800	0.804	0.857	0.501
Customer Focus	0.861	0.865	0.894	0.547
Employee Involvement	0.789	0.789	0.856	0.543
Leadership Management	0.759	0.775	0.839	0.513
Process Management	0.669	0.674	0.801	0.504
Supplier Management	0.792	0.797	0.858	0.547
Training and Education	0.715	0.715	0.824	0.540

4.2.2. Discriminant Validity

Discriminant validity is to measure different levels of constructs in the model and determine the correlation between overlapping constructs (Hair et al., 2014). It is important to ensure that the constructs that should not be related are unrelated and that these

constructs are different from each other. In order to perform this discriminative validity test, the researchers used the Fornell-Larcker criterion as a measure.

4.2.2.1. Fornell-Larcker Criterion

Fornell-Larcker Criterion is one of the methods to measure and evaluate discriminative validity. It compares the square root of the average variance extraction (AVE) with the correlation of the underlying construction. The square root value of the AVE of each construction should be greater than the other constructions of the correlation. If these values are lower than the correlation of the construction with other constructions, it is considered that there is not much differentiation provided. The following Table 6 shows the value of the Fornell-Larcker standard analysis, that is, the square root of the AVE of each potential structure is greater than the value of the correlation between the potential structure of the other potential variables in the model.

Table 6. Fornell-Larcker Criterion

	Competitive Advantage	Customer Focus	Employee Involvement	Leadership Management	Process Management	Supplier Management	Training and Education
Competitive Advantage	0.708						
Customer Focus	0.651	0.74					
Employee Involvement	0.692	0.607	0.737				
Leadership Management	0.79	0.561	0.734	0.717			
Process Management	0.719	0.614	0.751	0.789	0.71		
Supplier Management	0.657	0.634	0.638	0.649	0.618	0.74	
Training and Education	0.681	0.465	0.664	0.695	0.738	0.621	0.735

4.3. ASSESSMENT OF STRUCTURAL MODEL

The next step after evaluating the measurement model is to evaluate the structural model, also known as the internal model. According to Hair et al. (2014), the process of structural model evaluation is to evaluate the relationship between the predictive ability of the model and the construct. The structural model expresses the relationship between latent variables or model concepts. It helps to estimate the relationship between variables, which are the dependent and independent variables in this study. In order to estimate and assume the relationship between variables, several criteria can be used. They are the coefficient of determination (R^2), the size of the effect (f^2) and the path coefficient.

4.3.1. Coefficient of Determination (R^2)

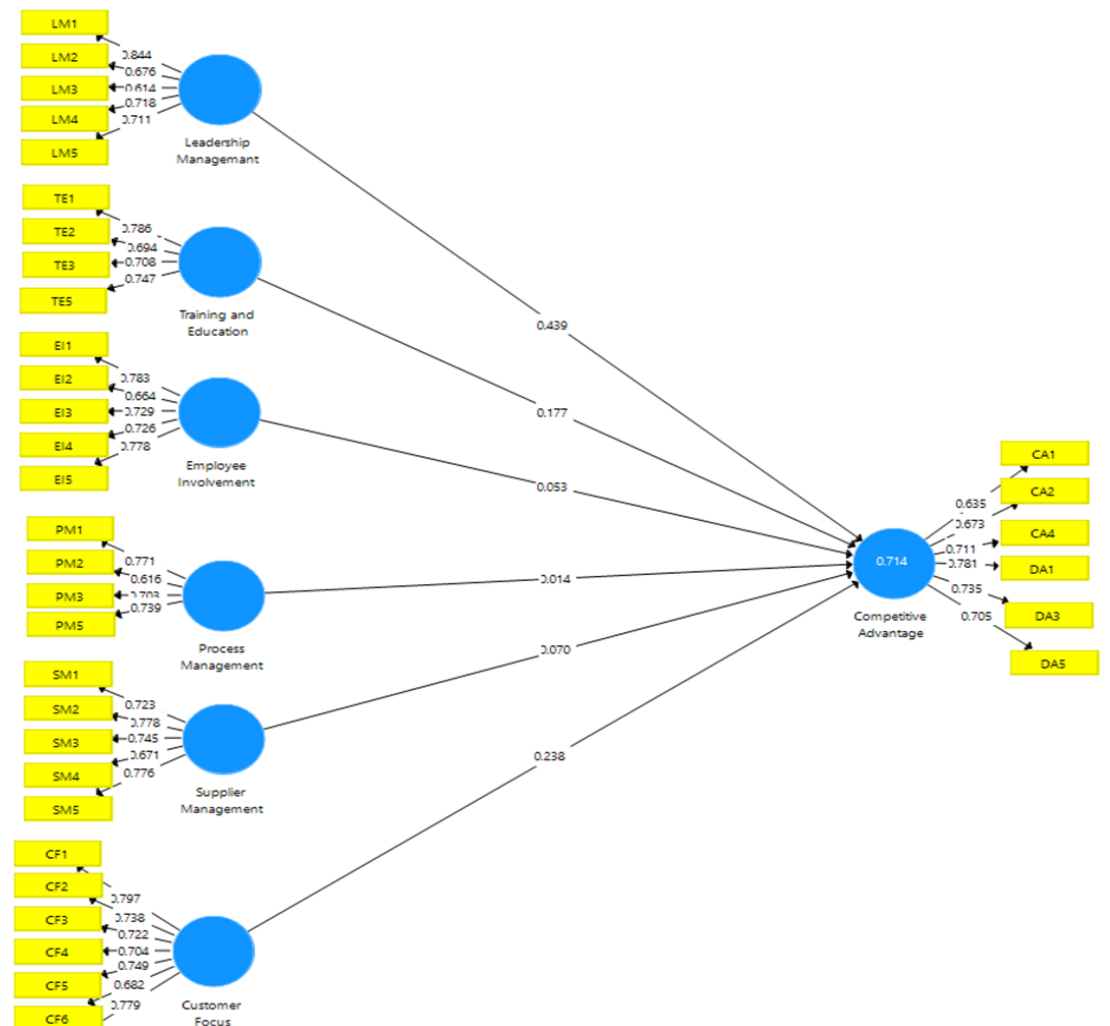


Fig. 6. Coefficient of Determination (R^2) endogenous constructs

Fig. 6 above shows the values of R^2 for endogenous constructs. Coefficient of determination (R^2) is used to analyze the differences of the variables which can be explained by a difference in the other variable. It is also a key output of regression analysis. To be more specific, R^2 indicates the proportion of the variance in the dependent variable which predicted by the predictor variable, also known as the independent variable. Table 7 shows the values of R^2 for endogenous constructs.

Table 7. Coefficient of determination (R^2)

	R Square	R Square Adjusted
Competitive Advantage	0.714	0.700

To identify the level of predictive ability of the structural model, it requires a greater value of R^2 . The range of R^2 is from 0 to 1. From the table 7 above, the results of the current research indicate that R^2 value for competitive advantage is 0.714 which means 71.4% of the variance impact of implementation of total quality management which is producer customer focus, employee involvement, leadership managements, process management and supplier management.

Fig. 7 and Fig. 8 below show R^2 and R^2 adjusted for this research

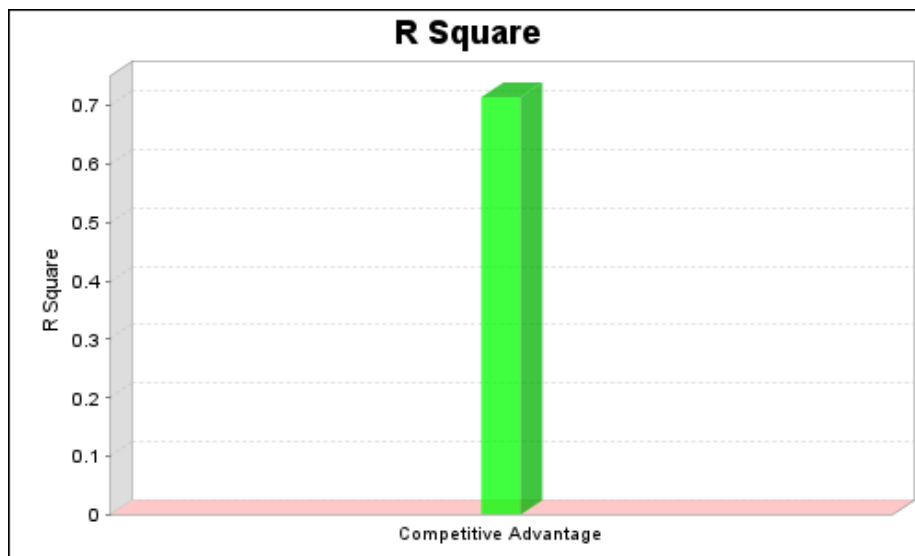


Fig. 7. R square graph

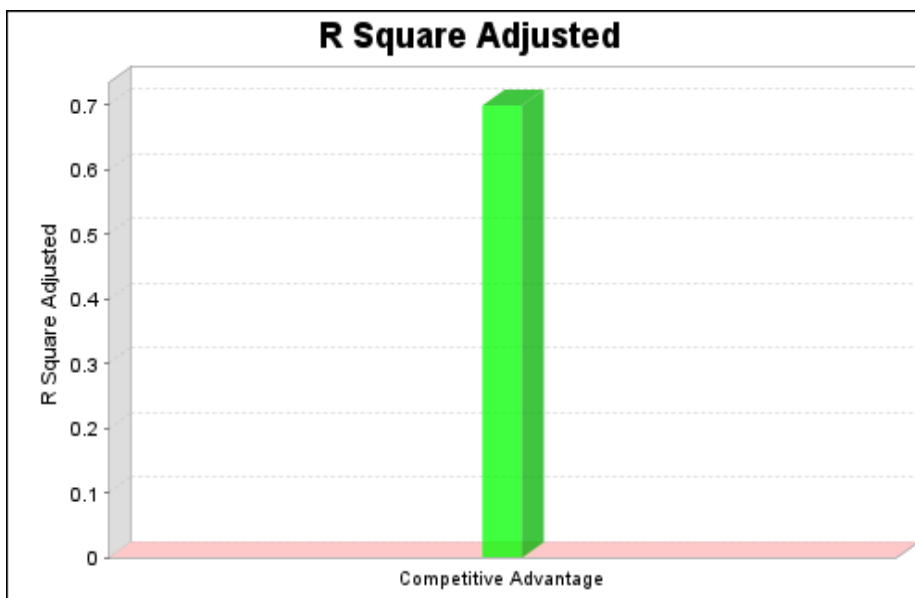


Fig. 8. R square Adjusted graph

4.3.2. Effect Size (f^2)

The effect size is one of the criteria for evaluating the applicability of the model in this study, and is used to evaluate the effect size of the structural model's predictive potential structure. The effect size holds a concept that measures the strength of the relationship between variables on a numerical scale. For this research, the effect size is measured by using Cohen's f^2 , where $f^2 = R^2 \div (1 - R^2)$ is the equation to be calculated, and R^2 is the square multiple correlation. Use f^2 to determine the substantial effect of the elimination construct on the endogenous construct. According to the guidelines of Cohen (1988), a value of f^2 less than 0.02 is considered to be basically a zero effect size, a value between 0.02 and 0.15 is a small effect size, and a range from 0.15 to 0.35 is considered a medium

effect size, higher than A value of 0.35 is a large effect size. Table 8 below shows the value of f^2 for each path.

Table 8. Values of effect size (f^2)

	Competitive Advantage
Customer Focus	0.097
Employee Involvement	0.003
Leadership Management	0.205
Process Management	0.000
Supplier Management	0.007
Training and Education	0.042

4.3.3. Path Coefficients

Path coefficients are used in Partial Least Squares Structural Equation Modelling (PLS-SEM) to assess the strength and significance of hypothetical relationships between potential structures. In order to determine the relationship between variables, there is a standard evaluation result that can be seen, that is, a value between -1 and +1. The calculated path coefficient value closest to +1 indicates a strong positive correlation, and when the value is closest to -1, it indicates a strong negative correlation. Fig. 9 below shows the path coefficient of this research model.

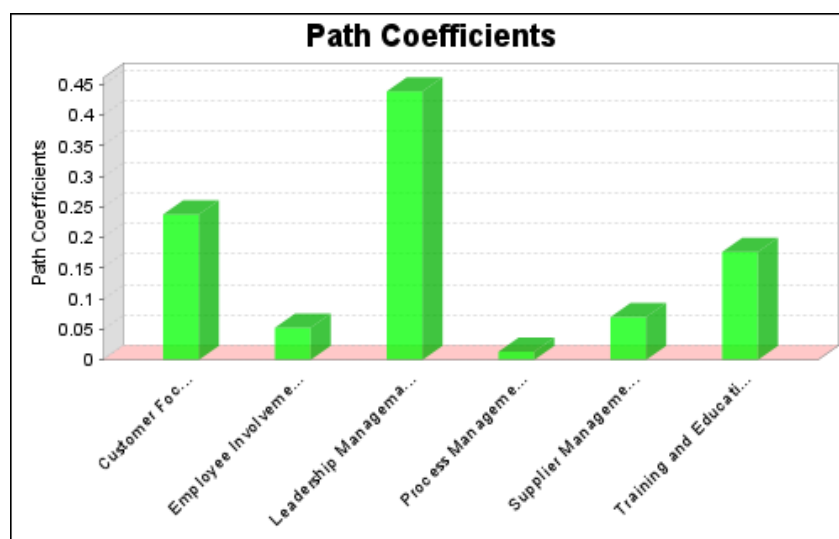


Fig. 9. Path coefficients of the model

Table 9 below states the highest value of the path coefficient occurred competitive advantage with a value of 0.439. for the lowest path coefficient value, it is 0.070, which appeared in competitive advantage.

Table 9. 9 Values of path coefficients

	Competitive Advantage
Customer Focus	0.238
Employee Involvement	0.053
Leadership Management	0.439
Process Management	0.014
Supplier Management	0.070
Training and Education	0.177

4.4. HYPOTHESIS TESTING

Bootstrapping technology can be used to determine t-value, standard error, p-value, Beta coefficient and confidence interval to evaluate the results of PLS-SEM estimation. It is used to give the importance level of each hypothetical relationship. In order to determine the hypothetical relationship between the variables, the bootstrapping technology in the Smart PLS software was used to calculate the t value of the path coefficient in this study. The relationship between variables is important because it affects the company's decision-making. Fig. 10 shows the results of the structural model with t-values for each relationship.

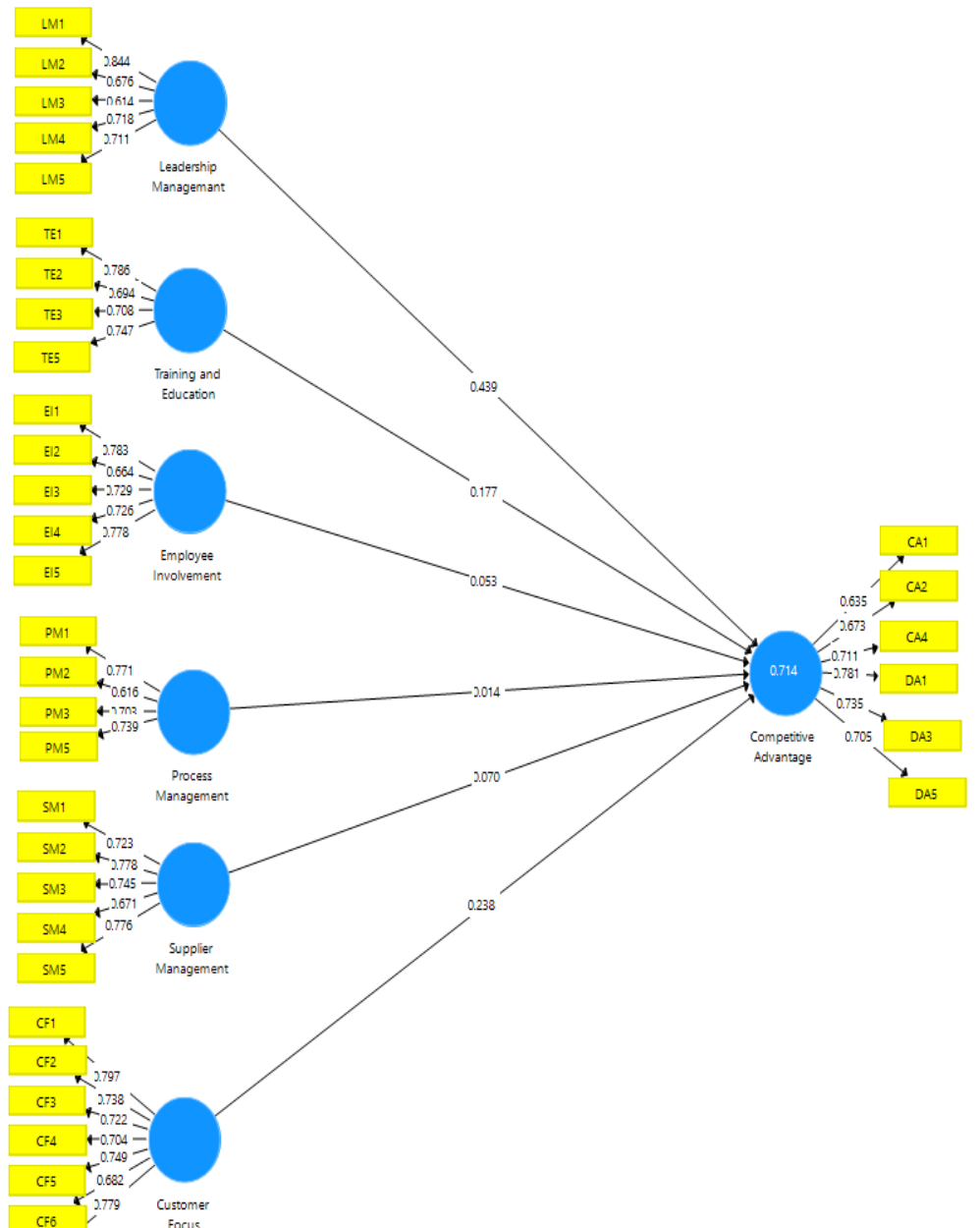


Fig. 10. The structural model with t-values

Table 10 below indicates the sum-up of the hypothesis testing with the values of the path coefficient, the sample mean, standard deviation, t-value (T statistics), and P- value.

Table 10. The summary of the hypothesis testing

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Customer Focus -> Competitive Advantage	0.238	0.222	0.093	2.555	0.011
Employee Involvement -> Competitive Advantage	0.053	0.069	0.097	0.542	0.588
Leadership Management -> Competitive Advantage	0.439	0.432	0.091	4.814	0.000
Process Management -> Competitive Advantage	0.014	0.042	0.138	0.099	0.922
Supplier Management -> Competitive Advantage	0.07	0.082	0.091	0.768	0.443
Training and Education -> Competitive Advantage	0.177	0.144	0.143	1.233	0.218

The research model recommends six hypotheses among the variables. Hypothesis 1 (H1) states that H1 is accepted because there is a relationship between customer focus and competitive advantage. It is because customer focus has an impact on competitive advantage. The table has clearly shown that it has 0.238 on path coefficient, 2.555 for t-value, and 0.011 of the p-value. Since the t-value and p-value of customer focus → competitive advantage were both in the acceptable range, H1 has been accepted. Therefore, the study established there a relationship between relationship between customer focus and competitive advantage.

Hypothesis 2 (H2), it states that H2 is rejected because employee involvement has no relationship to competitive advantage. It is because most of organization don't not need employee involvement to determined competitive advantage. The table has clearly shown that it has 0.053 on path coefficient, 0.542 for t-value, and 0.588 of the p-value. were more than the threshold value of $t > 1.96$ and $p\text{-value} < 0.05$. These values have been indicated that the hypothesis H2 has been rejected.

Hypothesis 3(H3) stated that leader management has a relationship to competitive advantage in SME sector. From table 9, it shows that the results for the structural model that path coefficient for leader management → competitive advantage was 0.439 and the t-value were 4.814. The P-value of this hypothesis was 0. Both t-value and p-value are lying under the acceptable threshold values. Hence, H3 is accepted. Thus, leader management has a relationship to competitive advantage.

Hypothesis 4(H4), it states that H4 is rejected because there is a significant relationship between process management and competitive advantage of SME sector. The table has clearly shown that it has 0.014 on path coefficient, 0.099 for t-value, and 0.922 of the p-value. were more than the threshold value of $t > 1.96$ and $p\text{-value} < 0.05$. These values have been indicated that the hypothesis H4 has been rejected.

Hypothesis 5 (H5), it states that H5 is rejected because supplier management has no relationship to competitive advantage. It is because supplier management was a minor impact to competitive advantage on SME sector. The table has clearly shown that it has 0.070 on path coefficient, 0.768 for t-value, and 0.443 of the p-value. were more than the

threshold value of $t > 1.96$ and $p\text{-value} < 0.05$. These values have been indicated that the hypothesis H5 has been rejected.

Hypothesis 6 (H6), it states that H6 is rejected because training and education has no relationship to competitive advantage. It is because training and education was a minor impact to competitive advantage of SME sector. The table has clearly shown that it has 0.177 on path coefficient, 1.233 for t-value, and 0.218 of the p-value. were more than the threshold value of $t > 1.96$ and $p\text{-value} < 0.05$. These values have been indicated that the hypothesis H6 has been rejected.

5. CONCLUSION

The first objective of this research paper is to identify the effect of total quality management on SME sector. Therefore, to identify the factors that effect of total quality management on SME sector, the researcher found many research and analysis of related journals and articles. The researchers selected the six best variables from all secondary data supported by researchers. These six variables were identified as customer focus, employee involvement, leader management, process management, supplier management and training and education. These six variables have a significant and positive relationship with SME sector. Training and collaboration had a robust, healthy, and positive relationship with job satisfaction. At the same time, senior management participation and customer attention are considered to have a healthy, moderate and positive relationship. Most importantly, it was found that the training and communication aspects of TQM activities had the greatest impact on workers' workplace satisfaction. The participation of top management is the second major element of TQM's work quality activities. Hassan et al., (2018)

According to (Salleh et al., 2018) analysts, it defines the key success factors for the introduction of total quality management (TQM) in higher education involving employee participation. Management participation and leadership are the basic performance drivers for total quality management (TQM) and successful improvement; overall customer satisfaction; if the company implements TQM can significantly improve performance, participation, training, coordination and teamwork. Research by Salem, Shawtari and Al Blooshi (2019) shows that the relationship between TQM practice and leader management has been widely discussed in the industry. Educational departments such as higher education institutions have received less attention, especially in less developed countries. The introduction of TQM activities will increase the participation of enterprises. However, not all TQM activities are constructive contributors to corporate dedication.

Yang et al., (2018) mentioned that the process management in TQM has affected the global industry and is quickly recognized as a key issue for service product differentiation and strategic advantage construction. Most companies lack comprehensive knowledge about TQM issues in this industry. There is an urgent need for a process to help the Malaysian industry evaluate these TQM practices and select the most suitable process to provide ideal management practices for the entire organization. Supply chain management is the main source for companies to achieve outstanding results. Researchers hope to explore the

degree of correlation between the management support of these two indicators and their company's learning of the supply chain management environment. For all enterprises, the supply chain is an increasingly serious global problem, and logistics management is challenging. (Suryanto et al., 2018)

Many companies have used total quality management plans to improve company efficiency. However, not all companies will benefit from the plan, because it is not easy to successfully execute it. The implementation of TQM can provide a realistic road map, through the provision of good training and education, management commitment and leadership to help companies improve sales performance in operations (Ahmad et al., 2019). Based on journals and articles that have been done by previous researchers, we can find out that TQM has many positive effects on individuals, the economy, and so on. Therefore, researchers have made this research to find out the effect of total quality management on SME sector.

Second objective is to explore the impact of TQM on competitive advantage of SME sector. Therefore, researchers have conducted research on competitive advantage of SME sector and found many research and analytical journals and related articles. Competitive advantage has a positive and significant impact on corporate performance to a certain extent. Market orientation and innovation also directly and indirectly have a significant impact on corporate performance through competitive advantage. Market orientation, innovation and competitive advantage contribute to business performance. Udriyaha et al., (2019).

Information resources are the most important, because most of the work can be used to explain how information capital gains a competitive advantage. Many companies understand how logistics service providers (LSPs) can obtain cost advantages through technology and knowledge resources (Karia, 2018). When buyers and suppliers have strong bargaining power, SMEs with cost differences and benefits can meet higher economic value. On the other hand, the threat of newcomers reduces the monetary value that SMEs can obtain. (Ong et al., 2018).

Differentiated advantage is also defined as the purchasing power of consumers, bargaining by suppliers and the threat to newcomers, which moderately alleviates the impact of competitive advantage on company performance. Unexpectedly, small and medium-sized enterprises with differentiated advantages and cost advantages can meet higher economic value when buyers and suppliers have strong bargaining power. (Ong et al., 2018). These are the factors affecting TQM on competitive advantage of SME sector.

Third objective is to examine and analyse which of these factors are the most influence of TQM and competitive advantage within SME sector. These six variables were identified as customer focus, employee involvement, leader management, process management, supplier management and training and education. From the results of each coefficient and the results of the hypothesis, there are two factors in this research are accepted, namely customer focus and leader management because it has a value of less than 0.05 while four other factors such as employee involvement, process management, supplier management

and training and education are not accepted because it has a value more than 0.05 value is reflected because there is no significant relationship with SME sector.

Analytical customer focus and leader management showing significant results This is because researchers argue that this significant factor can help all SME sector to determined competitive advantage. Employee involvement, process management, supplier management and training and education showing insignificant results. This is because researchers believe that this factor is less helpful to SME sector to determined competitive advantage. It does not help completely, but it does not affect SME sector.

5.1. RECOMMENDATIONS FOR FUTURE RESEARCH

Appropriate recommendations are given as they can help any employee or other researcher interested in this type of research and other research opportunities in this research. The researchers suggest expanding the location and area of data collection in future studies. Researchers believe that one-on-one or face-to-face contact will help prevent respondents from confusion or misunderstanding the questions raised when filling out the questionnaire. As respondents may encounter difficulties, uncertainties or do not understand the questions raised in the questionnaire, the researcher will immediately clarify and allow them to answer. For example, a researcher may quickly explain and translate into different languages, as well as explain the purpose of the survey to respondents who do not understand English. This will cause respondents to provide false and erroneous information when filling out the questionnaire.

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