



THE INFLUENCE OF TOTAL QUALITY MANAGEMENT (TQM) ON QUALITY COST EFFICIENCY AND MANAGERIAL PERFORMANCE AND THE IMPLICATIONS FOR COMPANY PERFORMANCE

Elvina¹

Universitas Kristen Maranatha, Bandung, Indonesia

elvina.zhuang@yahoo.com

Silvia Anggraeni²,

Universitas Kristen Maranatha, Bandung, Indonesia

silviaanggraeni888@yahoo.com

Sonnya Nurman Sasongko³

Universitas Kristen Maranatha, Bandung, Indonesia

nurmansk26@gmail.com

Amanda Yunne Erlandian⁴

Universitas Kristen Maranatha, Bandung, Indonesia

amandayunne@gmail.com

Abstract

The study aimed to determine the effect of Total Quality Management (TQM) on Quality Cost Efficiency (QCE) and managerial performance and its implications on company performance. In the research, the researchers involved 100 companies in Indonesia. The analysis used is a structural approach to the Equation Model (SEM) assisted by the Smart PLS application. The results showed that there was a significant positive effect between total quality management, quality cost efficiency, managerial performance, and total management quality on company performance mediated by managerial performance. The amount of the r square of the company's performance variable is explained by the total quality management, quality cost efficiency, and managerial performance of 88.9%.

Keywords: TQM, QCE, Managerial Performance; Company performance

INTRODUCTION

Quality improvement is directly proportional to cost increase. The costs will automatically increase when management decides to improve quality (Randhawa & Ahuja, 2017). This view is considered wrong by quality pioneers because, in the new paradigm, it is said that quality has no cost (Dahlgaard-Park, Reyes, & Chen, 2018). Many world-class companies use quality cost improvement as an indicator of program success that can be linked to company profits, sales value, cost of goods sold, or total production costs. According to Muhyiddin (2021), the types of companies in Indonesia include companies in the service, financial, manufacturing, and other sectors. The research involves companies in the service sector. Products traded by service companies are services that can provide benefits to customers in need. Businesses in the service sector can carry out their economic activities because there is a demand from the market for these service products. The higher the level of market demand, the more value of these services will also increase.

In practice, when the product/service is produced, and it turns out that there are still defective goods or services that are not as expected, the error will be a waste for the company because repair costs for these services are needed. It is causing the company's image to be bad and impacting consumers to become disloyal (Lindström et al., 2019). However, unwanted things can be avoided when quality improvement and "maintenance" are always maintained. The quality of products/services is also influenced by performance to increase its effectiveness and efficiency to gain customers and become the market leader of the products and services offered (Tseng, 2016). The condition ultimately requires business people, including managers, to improve their performance, including planning, organizing, directing, and solving problems (Welford, 2016).

Managerial performance is needed in organizations because maximum managerial performance is expected to bring success to the company it leads (Shadi Abualoush, Ra'ed Masa'deh, Khaled Bataineh, & Ala'aldin Alrowwad, 2018). Most of the company's success is measured by its managerial achievements and performance (Schaltegger & Wagner, 2017). Managers must utilize their capabilities to the maximum extent possible so that the company has good product/service quality and is superior in competing compared to other companies (Kolding et al., 2018).

It is what underlies the thought of the need to use Total Quality Management (TQM) because Total Quality Management (TQM) is a structured system with a set of tools, techniques, and philosophies designed to create a corporate culture that focuses on consumers, involving the active participation of employees and continuous quality improvement to meet consumer expectations (Dahlgaard, Reyes, Chen, & Dahlgaard-Park, 2019). Implementation of high Total Quality Management will improve managerial performance and managers will be more motivated to improve performance if high-performance measurement is in the form of required information that provides feedback for improvement and learning (D. Shin & Konrad, 2014).

The quality factor is something that must be considered in providing services. The service quality policy strategy implemented is expected to be able to streamline costs so that complaints from zero defects can be achieved and become work standards, and service quality is maintained (Neyestani, 2017). It underlies the thought of the need for an integrated quality management system such as Total Quality Management (TQM) in order to produce a variety of high-quality products and services (Sader, Husti, & Daróczi, 2019). The quality of the product or service produced must be balanced with the minimum possible cost and efficient service (Kaur, Singh, & Singh, 2019).

The application of TQM is closely related to quality (Nguyen & Nagase, 2019). It provides the basis for quality management and is an alternative in ensuring customer satisfaction. TQM provides a structure (framework) and tools for quality management. Throughout the operation, there is a continuous effort focused on quality areas (Pellegrino, Costantino, & Tauro, 2020). The concept of quality-oriented towards customer satisfaction in an integrated manner and reasonable quality costs should be established as one of the primary objectives. It is implementing and planning business and products and measuring the performance of enterprises' marketing, engineering, production, industrial relations, and service functions (Leu & Lee, 2016).

Through the implementation of total quality management (TQM), companies are expected to control costs by making continuous improvements to the production process, product quality, human resources, services, and the environment (Psomas & Jaca, 2016). It can be done by reducing products that are free from damage to avoid repeating the production process, which causes the company's operational costs to increase. Chams et al.,

(2021) suggest that Total Quality Management (TQM) is a revolutionary management strategy in ensuring quality and reducing costs. The application of TQM and affecting quality improvement will also affect changes in production costs, especially for industrial companies, which are the most significant component of costs incurred (Albuhisi & Abdallah, 2018). In a situation of intense economic competition in the world, the Total Quality Management (TQM) approach is increasingly being used. Research on the use of Total Quality Management (TQM) techniques interactively affects the improvement of company quality into an interesting topic, because TQM is one of the techniques often used by companies in order to improve their performance.

Research conducted by Abbas (2020) TQM has a positive and robust effect on service effectiveness, while cost efficiency has an effect but is not significant. According to Donate et al., (2020) research results show that the performance measurement system and reward system significantly affect managerial performance, while Total Quality Management (TQM) has no significant effect on managerial performance. Bolatan et al., (2016) conducted research and showed that Total Quality Management (TQM) and the reward system had a significant effect on managerial performance while the performance measurement system did not affect managerial performance. The novelty in this research is the addition of cost efficiency, quality, and company performance variables, as suggested in previous studies. Thus, the purpose of this study is to determine the effect of Total Quality Management (TQM) on Cost Efficiency, Quality, and Managerial Performance and the Implications for Company Performance.

REVIEW OF LITERATURE

Total Quality Management (TQM)

Jimoh et al., (2018) define Total Quality Management (TQM) as the achievement of constant customer satisfaction through continuous improvement of all organizational processes. Meanwhile, Aquilani et al., (2017) view Total Quality Management (TQM) as an organizational strategy regarding commitment to improving customer satisfaction by developing techniques to manage output quality carefully. It is an integrated approach to obtaining and maintaining high-quality output, focusing on maintenance, continuous improvement, and failure prevention at all levels and functions of the company to meet or

exceed consumer expectations (Ghani Al-Saffar & Obeidat, 2020). There have been many studies conducted by experts who focus on the concept of TQM by using or reviewing it from various areas or different contexts.

The concept of Total Quality Management (TQM), aside from being a management philosophy and principles, is also a set of strategies and practices that can be used to improve a company's competitiveness and performance through meeting customer needs and satisfaction (Jalilvand, Khazaei Pool, Balouei Jamkhaneh, & Tabaeian, 2018). From various opinions and definitions from experts, it can be explained that Total Quality Management (TQM) is a philosophical approach using various aspects of management in improving the quality and productivity of products, services, organizations, employees/labor, and their environment, which is always oriented towards to customers/society as well as consistent and continuous improvement.

In measuring the Total Quality Management of an organization, the indicators used based on Al-Dhaafri et al., (2016) are as follows.

Table 1
Indicators of Total Quality Management (TQM)

Variable	Indicator
Total Quality Management	Performance
	Feature
	Reliability
	Compatibility
	Durability
	Serviceability
	Aesthetics
	Understanding Quality

Source: Al-Dhaafri et al., 2016

Quality Cost Efficiency

According to Vysochynska, (2017), quality costs are costs that arise because there may or have been poor quality products. While Malik et al., (2016) state that quality costs are all costs that must be incurred due to defective goods. Holota et al., (2016) state quality costs are costs associated with preventing, identifying, repairing and rectifying low-quality

products and with the opportunity cost of lost production and sales time as a result of poor quality. Based on the above definition above, it can be concluded that the company incurred quality costs due to defective goods; in other words, these costs are incurred to improve product quality or achieve predetermined standards. The following are quality cost efficiency indicators according to:

Table 2
Indicators of Quality Cost Efficiency

Variable	Indicators
Quality cost efficiency	Prevention costs Appraisal fee Internal failure costs External failure cost

Source: Manova & Yu, 2017

Managerial Performance

Whitley (2019) defines managerial performance as follows: “A manager who produces performance by mobilizing talents and abilities, as well as several other people’s efforts that are different in their area of authority.” According to Abubakar et al., (2019) managerial performance is the individual performance of organizational members in managerial activities. Managerial performance results from an effective managerial activity process: planning, implementation, administration, accountability reports, coaching, and monitoring processes. Furthermore, managerial performance, according to Almatrooshi et al., (2016) is how effectively and efficiently managers have worked to achieve organizational goals.

Companies need managerial performance to survive against competing companies. Managerial performance is a factor used to increase organizational effectiveness. Managerial performance can be achieved if the organization as a whole or the managers of business units together have achieved the goals that have been set. The good managerial performance will result in effectiveness that strives for profit for the company or organization (Gerrish, 2016). Thus, it can be concluded that managerial performance is an achievement achieved by a company/organization through a series of processes or frameworks, which involves a group of people as a business unit to achieve goals during a specific period.

It is as stated by Ertuğrul Köse & Hüner Şencan, (2016) in their research revealing the dimensions for measuring managerial performance appraisal, which include eight activity dimensions as follows:

Table 3
Managerial Performance

Variable	Indicators
Managerial Performance	Performance Planning Investigation Performance Coordinating Performance Performance Evaluation Performance Monitoring Staffing Performance Performance Negotiating

Source: (Ertuğrul Köse & Hüner Şencan, 2016)

Company Performance

Firm performance is defined as a description of the company's ability to benefit from the company's goals. Firm performance is a measurement of the company's achievement within a certain period. Company performance is an overall success of the company in achieving the strategic goals that have been set through selected strategic initiatives (Nuraini, 2021). *Company performance* is defined as its ability to achieve its goals through efficient and effective use of resources. It describes how far a company has achieved its results after being compared with previous performance, previous performance, and benchmarking performance of other organizations and to what extent it has achieved the goals and targets that have been set (Zabri, Ahmad, & Wah, 2016). The results of research by Saha et al., (2017) found that organizational agility and the effectiveness of human resources affect organizational performance and competitive ability. The company performance indicators, according to Yokokawa and Mizoguchi, (2016) are:

Table 4
Firm Business Performance Dimensions and Indicators

Dimension	Indicators
Effectiveness	Goal Strategies activities Staff performances on job Number of project complted
Fundraising Efficiency	Membership growth Market share

RESEARCH METHOD

The research approach used in this research is a quantitative approach. Quantitative research methods aim to test the established hypotheses. The quantitative method is in the form of numbers derived from measurements using a scale on the variables in the study. The respondents in this study were 100 companies in Indonesia. The companies samples that are used as references are companies engaged in the service sector. Some of the popular service businesses in Indonesia are travel services, laundry services, ticket sales services, massage or acupuncture services, and many more. In global competition where modern technology developments, economic deregulation and free markets occur so that not only manufacturing companies, but also service companies need to improve quality and make continuous improvements. Data analysis used a Structural Equation Model (SEM) approach assisted by smart PLS applications (Yannis & Nikolaos, 2018). The stages of data analysis in this research are:

Outer Model Analysis

Validity and Reliability Test

Validity and reliability tests are carried out to ensure that the measurement used is feasible to be used as a measurement (valid and reliable). Testing the validity and reliability can be seen from:

Convergent Validity is an indicator assessed based on the correlation between the item score/component score and the construct score, which can be seen from the standardized loading factor, which describes the magnitude of the correlation between each measurement item (indicator) its construct. The individual reflexive measure is said to be high if the correlation > 0.7 .

Discriminant Validity is a measurement model with reflexive indicators assessed based on cross-loading measurements with constructs. discriminant validity, which is to compare the value of the square-root of Average Variance Extracted (AVE).

Composite reliability is an indicator to measure a construct that can be seen in the view of latent variable coefficients. In this measurement, if the value achieved is > 0.70 , it can be said that the construct has high reliability.

Cronbach's Alpha is a reliability test carried out to strengthen the results of composite reliability. A variable can be declared reliable if it has Cronbach's alpha value > 0.7 .

The inner **model** analysis or commonly called the structural model is used to predict the causal relationship between the variables tested in the model.

Table 5
Instrument Testing

Instrument Test	Test used
Validity test	Convergent Validity AVE
Reliability Test	Cronbach Alpha Composite Realibility

R Square Test, The R^2 test is used to measure how far the model's ability to explain the variation of the dependent variable.

Inner Model Analysis

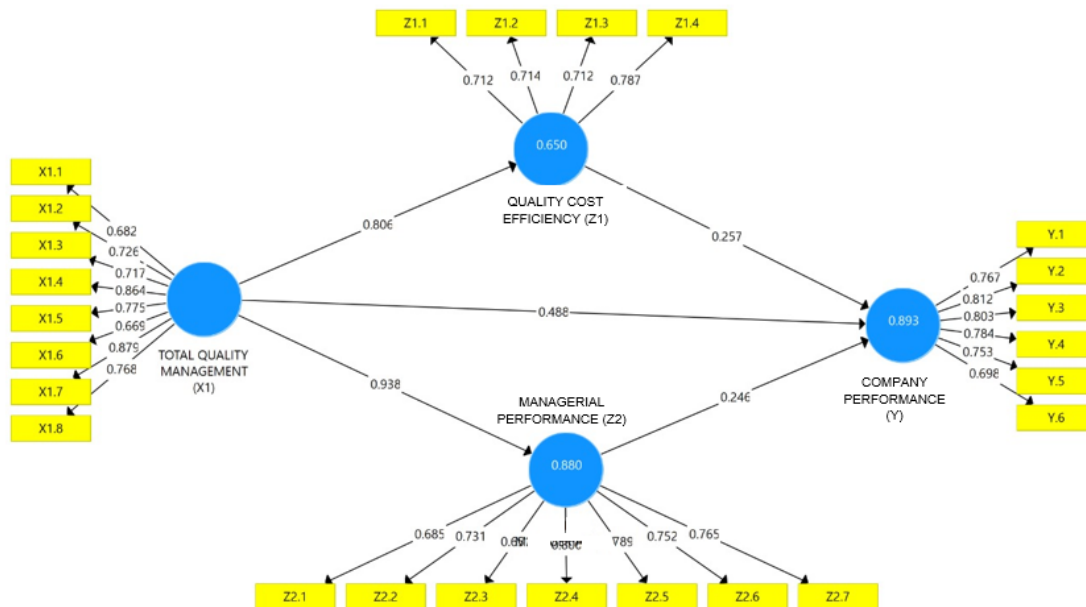
The analysis of the inner model in testing using Smart PLS is done by testing the hypothesis. Testing the hypothesis can be seen from the t-statistical value and probability value. To test the hypothesis using statistical values, for alpha 5%, the t-statistic value used is 1.96. In contrast, the beta score is used to determine the direction of the influence of the relationship between variables. The criteria for acceptance/rejection of the hypothesis are:

$H_a = t\text{-statistic} > 1.96$ with p-values score < 0.05 .

$H_0 = t\text{-statistic} < 1.96$ with p-values > 0.05

RESULTS AND DISCUSSION

Figure 1
Outer Model Analysis



Validity test

Validity test is used to measure the validity or validity of a questionnaire. In this research, validity testing is carried out using convergent validity and AVE. The instrument is declared valid if the AVE value is > 0.05 and the outer loading value is (> 0.6) .

Table 6
Instrument Validity Test Result

Variable	Instrument Code	Outer Loading	AVE	Description
Total Quality Management (X1)	X1.1	0.682	0.583	Valid
	X1.2	0.726		Valid
	X1.3	0.717		Valid
	X1.4	0.864		Valid
	X1.5	0.775		Valid
	X1.6	0.669		Valid
	X1.7	0.879		Valid
	X1.8	0.768		Valid
Company Performance (Y)	Y.1	0.767	0.593	Valid
	Y.2	0.812		Valid

		Y.3	0.803		Valid
		Y.4	0.784		Valid
		Y.5	0.753		Valid
		Y.6	0.698		Valid
Quality Efficiency (Z1)	Cost	Z1.1	0.712	0.535	Valid
		Z1.2	0.714		Valid
		Z1.3	0.712		Valid
		Z1.4	0.787		Valid
Managerial Performance (Z2)		Z2.1	0.685	0.549	Valid
		Z2.2	0.731		Valid
		Z2.3	0.651		Valid
		Z2.4	0.800		Valid
		Z2.5	0.789		Valid
		Z2.6	0.752		Valid
		Z2.7	0.765		Valid

Reliability Test

In this study, the researchers used two reliability tests, namely the Cronbach Alpha test and the Composite Reliability test. Cronbach Alpha measures the lowest value (lower-bound) reliability. The data is declared good if the data has a Cronbach alpha value and a composite reliability score > 0.7 .

Table 7
Instrument Reliability Test Results

Variables	Cronbach's Alpha	rho_A	Composite Reliability
Quality Cost Efficiency (Z1)	0.714	0.718	0.821
Managerial Performance (Z2)	0.863	0.875	0.894
Company Performance (Y)	0.862	0.866	0.897
Total Quality Management (X1)	0.896	0.901	0.917

Based on the calculations carried out, it was found that all instrument items met the validity and reliability requirements with scores that exceeded the criteria.

R Square

Coefficient determination (R-Square) is used in measuring how much other variables influence the endogenous variable. Based on the data analysis carried out through

the use of the smartPLS program, the R-Square value was obtained as shown in the following table:

Table 8
Result of r-Square Analysis

	R Square	R Square Adjusted
Quality Cost Efficiency (Z1)	0.650	0.646
Quality Cost Efficiency (Z2)	0.880	0.879
Company Performance (Y)	0.893	0.889

The score obtained in the table describes that the company's performance variable (Y) is explained by total quality management, quality cost efficiency, and managerial performance of 88.9%, while variables explain the rest outside of this study. The quality cost-efficiency variable is explained by total quality management of 64.6%, the rest is explained by other variables not explained in this study. The managerial performance variable is explained by total quality management of 87.9%, the rest is explained by other variables not explained in this study.

Hypothesis Testing

Table 9
Result of Hypothesis Test

Variableness	Original Sample (O)	t Statistics (O/STDEV)	P Values
Quality Cost Efficiency (Z1) -> Company Performance (Y)	0.257	4.280	0.000
Managerial Performance (Z2) -> Company Performance (Y)	0.246	2.644	0.008
Total Quality Management (X1) -> Quality Cost Efficiency (Z1)	0.806	28.235	0.000
Total Quality Management (X1) -> Managerial Performance (Z2)	0.938	94.585	0.000
Total Quality Management(X1) -> Company Performance (Y)	0.488	4.800	0.000
Total Quality Management (X1) -> Quality Cost Efficiency (Z1) -> Company Performance (Y)	0.207	4.321	0.000
Total Quality Management (X1) -> Managerial Performance (Z2) -> Company Performance (Y)	0.230	2.652	0.008

The Effect of Total Quality Management (X1) on Company Performance (Y)

The results of testing the hypothesis of total quality management on company performance obtained a positive beta score (0.488) with a T statistic of 4,800 ($p > 1.96$) and p values of 0.000 ($p < 0.05$), resulting in a significant positive effect between total quality management on company performance. The better the Total Quality Management (TQM) applied in the company, the better the company's performance. The company implements policies, basic principles, and continuous employee commitment in improving performance. The company prioritizes employee quality development by holding education and training programs for employees. Management needs to create a comfortable atmosphere for each individual to impact the implementation of maximum performance.

Total Quality Management (TQM) is an approach to running a business that maximizes organizational competitiveness by continuously improving products and services, workforce, processes, and the environment (Pambreni, Khatibi, Ferdous Azam, & Tham, 2019). It is in line with research by Aquilani et al., (2017) implementation is essential because TQM is a source of long-term success; TQM directly influences employee behavior, attitudes, and values. Several factors in TQM, such as management commitment, employee empowerment, and teamwork, positively influence organizational performance. The results of this study are in line with research conducted by Mehralian et al., (2017) which concludes that there is a positive effect of TQM on company performance.

The Effect of Quality Cost Efficiency (Z1) on Company Performance (Y)

The results of testing the hypothesis of quality cost efficiency on company performance obtained a positive beta score (0.257) with a T statistic of 4.280 ($p > 1.96$) and p values of 0.000 ($p < 0.05$), resulting in a significant positive effect between quality cost efficiency on company performance. The better the quality cost efficiency management carried out by the company, the better the company's performance will also increase. From the manufacturer's point of view, quality can be interpreted as a technical composition based on the technical specifications. Meanwhile, from the consumer's point of view, quality is intended as the level of the product's ability to meet what consumers expect of a product. It can be explained that prevention activities are perceived as more important to be carried out to prevent failures, both internal failures, and external failures. It is in line with

research conducted by Xie et al., (2019) , which states that the cost of quality activities consisting of prevention activities, control activities, internal failure activities, and external failure activities has a significant effect on company performance.

The Effect of Managerial Performance (Z2) on Company Performance (Y)

The results of testing the managerial performance hypothesis on company performance obtained a positive beta score (0.246) with a T statistic of 2.644 ($p > 1.96$) and p values of 0.008 ($p < 0.05$), resulting in a significant positive effect between managerial performance on company performance. The better the company's managerial performance, the better the company's performance. The company's organizational performance is largely influenced by the performance of employees, especially managers. A performance measurement system is needed to improve company performance to provide managers with relevant information for strategic decision-making (Appelbaum, Kogan, Vasarhelyi, & Yan, 2017). Research by Hernandez-Espallardo et al., (2018) has a positive relationship between job-related information and managerial performance. He stated that comprehensive performance information from a performance measurement system would provide more specific and relevant information for the decision-making process, thereby improving managerial performance. Mokhtar et al., (2016) have provided empirical evidence to state that perceived environmental uncertainty affects the characteristics of management accounting information and firm performance.

The Effect of Total Quality Management (X1) on Quality Cost Efficiency (Z1)

The results of testing the hypothesis of total quality management on quality cost-efficiency obtained a Positive Beta score (0.806) with a T statistic of 28.235 ($p > 1.96$) and p values of 0.000 ($p < 0.05$), resulting in a significant positive effect between total quality management on quality cost efficiency. The better the implementation of total quality management applied by the company, the better the cost efficiency of the company's quality. TQM provides a structure (framework) and tools for quality management so that throughout the operation, there is a continuous effort focused on the quality group of areas. The concept of quality-oriented to customer satisfaction in an integrated manner and reasonable quality costs should be established as one of the primary objectives of implementing and planning business and product and measuring the performance of the marketing, engineering, production, industrial relations, and service functions of the

enterprise. The principle of TQM in achieving its goals is to make continuous quality improvements. The companies can increase their profits through two channels (Bakotić & Rogošić, 2015). The first path is the market channel, where the company can improve its competitive position. Its market share is more significant and the selling price can be higher. These things lead to an increase in income so that profit earned is even greater. In comparison, the second path is the cost path, where the company can increase output free from damage through quality improvement efforts. This causes the company's operating costs to decrease and thus the profits to increase. The results of this study are in line with research conducted by Muhammad Haroon Hafeez et al., (2018) which states that TQM affects cost efficiency.

The Effect of Total Quality Management (X1) on Managerial Performance (Z2)

The results of testing the hypothesis of total quality management on the managerial performance obtained a positive beta score (0.938) with a T statistic of 94,585 ($p > 1.96$) and p values of 0.000 ($p < 0.05$), resulting in a significant positive effect between total quality management on managerial performance. The better the total quality management (TQM) is applied, the more it will also impact the managerial performance of the company. Division managers play an essential role in communicating organizational activities carried out by fellow managers and those passed on to subordinates. Communication between managers and subordinates is strongly influenced by the perception of each manager about the information about TQM received from his superiors and fellow division managers. Shin (2017) argues that perception in terms of user cognition through introduction and expertise in information systems has a relationship with managers' perceptions and will impact performance. Likewise, the better the manager's perception through the introduction and expertise of total quality management will affect the manager's performance. This research aligns with research conducted by Al-Dhaafri et al., (2016) that quality management affects managerial performance.

The Effect of Total Quality Management (X1) Mediated by Quality Cost Efficiency (Z1) on Company Performance (Y)

The results of testing the hypothesis of total quality management mediated by quality cost efficiency on company performance obtained a positive beta score (0.207) with a T statistic of 4.321 ($p > 1.96$) and p values of 0.000 ($p < 0.05$), resulting in a significant

positive effect between total quality management on company performance is mediated by quality cost efficiency. The better the total quality management carried out by the company, the more it will impact the company's performance and be strengthened by quality cost efficiency. Companies that have good competitiveness are ensured that their performance will also improve; if they have good management quality, the company also carries out various innovation strategies so that consumers can always accept the company because it can provide the best service and product quality following consumer desires.

The results of this study are consistent with research by Malik et al., (2016) which proves that there is a significant relationship between Total Quality Management (TQM) on competitiveness, Total Quality Management on company performance, and competitiveness on company performance. Shafiq et al., (2017) suggest that companies in Turkey have invested their resources in adapting and implementing TQM. TQM improves processes within the company to improve product quality and have a positive impact on performance.

The Effect of Total Quality Management (X1) Mediated by Managerial Performance (Z2) on Company Performance (Y)

The results of testing the hypothesis that total quality management mediated managerial performance on company performance obtained a positive beta score (0.230) with a T statistic of 2.652 ($p > 1.96$) and p values of 0.000 ($p < 0.05$), resulting in a significant positive effect between total quality management on performance firm is mediated by managerial performance. The better the total quality management implemented by the company and the better the managerial performance of the company, the more it will improve the company's performance. The companies that have high competitiveness are affected by the implementation of Total Quality Management (TQM) and will have a high level of performance; the companies can compete in a competitive market that is increasingly dynamic and tight in line with the progress of the times and current technology. So, if the company wants to compete and have better performance, it is recommended to implement Total Quality Management (TQM) in carrying out its business operations.

A performance measurement system is needed to improve company performance that can provide managers with relevant information for strategic decision-making. Gerner,

(2019) states that the management style in managing performance-oriented resources carries out an open and sustainable communication process by creating a shared vision and a strategic and integrated approach as a driving force to achieve organizational goals. The results of this study support the research conducted by Jimoh et al., (2018) with the title Total Quality Management on managerial performance with performance measurement systems and reward systems as moderating variables.

CONCLUSION

Based on the research and discussion that has been carried out, it can be concluded that: a) There is a significant positive effect between total quality management on company performance; b) There is a significant positive effect between quality cost efficiency on company performance; c) There is a significant positive influence between managerial performance on company performance; d) There is a significant positive effect between managerial performance and company performance; e) There is a significant positive effect between total quality management on quality cost-efficiency; f) There is a significant positive effect between total quality management on managerial performance; g) There is a significant positive effect between total quality management on company performance mediated by quality cost efficiency; h) There is a significant positive effect between total quality management on company performance mediated by managerial performance.

The results of the r square of the company's performance variable are explained by the total quality management, quality cost efficiency, and managerial performance of 88.9%. It is recommended for further research.

REFERENCES

- Abbas, J. (2020). Impact of total quality management on corporate sustainability through the mediating effect of knowledge management. *Journal of Cleaner Production*, 244, 118806. <https://doi.org/10.1016/J.JCLEPRO.2019.118806>.
- Abubakar, A. M., Elrehail, H., Alatailat, M. A., & Elçi, A. (2019). Knowledge management, decision-making style and organizational performance. *Journal of Innovation & Knowledge*, 4(2), 104–114. <https://doi.org/10.1016/J.JIK.2017.0.7.003>.

- Al-Dhaafri, H. S., Al-Swidi, A. K., & Yusoff, R. Z. Bin. (2016). The mediating role of total quality management between the entrepreneurial orientation and the organizational performance. *TQM Journal*, 28(1), 89–111. <https://doi.org/10.1108/TQM-03-2014-0033/FULL/PDF>.
- Albuhisi, A. M., & Abdallah, A. B. (2018). The impact of soft TQM on financial performance: The mediating roles of non-financial balanced scorecard perspectives. *International Journal of Quality and Reliability Management*, 35(7), 1360–1379. <https://doi.org/10.1108/IJQRM-03-2017-0036/FULL/XML>.
- Almatrooshi, B., Singh, S. K., & Farouk, S. (2016). Determinants of organizational performance: a proposed framework. *International Journal of Productivity and Performance Management*, 65(6), 844–859. <https://doi.org/10.1108/IJPPM-02-2016-0038/FULL/PDF>.
- Appelbaum, D., Kogan, A., Vasarhelyi, M., & Yan, Z. (2017). Impact of business analytics and enterprise systems on managerial accounting. *International Journal of Accounting Information Systems*. [https://doi.org/10.1016/j..accinf.2017.03.003](https://doi.org/10.1016/j.accinf.2017.03.003)
- Aquilani, B., Silvestri, C., Ruggieri, A., & Gatti, C. (2017). A systematic literature review on total quality management critical success factors and the identification of new avenues of research. *TQM Journal*, 29(1), 184–213. <https://doi.org/10.1108/TQM-01-2016-0003/FULL/XML>.
- Bakotić, D., & Rogošić, A. (2015). Employee involvement as a key determinant of core quality management practices. *Http://Dx.Doi.Org/10.1080/14783363.2015.1094369*, 28(11–12), 1209–1226. <https://doi.org/10.1080/14783363.2015.1094369>.
- Bolatan, G. I. S., Gozlu, S., Alpkan, L., & Zaim, S. (2016). The Impact of Technology Transfer Performance on Total Quality Management and Quality Performance. *Procedia - Social and Behavioral Sciences*, 235, 746–755. <https://doi.org/10.1016/J.SBSPRO.2016.11.076>.
- Chams, N., García-Blandón, J., & Hassan, K. (2021). Role Reversal! Financial Performance as an Antecedent of ESG: The Moderating Effect of Total Quality Management. *Sustainability 2021*, Vol. 13, Page 7026, 13(13), 7026. <https://doi.org/10.3390/SU13137026>.
- Dahlgaard-Park, S. M., Reyes, L., & Chen, C. K. (2018). The evolution and convergence of total quality management and management theories. *Https://Doi.Org/10.1080/14783363.2018.1486556*, 29(9–10), 1108–1128. <https://doi.org/10.1080/14783363.2018.1486556>.
- Dahlgaard, J. J., Reyes, L., Chen, C. K., & Dahlgaard-Park, S. M. (2019). Evolution and future of total quality management: management control and organisational learning. *Https://Doi.Org/10.1080/14783363.2019.1665776*, 30(sup1), S1–S16. <https://doi.org/10.1080/14783363.2019.1665776>.

- Donate, M. J., Ruiz-Monterrubio, E., Sánchez de Pablo, J. D., & Peña, I. (2020). Total quality management and high-performance work systems for social capital development: Effects on company innovation capabilities. *Journal of Intellectual Capital*, 21(1), 87–114. <https://doi.org/10.1108/JIC-07-2018-0116/FULL/XML>.
- Ertuğrul Köse, & Hüner Şencan. (2016). The Effect of Decision Making Competence on Managerial Performance . *International Journal of Commerce and Finance*, 2(2).
- Gerner, M. (2019). Assessing and managing sustainability in international perspective: corporate sustainability across cultures – towards a strategic framework implementation approach. *International Journal of Corporate Social Responsibility* 2019 4:1, 4(1), 1–34. <https://doi.org/10.1186/S40991-019-0043-X>.
- Gerrish, E. (2016). The Impact of Performance Management on Performance in Public Organizations: A Meta-Analysis. *Public Administration Review*, 76(1), 48–66. <https://doi.org/10.1111/PUAR.12433>.
- Ghani Al-Saffar, N. A., & Obeidat, A. M. (2020). The effect of total quality management practices on employee performance: The moderating role of knowledge sharing. *Management Science Letters*. <https://doi.org/10.5267/j.msl.2019.8.014>.
- Hernandez-Espallardo, M., Osorio-Tinoco, F., & Rodriguez-Orejuela, A. (2018). Improving firm performance through inter-organizational collaborative innovations: The key mediating role of the employee's job-related attitudes. *Management Decision*, 56(6), 1167–1182. <https://doi.org/10.1108/MD-02-2017-0151/FULL/PDF>.
- Holota, T., Hrubec, J., Kotus, M., Holienčinová, M., & Čapošov, E. (2016). The management of quality costs analysis model. *Serbian Journal of Management*, 11(1), 119–127. <https://doi.org/10.5937/SJM11-9347>.
- Jalilvand, M. R., Khazaei Pool, J., Balouei Jamkhaneh, H., & Tabaeian, R. A. (2018). Total quality management, corporate social responsibility and entrepreneurial orientation in the hotel industry. *Social Responsibility Journal*, 14(3), 601–618. <https://doi.org/10.1108/SRJ-04-2017-0068/FULL/PDF>.
- Jimoh, R., Oyewobi, L., Isa, R., & Waziri, I. (2018). Total quality management practices and organizational performance: the mediating roles of strategies for continuous improvement. *Https://Doi.Org/10.1080/15623599.2017.1411456*, 19(2), 162–177. <https://doi.org/10.1080/15623599.2017.1411456>.
- Kaur, M., Singh, K., & Singh, D. (2019). Synergetic success factors of total quality management (TQM) and supply chain management (SCM): A literature review. *International Journal of Quality and Reliability Management*, 36(6), 842–863. <https://doi.org/10.1108/IJQRM-11-2017-0228/FULL/XML>.
- Kolding, M., Sundblad, M., Alexa, J., Stone, M., Aravopoulou, E., & Evans, G. (2018). Information management – a skills gap? *Bottom Line*, 31(3–4), 170–190. <https://doi.org/10.1108/BL-09-2018-0037/FULL/XML>.

- Leu, J. Der, & Lee, L. J. H. (2016). Enterprise resource planning (ERP) implementation using the value engineering methodology and Six Sigma tools. *Http://Dx.Doi.Org/10.1080/17517575.2016.1215537*, 11(8), 1243–1261. <https://doi.org/10.1080/17517575.2016.1215537>.
- Lindström, J., Lejon, E., Kyösti, P., Mecella, M., Heutelbeck, D., Hemmje, M., ... Gunnarsson, B. (2019). Towards intelligent and sustainable production systems with a zero-defect manufacturing approach in an Industry4.0 context. *Procedia CIRP*, 81, 880–885. <https://doi.org/10.1016/J.PROCIR.2019.03.218>.
- Malik, T. M., Khalid, R., Zulqarnain, A., & Iqbal, S. A. (2016). Cost of quality: Findings of a wood products' manufacturer. *TQM Journal*, 28(1), 2–20. <https://doi.org/10.1108/TQM-01-2014-0014/FULL/PDF>.
- Manova, K., & Yu, Z. (2017). Multi-product firms and product quality. *Journal of International Economics*, 109, 116–137. <https://doi.org/10.1016/J.JINTECO.2017.08.006>.
- Mehralian, G., Nazari, J. A., Nooriparto, G., & Rasekh, H. R. (2017). TQM and organizational performance using the balanced scorecard approach. *International Journal of Productivity and Performance Management*, 66(1), 111–125. <https://doi.org/10.1108/IJPPM-08-2015-0114/FULL/PDF>.
- Mokhtar, N., Jusoh, R., & Zulkifli, N. (2016). Corporate characteristics and environmental management accounting (EMA) implementation: evidence from Malaysian public listed companies (PLCs). *Journal of Cleaner Production*, 136, 111–122. <https://doi.org/10.1016/J.JCLEPRO.2016.01.085>.
- Muhammad Haroon Hafeez, Muhammad Farhan Basheer, Majid Rafique, & Sulaman Hafeez Siddiqui. (2018). Exploring the Links between TQM Practices, Business Innovativeness and Firm Performance: An Emerging Market Perspective. *Pakistan Journal of Social Sciences (PJSS)*, 38(2), 485–500. <http://pjss.bzu.edu.pk/index.php/pjss/article/view/602>.
- Neyestani, B. (2017). Principles and Contributions of Total Quality Mangement (TQM) Gurus on Business Quality Improvement. *SSRN Electronic Journal*. <https://doi.org/10.2139/SSRN.2950981>.
- Nguyen, T. L. H., & Nagase, K. (2019). The influence of total quality management on customer satisfaction. *Https://Doi.Org/10.1080/20479700.2019.1647378*, 12(4), 277–285. <https://doi.org/10.1080/20479700.2019.1647378>.
- Nuraini, N., Sarkum, S., & Halim, A. (2021). Analysis of Company Capability, Supply Chain Management of Competitive Advantage, and Company Performance. *Indonesian Interdisciplinary Journal of Sharia Economics (IIJSE)*, 4(1), 87-104. <https://doi.org/10.31538/iijs.v4i1.1463>.
- Pambreni, Y., Khatibi, A., Ferdous Azam, S. M., & Tham, J. (2019). The influence of total quality management toward organization performance. *Management Science Letters*. <https://doi.org/10.5267/j.msl.2019.5.011>.

- Pellegrino, R., Costantino, N., & Tauro, D. (2020). The role of risk management in buyer-supplier relationships with a preferred customer status for total quality management. *TQM Journal*, 32(5), 959–981. <https://doi.org/10.1108/TQM-04-2019-0107/FULL/XML>.
- Psomas, E. L., & Jaca, C. (2016). The impact of total quality management on service company performance: evidence from Spain. *International Journal of Quality and Reliability Management*, 33(3), 380–398. <https://doi.org/10.1108/IJQRM-07-2014-0090/FULL/PDF>.
- Randhawa, J. S., & Ahuja, I. S. (2017). 5S – a quality improvement tool for sustainable performance: literature review and directions. *International Journal of Quality and Reliability Management*, 34(3), 334–361. <https://doi.org/10.1108/IJQRM-03-2015-0045/FULL/XML>.
- Sader, S., Husti, I., & Daróczy, M. (2019). Industry 4.0 as a Key Enabler toward Successful Implementation of Total Quality Management Practices. *Periodica Polytechnica Social and Management Sciences*, 27(2), 131–140. <https://doi.org/10.3311/PPSO.12675>.
- Saha, N., Gregar, A., & Sáha, P. (2017). Organizational agility and HRM strategy: Do they really enhance firms' competitiveness? *International Journal of Organizational Leadership*. <https://doi.org/10.33844/ijol.2017.60454>.
- Schaltegger, S., & Wagner, M. (2017). Managing and Measuring the Business Case for Sustainability: Capturing the Relationship between Sustainability Performance, Business Competitiveness and Economic Performance. *Managing the Business Case for Sustainability*, 1–27. <https://doi.org/10.4324/9781351280525-1>.
- Shadi Abualoush, Ra'ed Masa'deh, Khaled Bataineh, & Ala'aldin Alrowwad. (2018). The role of knowledge management process and intellectual capital as intermediary variables between knowledge management infrastructure and organization performance. *Interdisciplinary Journal of Information, Knowledge, and Management*, 13, 279–309. <https://doi.org/10.28945/4088>.
- Shafiq, M., Lasrado, F., & Hafeez, K. (2017). The effect of TQM on organisational performance: empirical evidence from the textile sector of a developing country using SEM. *Https://Doi.Org/10.1080/14783363.2017.1283211*, 30(1–2), 31–52. <https://doi.org/10.1080/14783363.2017.1283211>.
- Shin, D. H. (2017). Conceptualizing and measuring quality of experience of the internet of things: Exploring how quality is perceived by users. *Information & Management*, 54(8), 998–1011. <https://doi.org/10.1016/J.IM.2017.02.006>.
- Shin, D., & Konrad, A. M. (2014). Causality Between High-Performance Work Systems and Organizational Performance: *Https://Doi.Org/10.1177/0149206314544746*, 43(4), 973–997. <https://doi.org/10.1177/0149206314544746>.

- Tseng, S. M. (2016). Knowledge management capability, customer relationship management, and service quality. *Journal of Enterprise Information Management*, 29(2), 202–221. <https://doi.org/10.1108/JEIM-04-2014-0042/FULL/PDF>.
- Welford, R. (2016). Corporate environmental management 3: Towards sustainable development. *Corporate Environmental Management 3: Towards Sustainable Development*, 3, 1–184. <https://doi.org/10.4324/9781315825106>.
- Whitley, R. (2019). On the Nature of Managerial Tasks and Skills: Their Distinguishing Characteristics and Organization. *Managerial Work*, 337–352. <https://doi.org/10.4324/9780429398599-21>.
- Xie, J., Nozawa, W., Yagi, M., Fujii, H., & Managi, S. (2019). Do environmental, social, and governance activities improve corporate financial performance? *Business Strategy and the Environment*, 28(2), 286–300. <https://doi.org/10.1002/BSE.2224>.
- Yannis, P., & Nikolaos, B. (2018). Quantitative and Qualitative Research in Business Technology: Justifying a Suitable Research Methodology. *Review of Integrative Business and Economics Research*, 7(1), 91-105.
- Yokokawa, H., & Mizoguchi, M. (2016). Collaboration structure for the resurrection of Iitate Village, Fukushima: A case study of a non-profitable organization. In *Agricultural Implications of the Fukushima Nuclear Accident: The First Three Years*. https://doi.org/10.1007/978-4-431-55828-6_16.
- Zabri, S. M., Ahmad, K., & Wah, K. K. (2016). Corporate Governance Practices and Firm Performance: Evidence from Top 100 Public Listed Companies in Malaysia. *Procedia Economics and Finance*, 35, 287–296. [https://doi.org/10.1016/S2212-5671\(16\)00036-8](https://doi.org/10.1016/S2212-5671(16)00036-8).