

1. Total Quality Management: A Review of Recent Trend

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Total Quality Management: A Review of Recent Trend

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Abstract: TQM is the latest breakthrough in the field of management where all activities are aimed at optimizing customer satisfaction, through continuous process improvement. Literature studies in contemporary management have discussed a lot about the philosophy and methods of TQM, especially in relation to company performance. TQM is a business management strategy that seeks to improve the quality of an organization's management, and hence, increase competitiveness and the value it provides to customers. TQM provides a competitive advantage for companies, because it involves all divisions, departments, and various levels of the organization in the process. A well-coordinated management process will result in lower production costs, as well as increased efficiency and effectiveness of output production, which leads to improved overall business performance. This paper will discuss the relevance of implementing TQM for business organizations in the Industrial Era 4.0.

Keywords: TQM, Continuous Improvement, Organization Competitiveness.

I. INTRODUCTION

Several literature studies in contemporary management have discussed the philosophy and methods of Total Quality Management (TQM), especially in relation to company performance. TQM studies are usually based primarily on case studies, definitions of TQM, discussion of TQM principles, use of quality management techniques, individual prescriptions on recognized teachers from this discipline including Deming, Juran, Crosby, Feigenbaum, and Ishikawa. (Dale et al., 1998;). TQM has become one of the dominant business strategies in the 1990s (Lee and Leung, 1999). The evolution of TQM into a pervasive management philosophy through the works of Crosby (1979), Deming (1986), Feigenbaum (1983), Ishikawa (1972), Juran (1988) and Taguchi (1982). A wide range of management issues, techniques and approaches have been brought together under the common banner of TQM (Black and Porter, 1996).

These factors include the management process, leadership, supplier management, quality system, statistical process control, team work, quality policy, zero defects, education and training, planning, measurement of quality cost, customer rewards and benchmark management. Every quality management teacher always identifies a set of "key practices" which is claimed to be essential for achieving superior quality performance. Usually the set of key factors or critical success factors includes the TQM philosophy of Deming's "14 points", Juran's "10 steps" and Crosby's "14 steps" and tools such as SPC, QCC, Benchmark, QFD, etc. The TQM philosophy may contain top-level management support, elimination of employee's fear, vision sharing, employee empowerment, all involvement of employees, customer focus and open culture. TQM tools include quality training, process improvement, benchmark management, measurement, SPC, QCC, and computerized quality information.

The main focus of the TQM philosophy is in the hands and minds of the people who use the tools and techniques, not the tools and techniques themselves. Although there are many case studies of successful TQM implementation, there are also many experiences of failure (Hendricks and Singhal, 1997). Recent research has shown that many TQM-based organizations fail to demonstrate competitive improvement (competitive improvement) significant in business performance (business performance) (Witcher, 1994). Japan's famous industrial performance in 1980, all the companies in the world imitate the Japanese road of success; The effectiveness of TQM seems to be recognized. Therefore, from 1980 to 1990, all companies in the world were busy with implementing TQM. This paper will discuss the relevance of implementing TQM for business organizations in the era of digitization and Industry 4.0.

II. TQM CONCEPT

TQM is the latest breakthrough in the field of management where all activities are aimed at optimizing customer satisfaction, through continuous process improvement. According to Cascio (1995): "TQM, a philosophy and a set of guiding principles that represent the foundation of a continuously improving organization". According to Robbins (1996): "TQM, a philosophy of management that is driven by the consistent attainment of customer satisfaction through the continuous improvement of all organizational processes". The opinions above show clearly that TQM activities are aimed at meeting customer expectations. Its purpose is to enable organizations to eliminate waste, simplify processes, and focus on the use of quality practices, which ultimately affect every management activity; so that customer satisfaction is achieved and the company can achieve a competitive advantage (competitive advantage).

Continuous improvement for the organization is basically a core business strategy in seeking leadership positions. This requires a comprehensive commitment from all personnel in the sense of not only making 'the best of the good', but 'whether a product has been made/processed correctly'. For this reason, in its implementation, TQM must be guided by working principles. The working principle in question is Deming's working principle, namely: Plan, Do, Check, and Action. Gomez-Mejia, Balkin, Cardy and Robert (1995) convince that TQM is a wide approach to improving the quality of all processes that lead to a final product or service. Tenner and Detoro (1992) state: Combining the various teachings of the quality gurus with practical experience has led to the development of a simple effective model for implementing TQM. This model builds on three fundamental principles of total quality-focus on the customers, internal and external; focus on improving work processes to produce consistent acceptable outputs (process improvement); and focus utilizing the talent of those with whom we work (total involvement). This opinion can be interpreted that TQM is a combination of various quality gurus built on three main

principles, namely: customer focus, continuous process improvement, and integrated engagement.

Specifically, TQM has several benefits, both directly related to operational aspects of work life and those related to strategic organizational values. This is as stated by Cascio (1995): TQM requires a change in organization culture, a fundamental change in the way individuals and groups approach their work and their roles in the organization, that is, from an environment of distrust and fear of reprisal to one of openness and trust where creativity can flourish; from working as individuals to working as teams; from protection of organizational turfs to the break-down of departmental barriers; from an autocratic management style of direction and control to a softer style of a team leader and coach; from power concentrated at the top to power shared with employees; from a focus on results to focus on continuous improvement of the processes that deliver the result; and finally a change from making decision based on gut-feel to an analytic, fact-based approach to management. Cascio (1995) revealed that TQM is a philosophy and a series of instructions for organizations to make continuous improvements, which are formed from 7 components/ subsystems, namely: 1. Focus on customers; 2. Effective leadership; 3. Quality concept; 4. Relationship between superiors and subordinates; 5. Focus on employee engagement; 6. Problem solving approach; 7. Recognition of suppliers as a partner in the quality management process. Cherrington (1995), said that TQM is a special program for each company formed by several important elements, namely: (a). Focus on the customer; (b). Strategic planning; (c). Continuous improvement; (d). Empowerment (empowerment) Further, Tenner and Detoro (1992) dividing the elements of TQM more succinctly, that TQM is a combination of various quality gurus built on three main principles, namely: customer focus, continuous process improvement, and integrated engagement. The three principles/subsystems are described as follows:

A. Focus on the customer (customer focus)

Customers in the context of TQM are internal customers and external customers. Internal customers are the following workers or the following departments involved in the production process. While external customers are people or organizations who buy and use the company's product. Tenner and Detoro (1992) revealed that what is meant by customer focus are: Quality is based on the concept that everyone has a customer and that the requirements, needs, and expectations of that customer must be met every time if the organization as a whole is going to meet the needs of the external customer. Tenner and Detoro (1992), revealed that the formation of a customer focus includes three main activities, namely:

1. Identify customers (identifying the customer), its activities include:
 - i. Knowing who the customer is.
 - ii. Knowing what customers want.
 - iii. Efforts to satisfy customers.
2. Understand / meet customer expectations (understanding customer expectations), concerning:
 - i. What are the characteristics of the product/service that the customer wants.
 - ii. The level of performance required to satisfy customer expectations.
 - iii. The relative importance of each characteristic or selection of interests.

iv. How customer satisfaction is in line with the level of performance.

3. Availability of a mechanism to listen the voice of the customer. There are two dimensions of the mechanism for understanding customers, namely:

- i. Through a supplier approach.
- ii. Through a customer approach.

From these two dimensions, it will be known the types or types of suppliers and types of customers.

B. Continuous process improvement

Tenner and Detoro (1992), reveals that: process improvement is the concept of continuous improvement is built on the premise that work is the result of a series of interrelated steps and activities that result in an output. In its implementation, the process improvement is carried out based on the Deming wheel, namely: plan, do, check, and action (PDCA cycle) which rotates the wheel continuously to prevent recurrence of the damage. The cycle is elaborated into six interrelated activities, namely:

Define problem (define problem), its activities include:

1. Identify the resulting product.
2. Identify customers.
3. Identify the requirements - the requirements desired by the customer.

C. Total Involvement

Total involvement, starting from the leadership of an active manager and including his efforts in utilizing all the capabilities of employees in the organization to gain a competitive advantage. All employees at all levels are empowered to improve their work together, and through a flexible work structure to solve problems, improve processes and satisfy customers. Suppliers also become work partners through employee empowerment so as to bring benefits to the organization. This understanding can be concluded that total involvement are all efforts to optimize all employee capabilities so that the organization gains a competitive advantage. Tenner and Detoro (1992) revealed that total involvement consists of two main elements, namely: leadership and employee empowerment. Leadership in the context of TQM are activities carried out by senior managers with full responsibility for the success of the organization based on position, authority, policies, allocation of resources, and taking part in market selection. Managers are also responsible for customers. In other words, TQM requires two skills, namely leadership skills and leadership and managerial skills. There are six things that are fundamental in improving the quality that leaders must do (Tenner and Detoro, 1992), that is:

1. Mission, namely that leaders have a duty to promote quality, both inside and outside the organization, especially regarding the existence and purpose of company activities.
2. Vision, namely the ability to formulate an appropriate view or picture for the future regarding the existence of the company.
3. Value, which is an effort to improve quality by building trust between personnel, and the compliance of everyone in the organization to the applicable regulations.
4. Policy, namely the ability to formulate guidelines for everyone in the organization, how products and services reach customers.

- Goals and objectives, namely long-term and short-term plans in accordance with the vision and mission.
- Methodology, which is a method to formulate how the next step towards the mission in achieving the goals and objectives.

III. TQM BENEFIT

Haim (1993) summarize the results of 20 different empirical studies on TQM. Most of these studies were conducted by business organizations and consulting firms using sigi. Of the 20 studies reviewed, 15 provided facts about the impact of TQM and related practices on internal, external, and bottom-line measures. Of these studies, 12 relied solely on managers' perceptions, two added additional validity by analysis of company records, one used both TQM measures and externally assessed performance. Three of the 20 studies reported some sort of numerical measurement of the profitability impact of TQM (Powell, 1995).

Haim (1993) stated that there has been little in the way of independent measurement of TQM practices and impacts on financial or nonfinancial performance measures. Hendricks and Singhal (1997) provide facts of improving operating performance using objective measures of financial data such as operating income before depreciation (operating income before depreciation), net sales, and cost per dollar of sales. Wisner and Eakins (1994) also stated a strong positive relationship between quality improvement programs and financial performance, while acknowledging that there is no guarantee of continued financial success in today's competitive environment. Helton (1992) in the same way have described impressive financial gains, impressive performed by the majority of winners Baldrige Award. As long as TQM is fully adopted and practiced effectively in an organization, many advantages will be provided. TQM will strengthen the organization's business performance and competitive advantage. Successful TQM implementation will result in (Dale, 1994):

- Increased involvement of workers/employees: TQM convinces everyone within the organization should have a clear understanding of what is required and how their processes relate to the business as a whole. Through TQM practices, work teams are used and workers are motivated and encouraged to control, organize and improve processes, which are within their responsibilities.
- Improved communication: A better communication can be done through effective implementation of TQM principles in any organization. More open and frequent communication between people will be found, and they will view and treat each other as customer and suppliers (Anjard, 1998).
- Increase productivity: TQM will change the organizational culture and create a pleasant work environment. Through effective delegation, empowerment and full involvement of employees, problems can be identified and resolved at lower levels. So that the work process will bring results that are very efficient, very consistent and productivity can be increased by decreasing cycle time.
- Improved quality and reduced rework." In the implementation of TQM, focus on work processes and improvements. Workers will place more emphasis on eliminating the root causes than on correcting the problem. Also, more future effort is put into clarifying requirements and proactively preventing the

occurrence of deficiencies and errors.

Problems will be identified and addressed at the lower level, by the people closest to their jobs who deal with these problems. As a result, product/service quality will increase and product rework will decrease.

- Increased customer satisfaction: Through open communication among workers, customer and suppliers, the real voice of consumers can be more readily understood. Because quality operations also focus more on work processes and improvements, the company will provide better quality products/services to the market. Therefore increased customer satisfaction is achieved.
- Reduced costs due to poor quality: Effective implementation of TQM will lead to significant reductions in costs due to poor quality such as scrap, rework, late completion, warranties, replacements, etc.
- Increased competitive advantage: In summary, the ultimate advantage is to strengthen the competitive advantage of the organization to survive in the market. If TQM is successfully implemented, this will result in customer satisfaction and quality products/services provided at low prices. This can lead to increased sales to achieve profit and business growth goals.

IV. IMPLEMENTATION OF TQM IN THE INDUSTRIAL AGE 4.0

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The era of the industrial revolution 4.0 is an absolute phenomenon, even this era cannot be avoided. Companies must have strategies which can be used as transformations and innovations to face this 4.0 industrial revolution so that the companies that are founded are not run over by the times and are also not hampered by their development (Natalia and Ellitan, 2019). One of them is by implementing quality management. Quality management is defined as a management system that involves all members of the organization with the same goal of raising quality as a business strategy aimed at achieving customer satisfaction (Muljani and Ellitan, 2019). Quality management focuses on improving the quality of work of employees. To maintain existence, there are things that need to be considered in maintaining quality management in this Industry 4.0 era. Without quality improvement, A business run by a company will not be able to compete with other companies. Several things that need to be considered in quality management in the industrial era 4.0 include materials, promotional staff, and most importantly, services that prioritize the interests of customers. By pocketing these aspects, the company will be able to attract consumers, which in turn can increase the number of consumers and turn them into loyal customers.

TQM is a business management strategy that seeks to improve the quality of an organization's management, and hence, increase competitiveness and the value it provides to customers. TQM provides a competitive advantage for companies (Scott-Kemmis and Chitravas, 2007), because it involves all divisions, departments, and various levels of the organization in the process. A well-coordinated management process will result in lower production costs, as well as increased efficiency and effectiveness of output production, which leads to improved overall business performance. As one of the main determinants of a company's success and survival, TQM is widely used by various types of organizations, from the manufacturing industry to the service industry. (Demirbag, et al., 2006). Although the current relationship between TQM in innovation performance (Hoang, Igel, and Laosirihongthong, 2006) and company performance has been determined,

research on the relationship between TQM implementation and product innovation performance has not been carried out in detail. This is even more evident among manufacturing companies in Indonesia. The recent global economic crisis originating from the United States has not escaped the Indonesian economy.

The implementation of TQM can be said to be a relatively new business strategy (Amar and Zain, 2002).

Indonesia is a developing country with a population of more than 270 million people. This large population provides an easily accessible domestic market for goods and services for local industry. Besides goods produced for local consumption, Indonesia also exports a significant number of its products. However, export data from 2019–2020 show a considerable amount of variation, thus indirectly contributing to the lack of stability in this activity (Ellitan and Pradana, 2017). Tambunan (1999) twenty years ago highlighted that the lack of stability may be due to the intense competition that Indonesian exporters face from other exporters namely Pakistan, China, Vietnam, and India. An area of focus with respect to this issue is the quality of local (Indonesian) products, which have a low reputation compared to products from other countries.

Looking back when the issue of quality was first raised in 1983, the Indonesian government initiated many efforts to improve national productivity (Aroef, 1999). Following this phenomenon, the concept of quality was introduced and introduced in a number of companies in Indonesia with the large foreign equity, specifically joint venture between Indonesia and Japan, and companies wholly owned by Japanese companies. For example, one of the pioneer companies that is consciously trying to instill a culture of quality in Indonesia is Astra International, a union joint venture Japan–Indonesia (Hill, 1998). Here quality activities such as quality control group (QCC) and other activities under TQM have been successfully implemented, not only in the company's center but also in most of its branches. Without a doubt, excellence in terms of the quality of a product or service is a very important element that can contribute positively to generating sales and thereby strengthening the position of an organization in its chosen market. (Deming, 1986). So it can be assumed that low product quality plays a role in the large and visible fluctuations in a country's export figures.

In all business sectors in Indonesia, the manufacturing sector is affected by the extent to which the company's survival is threatened by the high level of competition in the market, both locally and globally. Manufacturing companies react by targeting and maintaining market share, customer loyalty, customer satisfaction, competitive advantage, etc. In the context of Indonesia, the ability of Indonesian producers to compete is still below the standard compared to countries in the Southeast Asia (ASEAN) region.

According to the Department of Industry and Trade of the Ministry of Industry, to achieve competitive advantage or improve competitiveness, the Indonesian manufacturing sector needs to, among other things, improve its innovation capabilities and performance. Even though Indonesia's manufacturing sector plays an important role in Indonesia's economic growth and contributes approximately 26.1% of Indonesia's Gross Domestic Product (GDP), the performance of this sector has been declining since 2020; Ministry of Finance (2020). As manufactured goods account for around 76.6% of total exports, the export sector is negatively impacted which in turn affects Indonesia's GDP (Ministry of Finance 2020). According to Hartarto (2019), a focus on improving

innovation performance is the best way to improve the performance and competitive ability of the Indonesian manufacturing sector and adding that a focus on improving innovation performance is the best way to improve the performance and competitiveness of the Indonesian manufacturing sector. However, the results of the Indonesia Research Survey, 2019 show that the innovation performance of the manufacturing sector is still low and needs to be strengthened.

Moreover, in 2020, the World Bank reports that the innovation decline of Indonesian manufacturing companies between 2018 and 2019, clearly shows that more efforts and studies must be made to improve the innovation capabilities and performance of the manufacturing sector in Indonesia.

In this regard, it is known that innovation plays an important role in predicting the long-term survival of the organization, determining the organization. Succeed and maintain its global competitiveness, especially in an environment where technology, competitive position and customer demands can change very rapidly and product and service life cycles are shortened (Pavlou and El Sawy 2011). Empirically, TQM as a strategy has proven its effectiveness in improving organizational performance in various aspects such as customer satisfaction, finance, productivity, etc. (Sadikoglu and Zehir 2010). However, research investigating the relationship between TQM implementation and innovation performance cannot provide a clear picture of this relationship (López-Mielgo et al. 2009;). Therefore, further studies are needed to clarify the impact of TQM on innovation capability and performance. On the other hand, Lau et al. (2010) emphasized that building organizational capabilities in various fields is an important step to strengthen organizational innovation performance. In this case, some experts have acknowledged that the innovation capability of an organization is considered as one of the main antecedents that affect organizational innovation performance (Yam et al. 2004, 2011). Therefore, an attempt to examine the impact of TQM implementation on firm performance through the mediating role of innovation capability can enhance the existing literature as far as the relationship between TQM implementation and innovation capability is concerned.

In the midst of these challenges, the manufacturing and service industries must create and produce goods and services of superior quality (Abdullah, Uli, and Tari, 2008; Beckford, 1998). In order to remain competitive, Indonesian companies must devote their resources to activities on product innovation. Thus, quality performance can be better achieved by these companies, enabling them to act as pioneers despite the economic recession. However, the manufacturing sector is still below expectations in terms of producing high-quality innovations that can help Indonesia in its economic growth, and in helping to become a high-tech industrialized nation by 2040 (Hartarto.A., 2019). As the local manufacturing sector contributes significantly to the Indonesian economy, in order to remain competitive, companies are encouraged to innovate and improve product quality performance. To examine the multidimensionality of TQM implementation and its relationship to product innovation capabilities, this research discusses whether the implementation of TQM implementation allows organizations to build competence and competitiveness in product innovation capabilities and performance in the face of technological disruption, namely the industrial revolution 4.0, especially from ISO certified manufacturing organizations. 9000 in Indonesia. This research also aims to examine the impact of TQM on improving company performance,

especially during the current economic recession caused by bio-disruption, namely the Covid 19 pandemic.

This article is intended to narrow the gap that exists in the literature. First, the information available on each TQM implementation and innovation performance proves that studies dedicated to these concepts are repetitive and abundant; However, their relationship issues are less researched and only a few studies, in the strict sense of the word, have tackled this. In addition, the findings of this study are still inconclusive (Pekovic and Gaul 2009). While several studies support the positive impact of TQM practices on innovation performance (López-Mielgo et al. 2009; Firmansyah, et al. 2014), other researchers question the role of TQM practices in improving innovation performance (Abrunhosa and Sá 2008). Therefore, it is recommended that this relationship be reset to gain more insight into the matter (Pekovic and Gaul 2009).

Second, most of the previous studies examined the direct relationship between TQM practices and innovation performance (e.g. Lopez-Mielgo et al. 2009; Pekovic and Gaul 2009) whereas the indirect relationship between TQM practice and innovation performance is somewhat negligible – in this case, it could be that TQM constructs and innovations are related in more complex ways than the simple (direct) relationship, which somehow justifies the inconclusive findings among previous studies (Singh and Smith 2004). Therefore, by adopting a supportive approach positive relationship between TQM and innovation performance. Prajogo and Sohal (2003) recommend investigating this relationship (i.e., TQM practices and innovation performance) through other mediating practices or techniques to determine innovation performance. Since the concept of innovation is captured by innovation capability as an antecedent of innovation performance, it is necessary to investigate the relationship between TQM and innovation performance through innovation capability (Perdomo-Ortiz et al. 2006). Third, to the author's knowledge, most of the previous studies did not rely on any particular theory to explain the relationship between TQM practices and innovation performance, therefore, this study uses Resource Based Theory and Total Quality Management as the basis for introducing the research model proposed in this study.

CONCLUSION

TQM is a management system that promotes quality as a business strategy and is oriented to customer satisfaction by involving all members of the organization. TQM is an approach in running a business that tries to maximize an organization's competitiveness through continuous improvement of its products, services, workforce, processes, and environment. TQM is functional management with an approach that is continuously focused on improving quality, so that its products comply with the quality standards of the people served in the implementation of community development. The concept departs from management as a process or series of activities to integrate owned resources, which must also be integrated with the gradual implementation of management functions, so that work can be realized as a quality production activity. This management concept opens the way to a new paradigm of thinking that emphasizes customer satisfaction, innovation and continuous improvement of service quality. TQM functions effectively in various organizations, namely as a management system to improve product quality or outcome so that it can be accepted by customers and can avoid fatal errors.

TQM aims to provide satisfaction to customer needs as efficiently as possible. The main goal of TQM is to improve the quality of work, improve productivity and efficiency to satisfy all stakeholders. The strategy that needs to be done in improving

quality management is to strengthen the company's human resources. Try to make HR able to take advantage of technology. As discussed at the beginning where the 4.0 industrial revolution will allow humans to interact with objects that have a technological system in it so humans must be able to apply all these technologies.

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