



# IJEAST

INTERNATIONAL JOURNAL  
OF ENGINEERING APPLIED SCIENCE  
AND TECHNOLOGY



**VOLUME : 1      ISSUE : 6      Print / Issue Publication Date: 09-Oct-2016**



**ISSN : 2455-2143**



Indexed In



[WWW.IJEAST.COM](http://WWW.IJEAST.COM)

[editor@ijeast.com](mailto:editor@ijeast.com)



# IMPLEMENTATION OF TOTAL QUALITY MANAGEMENT AND ISO 9000 CERTIFICATION

Foo Weng Kar, Muhammad Afiq Bin Yusof, Shahryar Sorooshian, Syed Radzi Bin Rahamaddulla

Faculty of Industrial Management  
University Malaysia Pahang, Malaysia

**Abstract** — In this article, we studied on business performance after the implementation of total quality management (TQM) and ISO 9000. Researchers claimed that ISO certification will improve business performance and outcomes. They also believe that ISO 9000 will be necessary to stay in business in the future. Motives of organization toward ISO 9000 are very important. Benefits and difficulties faced during the implementation of TQM and ISO 9000 will be discussing in further. This paper states that quality management system proposed by ISO 9000 is a necessary foundation for other quality methods.

**Keywords**— TQM, ISO 9000, Performance

## I. INTRODUCTION

Total quality management (TQM) started in Japan (1970s), after that it spread to USA (1980s), and lastly spread to Europe (1990s). On the other hand, ISO certification is contrary compared to TQM because it started in Europe, North America, Japan and the rest of the world. ISO begun in 1926 by the International Federation of the National Standardizing Association (ISA). It focuses heavily on mechanical engineering. ISO is a voluntary organization whose members are recognized standard authorities, each one representing one country. Later on, it was disbanded in 1942 during World War II but was reorganized under the current name ISO in 1946. In these few years, TQM and ISO 9000 had become the interest of researchers all over the world because of their impacts on business performance [1]. There were 896,866 certified companies in the world at the end of year 2006. According to the record, the number of ISO certified companies has been growing with a rate far higher than economic growth. This phenomenon was attracted notice of the academia. After that, researches and studies were carried out to analyze this topic [6].

This research aims to investigate the major gap on the relationship between TQM, ISO 9000 and performance. The questions as follows:

- Does implementation of TQM contribute to the improvement of business performance?
- Does implementation of ISO 9000 certification contribute to the improvement of business performance?

## II. PROBLEM STATEMENT

Sampled companies were studied and found that companies with ISO 9000 perform better through several areas. For example, reduction of bad products and customer complaints, increase productivity and profitability. But the relationship is unclear as ISO 9000 may directly or indirectly contribute to performance and the direction of impact is difficult to judge. Besides that, some companies may treat ISO 9000 certification as a substitute for TQM. This is very dangerous because ISO 9000 is just a part of TQM and cannot be replaced. Lastly the combination and gap between TQM and ISO 9000 will be an important issue for the future [1].

The research shows that ISO certification does not directly contribute to the improvement of organization's performance. The main role in explaining the level of performance is the type of motivation in an organization. The results clearly explain that supplier who use ISO certification does not necessarily mean they will perform better than organization without ISO certification. The aim for gaining ISO certification must be aware by every organization. Certification that is out of external pressure will cause a hollow achievement [2].

there is a link between TQM practices and organizational performance in terms of productivity, customer satisfaction, profitability, and employee relations the practice of quality is different among countries. For example, Taiwan managers view customer satisfaction as major factor whereas US managers view employee satisfaction as the primary in achieving improvement in organization performance. Firms are classified into three categories in order to study the influence of ISO 9000 in each categories. The three categories are high TQM, moderate TQM and low TQM. Finally, results show that there is no significant impact on the TQM practices by firm with or without ISO 9000 [3].



Relationship among TQM is found and having quality circles, external and internal customer satisfaction surveys, periodic determination of quality costs, and suggestion systems. Component of TQM is suggested to be a reward system. Through the help of education, complete and correct implementation, there may show what TQM really is. There is a significant relationship which could not be found between TQM and departmental quality objectives [4].

There are limitations in this study which is not able to allow to draw clearer conclusion in relation to variability of the size effect estimation with respect to the importance of the differences. In the future, larger sample should be used in the studies in order to reduce such variability. Luckily, at the end of the research, there providing size effect which will enable other researcher replicate the findings and conduct a meta-analysis. In the field of operation management, meta-analysis is considered as a highly desirable approach which will continue to expand and build theories [5].

Real contribution for motives driving companies to ISO 9000 certification are particularly significant. It is also proved that small and medium size companies has higher standard contribution. However, size of the companies proved to be irrelevant to the certification motives in the study. Later study is conducted and show that smaller companies for certification motives tend to be more external and passive than large companies. Result from a survey claims that ISO 9000 should be part of TQM in the future. Problem that need to be focus is how to integrate TQM with ISO 9000 and the continuous improvement of both [6].

Several arguments have been made in the paper such as certification with ISO 9000 act as a device for selecting high quality suppliers prior to actual contract formation and ISO 9000 may have larger signaling effect in industries with high level of R&D and advertising expenditures. There are also some limitations, that is quantity and value of the item purchased cannot be observed since buyer may purchase small quantity and less concerned to supplier quality. Another limitation is manufacturing facilities which will limit the ability to generalize result. The role and function of certified management standards is still uncertain but it is already spread across many industries [7].

European companies are very keen on implementing TQM during the twenty-first century. This issues must be taken into account and further study is needed in order to achieve the goal. A full understanding of the aims, function, and limitations is necessary in order to incorporate ISO 9000 and TQM. Misunderstanding occurred between these two frameworks during previous debate. Implementation of new version (ISO 9000:2000) is not encouraged because some problems are not yet solved. Does new version has a combination of ISO 9000 and TQM? Do company need to implement TQM after satisfying the requirement of new version? As a result, implementation of ISO 9000 is the certification that most companies prefer [8].

Research found that many organizations seek certification through external factors such as market related factors and customer pressure. While other studies state that internal factors are more important as the main motivational factors in implementing ISO 9000. ISO 9000 is part of TQM which mean that the two approaches are complement to each other. First implement ISO 9000 to maintain stability and consistency of organizational works. Later implement TQM for enhancing employee motivation and achieve better organizational performance [9].

A test is carry out to find the relationship between ISO 9000 and organizational performance. Quality culture of an ISO certified organization and the certification process have significant positive relationship. ISO 9000 is a positive predictor for motivation which derived from certification. Benefits derived from ISO 9000 have a positive relationship with the facilitation style of the quality auditor. Impact on the strength of relationship is the covariates company size and number of years of a certified organization [10].

The competitive nature of modern day business forces a firm to continuously improved business performance. The purpose of the journal is examining the mediating effect of organization learning on TQM and SME performances. This is done by developing a quality culture and applied the principle of TQM. The SME gain benefits from TQM via organization learning. The need of mediator of this study namely organization learning serves as positive indirect relationship of TQM and business performance. The need for mediator is because the result from previous studies is mixed and inconsistent, thus, many scholars include other factors as a mediator on this relationship [11].

In this paper, the authors want to find the factors influencing the success or failure of TQM. It reports on the perceived 109 firms over a five year period. The 42 firms, predominantly small in size has discontinued the TQM while the other 67 firms reported varying degree of success. The reason they are stopping the TQM is they focus on ISO9000 and decided to shelve TQM from the time being. It was time consuming amidst trying to get work done, please customer and make profits. They thought it was a merit but it is difficult to be realized in actual practice. The other reason is that TQM is more complex to get any real benefit from. ISO9000 is adequate, simpler and of more immediate benefits. The factors that affecting TQM success is ISO9000 certification, and size of firm. The smaller companies had more immediate expectation of TQM. If the TQM did not succeed, they will discontinued the TQM. Conversely, larger firms will appreciate TQM more. The poorer understanding of the relationship between TQM and ISO9000 makes the firm discontinued the TQM. Then, holding ISO9000 showed no significance with success [12].

The TQM practice on employee has several effects. The impact of TQM is job involvement, job satisfaction, career satisfaction and organizational commitment. In job involvement the important aspect of TQM is empowering





employees to be more involved in jobs and participate in the problem solving decision. Job satisfaction refers to the positive reaction of individual towards their job. The career satisfaction is the overall affective reaction of individuals to their career. TQM provides a conducive managerial environment that enhances employee motivation and successful accomplishment of the goals. Lastly, the organizational commitment refers to degree of attachment and loyalty felt by individual employee to the organization. The successful implementation of TQM increase the likelihood that employee will be motivated [13].

A study shows the experience about ISO9000 in North American firm. The study focus on difficulties faced by firms and attempt to determine the characteristics of firm that face difficulties. The finding shows that large company will face fewer problems than small company. Then, the number of firm years is not related to the problem. The company in non-North America (NNA) perceived less difficulty than companies serving North America (NA). This is because company that does business in Europe which is NNA is more rigorous with their quality management system. In addition, result suggests that NNA companies place more effort on their customer [14]. During the past two decades, the TQM has been implemented in many organizations in Malaysia. This article is about finding the importance of incorporating TQM in Malaysia. Specifically, it investigates the relationship between TQM, production performances, customer related performances and association. The method used to measure was statistical method such as Pearson's equation and structural equation modelling (SEM). The results are TQM and its adoption have significant correlation with production performance and customer related performance. The result also indicated that retail manufacturing company should emphasize greater attention to quality measurement aspect and a greater degree of management support for TQM initiative to ensure strategic sustainability competitive advantage [15].

The research is to find and ensure an empirical investigation. It investigates the direct impact of each dimension of TQM separately, which is soft TQM and hard TQM. They argue that it is more appropriate to investigate the direct impact of soft TQM on the diffusion of hard TQM. The six soft TQM elements was workforce commitment, shared vision, customer focus, use of teams, cooperative supplier relation and performance. But the cooperative supplier relation and performance are not related. The hard TQM that has relationship with soft TQM was JIT principle, Technology utilization and continuous improvement enablers [16].

There are several reasons why the TQM programmers are failing. The barrier to TQM was successful implementation. The main reason why the TQM programmer failed was because of ineffective TQM package, inappropriate TQM implementation methods and an inappropriate environment for implementing TQM. The others causes of TQM failure were insufficient education and training, lack of employee involvement, lack of top management support, inadequate

resources, deficient leadership, lack of quality oriented culture, poor communication, lack of a plan for change, and employee resistance to the change programmer [17].

The foundation of TQM was 5"S" and it also the primary driver for the success in the TQM. The 5"S" is the participative programme and is an effective approach for improving work environment and quality. The 5 "S" name stands for Seiri (Sort), Seiton (Straighten), Seiso (Shine), Seiketsu (Systemize), and Shitsuke (Sustain). This research result shows that the 5S performances has a direct bearing performance of TQM. The high 5S index in large organization has resulted high TQM compare to medium and small organization. The weakest link is small category, which has a direct bearing on the overall performance of TQM [18].

The objective of this paper is to theoretically investigate the human resources (HR) context and content on TQM business excellence and ISO 9000:2000. The findings of this research found that the problem in relation to effective HR is low utilization employee skills and knowledge, lack of a vision and a mission for HR followed by systematic design and implementation of strategic human resources management (HRM) practices [19].

Managers play important roles in applying a TQM. There are several factors that make the TQM successful in a firm which was ISO9000, size of firm, time since the TQM was adopted and better understanding of the TQM purpose. Finding of this research indicated that managers need to understand the nature and purpose of TQM and its relationship of ISO9000 and the potential benefits that can be accrued from its implementation [20].

### III. LITERATURE REVIEW

#### A. Total Quality Management –

TQM is an enhancement to the traditional way of doing business. TQM also provides continuous improvement in quality and other performance. TQM is a philosophy that stresses a systematic, integrated, and consistent perspective agreed by most of the researchers [1]. In today's business environment, TQM has focus on the production throughout the entire organization. TQM is also a key for the organization to survive and prosper. The improvement of TQM need the corporation from everyone in the organization, including customers and suppliers.

#### B. ISO 9000 –

ISO 9000 is a series of standards for quality management systems. It is also the guidelines for companies to focus on procedures, control and documentations. It will produce effective quality system and maintain quality level in organization through identify mistakes and streamline the operation. It also provide for design, development, production, installation and services. ISO 9000 is easier to be implemented and maintained due to standard procedure [1].



#### IV. DISCUSSION AND CONCLUSION

The similarities between TQM and ISO 9000 are improving and maintaining product quality as well as customer satisfaction. The customer not just buys the product or services but also buy satisfaction. ISO certification is not a standardized package that suit all organization. TQM and ISO 9000 must be implemented completely and systematically. Many companies implement ISO because of customer and market demand only. They do not care for the actual meaning of that certificate. Other than that, TQM and ISO 9000 are totally two different approaches. TQM is widely used by top management while ISO 9000 is associated with line workers. ISO 9000 focuses on proving compliance and gaining certification while TQM focuses on continuous improvement and customer satisfaction.

The TQM is divided into two, which are soft TQM and hard TQM but these two are related. Sometimes when a company implement the TQM, they fail. There are several factors that makes it fail, which are; ineffective TQM package, inappropriate TQM implementation method and inappropriate environment for implementation. For implementing the TQM and ISO, managers play the important roles. The stakeholders in the company also play important roles because without their cooperation, the TQM and ISO will not be successfully implemented.

The TQM actually was an upgrade from 5 "S". The 5 "S" is from Japan. It is more for arrangement process. Then after the 5 "S" they improved to the TQM. The factors that makes the TQM successful was ISO9000, size of firm, time the ISO is implemented, and understanding of ISO. This is all the factors that makes the TQM successful and the manager needs to be fully understood. Here, we can conclude that without the ISO 9000, the TQM will not be successfully implemented. The TQM in Malaysia has been implemented and become well known since the past two years and it is early to conclude that it was success. The non-North America (NNA) Company put more effort in the ISO9000 that makes the company faces less difficulties compared to North America Company.

#### V. REFERENCE

- [1] S. Hongyi, "Total quality management, ISO 9000 certification and performance improvement," *International Journal of Quality & Reliability Management*, Vol. 17 Iss: 2, pp.168 – 179, 2000.
- [2] S. Jeroen, R. Gwenny, H. van de Water, "ISO 9000 series - Certification and performance," *International Journal of Quality & Reliability Management*, Vol. 18 Iss: 1, pp.62 – 75, 2001.
- [3] R. Shams-ur, "A comparative study of TQM practice and organisational performance of SMEs with and without ISO 9000 certification," *International Journal of Quality & Reliability Management*, Vol.18 Iss: 1, pp.35-49, 2001.
- [4] B. Ahmet, C. Ufuk, "Total quality management and ISO 9000 applications in Turkey," *The TQM Magazine*, Vol. 13 Iss: 1, pp.69 – 74, 2001.
- [5] M. Martinez-Costa, T. Y. Choi, J. A. Martinez, A. R. Martinez-Lorente, "ISO 9000/1994, ISO 9001/2000 and TQM: The performance debate revisited," *Journal of Operation Management*, Vol. 27 Iss: 6, pp.495-511, 2009.
- [6] K. D. Gotzamani, G. D. Tsiotras, "The true motives behind ISO 9000 certification: Their effect on the overall certification benefits and long term contribution towards TQM," *International Journal of Quality & Reliability Management*, Vol. 19 Iss: 2, pp.151 – 169, 2002.
- [7] A. Terlaak, A. A. King, "The effect of certification with the ISO 9000 Quality Management Standard: A signaling approach," *Journal of Economic Behavior & Organization*, Vol. 60 Iss: 4, pp.579 – 602, 2006.
- [8] S. Hongyi, S. Li, K. Ho, F. Gertsen, P. Hansen, J. Frick, "The trajectory of implementing ISO 9000 standards versus total quality management in Western Europe," *International Journal of Quality & Reliability Management*, Vol. 21 Iss: 2, pp.131 – 153, 2004.
- [9] H. Magd, A. Curry, "ISO 9000 and TQM: are they complementary or contradictory to each other?," *The TQM Magazine*, Vol. 15 Iss: 4, pp.244 – 256, 2003.
- [10] M. Terziovski, D. Power, A. S Sohal, "The longitudinal effects of the ISO 9000 certification process on business performance," *European Journal of Operational Research*, Vol. 146 Iss: 3, pp. 580 – 595, 2003.
- [11] N. Mahmuda, M. F. Hilmi, "TQM and Malaysian SMEs performance: The mediating Roles of Organization learning," Vol. 130, pp.216-225, 2014.
- [12] W.A Taylor, G.H. Wright, "A longitudinal study of TQM implementation: factors influencing success and failure," *Omega*, Vol. 31 Iss 2, pp.97-111, 2003.
- [13] N. Karia, M. H. A. H. Asaari, "The effects of total quality management practices on employees' work-related attitudes," *The TQM Magazine*, Vol. 18 Iss: 1, pp.30 – 43, 2006.
- [14] N. Bhuiyan, N. Alam, "ISO 9001: 2000 implementation – the North American experience," *International Journal of Productivity and Performance Management*, Vol. 53 Iss: 1, pp.10 – 17, 2004.
- [15] A. Agus, Z. Hassan, "Enhancing Production Performance and Customer Performance Through Total Quality Management (TQM): Strategies For Competitive Advantage," Vol 24, pp. 1650-1662, 2011.
- [16] R. Shams-ur, P. Bullock, "Soft TQM, hard TQM, and organisational performance relationships: an empirical investigation," *Omega Journal*, Vol 33 ISS 1, pp. 73-83, 2005.
- [17] A. M. Mosadeghrad, "Why TQM programmes fail? A pathology approach," *The TQM Journal*, Vol. 26 Iss: 2, pp.160 – 187, 2014.
- [18] V. K. Khanna, "5 "S" and TQM status in Indian organizations," *The TQM Journal*, Vol. 21 Iss: 5, pp.486 – 501, 2009.
- [19] F. Vouzas, "Investigating the human resources context and content on TQM, business excellence and ISO 9001:2000," *Measuring Business Excellence*, Vol. 11 Iss: 3, pp.21 – 29, 2007.
- [20] W. A. Taylor, G. H. Wright, "The impact of senior managers' commitment on the success of TQM programmes: An empirical study," *International Journal of Manpower*, Vol. 24 Iss: 5, pp.535 – 550, 2003.

# IJEAST

INTERNATIONAL JOURNAL  
OF ENGINEERING APPLIED SCIENCE  
AND TECHNOLOGY

## ABOUT IJEAST

International Journal of Engineering Applied Science and Technology (IJEAST) is a peer-reviewed, open access journal that publishes high-quality research papers in the field of Engineering, Applied Science and Technology.

IJEAST aims to provide a platform for researchers, academicians, and professionals to share their innovative ideas, research findings, and practical experiences with the global scientific community.

## FOCUS AREAS

- Engineering
- Applied Science
- Technology
- Innovation & Development
- Interdisciplinary Studies



### PEER REVIEWED

All submissions are rigorously peer reviewed to ensure quality.



### OPEN ACCESS

Free and unrestricted access to research for all.



### GLOBAL REACH

Connecting researchers and professionals worldwide.



### TIMELY PUBLICATION

We ensure a swift and efficient publication process.



For more information, visit our website

**[www.ijeast.com](http://www.ijeast.com)**



**INTERNATIONAL JOURNAL**

OF ENGINEERING APPLIED SCIENCE  
AND TECHNOLOGY



[editor@ijeast.com](mailto:editor@ijeast.com)



[www.ijeast.com](http://www.ijeast.com)



India



2455-2143