

QMS CRITICAL SUCCESS FACTORS AFFECTING OPERATIONAL
PERFORMANCE OF PORT IN SOUTHERN MALAYSIA

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ABSTRACT

Despite wide acceptance of ISO 9001, research shows mixed results about the performance benefits. Even though some studies show positive benefits of ISO 9001, lack of studies find that ISO 9001 leads to higher performance. As the ground reality was questioning this theory, this study was conducted to determine the critical factors affecting the operational performance in implementing quality management system (QMS) standard based on ISO 9001:2008 requirements in Port X. There were a total of 103 respondents participated in this study, who are the employees at Port X. The data obtained from the survey was analyzed using SPSS software. Based on the results obtained from the descriptive analysis, it was found that the order of level of importance of QMS critical success factors as perceived by the respondents was top management support ($M = 4.26 \pm 0.33$), quality process management ($M = 4.19 \pm 0.36$), continual improvement ($M = 4.16 \pm 0.31$), measurement, monitoring and control ($M = 4.15 \pm 0.31$), human resource management ($M = 4.14 \pm 0.34$), and customer focus ($M = 3.94 \pm 0.34$). It was also revealed that there was a high level of overall perception ($M = 4.32 \pm 0.30$) among the employees towards the company's operational performance. From the correlation analysis, there were only two of critical factors were found to be significant predictor of operational performance: top management support and continual improvement. Both factors have significant moderate and positive correlation with operational performance. In addition, it was found that all critical factors could be used to predict 47.7% of operational performance. This significant finding obtained for both critical success factors serves as an evident that the appropriate practice of these two QMS critical success factors is significant and positive to the operational performance.

ABSTRAK

Walaupun penerimaan luas ISO 9001, kajian menunjukkan hasil yang pelbagai tentang kelebihan prestasi. Walaupun beberapa kajian menunjukkan manfaat positif ISO 9001, namun kekurangan kajian yang mendapati ISO 9001 membawa kepada prestasi yang lebih tinggi. Kajian ini dijalankan untuk menentukan faktor-faktor penting yang mempengaruhi prestasi operasi dalam melaksanakan sistem pengurusan kualiti (SPK) standard berdasarkan ISO 9001: 2008 di Pelabuhan X. Terdapat sejumlah 103 responden terlibat dalam kajian ini, yang merupakan pekerja di Port X. Data yang diperolehi daripada kajian ini dianalisis menggunakan perisian SPSS. Berdasarkan keputusan yang diperolehi daripada analisis deskriptif, didapati bahawa susunan tahap kepentingan faktor kritikal kejayaan SPK sebagaimana yang dianggap oleh responden adalah sokongan pengurusan atasan ($M = 4.26 \pm 0.33$), kualiti pengurusan proses ($M = 4.19 \pm 0.36$), penambahbaikan berterusan ($M = 4.16 \pm 0.31$), pengukuran, pemantauan dan kawalan ($M = 4.15 \pm 0.31$), pengurusan sumber manusia ($M = 4.14 \pm 0.34$), dan tumpuan terhadap pelanggan ($M = 3.94 \pm 0.34$). Keputusan analisis juga mendedahkan bahawa terdapat tahap yang tinggi dari segi persepsi keseluruhan ($M = 4.32 \pm 0.30$) di kalangan pekerja terhadap prestasi operasi syarikat. Daripada analisis korelasi, terdapat dua faktor kritikal didapati peramal yang signifikan prestasi operasi: sokongan pengurusan atasan dan penambahbaikan yang berterusan. Kedua-dua faktor mempunyai hubungan yang sederhana dan positif yang signifikan dengan prestasi operasi. Di samping itu, didapati bahawa faktor-faktor kritikal tersebut boleh digunakan untuk meramalkan 47.7% daripada prestasi operasi. Keputusan signifikan yang diperolehi bagi kedua-dua faktor kritikal kejayaan merupakan bukti bahawa amalan yang sesuai terhadap kedua-dua faktor kritikal kejayaan adalah penting dan positif kepada prestasi operasi.

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LIST OF ABBREVIATIONS

BS	-	British Standard
CFs	-	Critical Factors
CI	-	Continuous Improvement
CuF	-	Customer Focus
HRM	-	Human Resource Management
ISO	-	International Organization for Standardization
JIT	-	Just In Time
MMC	-	Measurement, Monitoring and Control
TMS	-	Top Management Support
TQM	-	Total Quality Management
QPM	-	Quality Process Management
QM	-	Quality Management
QMS	-	Quality Management System

LIST OF SYMBOLS

H	-	Hypothesis
M	-	Mean
p	-	Significant level
M	-	Correlation Coefficient
SD	-	Standard Deviation
β	-	Beta value

CHAPTER 1

INTRODUCTION

1.1 Introduction

In recent years, quality has become a global issue and is one of the most exciting and rewarding endeavours in today's business. Without quality, the market of product or service provided will not grow successfully. Quality service becomes a key feature for an organization to be competitive and excellence. Many organizations have increasingly introduced and progressively improved on their quality systems, encouraged by the demands engaged on them by markets and the nature of competition. Total Quality Management (TQM) is an integrative management philosophy with full of set of guiding principles, representing the foundation of a continuously improving organization. However, the actual phase of continuous improvement stage is where maintenance of the quality system ISO 9000 is carried out. (Roslina & Corner, 2009). According to Deming (1986), the quality must be measure by the relationship between the three aspects: product or service, users, and application or process.

Standard is defined as uniformity to produce a product or service, whereby the meaning of quality standard is the standard that is geared to the level to be achieved by the organization for the purpose of customer satisfaction (Gotzamani & Tsiotras, 2002). Overall, the quality standards system is a great way to work to

produce product or service that is not focused on the product or service itself, but more emphasis on the process of how a product or service is produced.

ISO 9001:2008 is a standard for quality management systems (QMS). This standard is ISO 9000 standard regulated by International Organization for Standard (ISO) and has been adopted by Malaysian Standard Department (MS). Although the adoption of earlier standard introduced in QMS ISO 9000 by Malaysia for organizational management purpose appeared at a relatively later stage than countries such as Japan, U.S., Germany, Canada and U.K. (Chua, Goh & Tan 2003), yet the adoption of ISO 9001:2008 effectively implemented in Malaysia public sector in 2010 (MAMPU, 2010). QMS based on ISO 9001:2008 provide a sound foundation on which TQM programmes can be built and implementing ISO 9001:2008 helps to pave the way for continual improvement. Any ISO 9001certified organization is supposed to have an effective QMS and achieve maximum customer satisfaction, profit, employee motivation, improvements and minimum rejections, reworks, customer complaints and problems.

Despite wide acceptance of ISO 9001, research shows mixed results about the performance benefits. Even though some studies show positive benefits of ISO 9001 (Benner and Veloso, 2008; Corbett and Kirsch, 2005; Levine and Toffel, 2010; Naveh and Marcus, 2005), lack of studies find that ISO 9001 leads to higher performance (Martínez-Costa et al., 2009; Singh et al., 2011). As the ground reality was questioning this theory, this study was initiated to determine the critical factors affecting the operational performance in implementing QMS standard based on ISO 9001:2008.

1.2 Research Background

1.2.1 Malaysia Port Sector

In the last three decades, port industry in Malaysia has undergone many facelifts including embarking on privatization programs of its main ports throughout the country. These programs are significant for the Malaysian economy to be competitive in the region. The government is aware that if Malaysia wants to be a global player, it is crucial for Malaysian ports to operate as business units to ensure fast turnaround times and to reduce waiting time for vessels. The government's policy on ports focuses on being supply-driven and enhancing the utilization of ports through improving efficiency and productivity of port operations; port privatization; development and improvement of ancillary services; and development and improvement of land-side transportation. The Malaysian Shipping and port Industry report states that in 2009 95% of Malaysian trade is seaborne and contributed approximately RM 988 billion (USD 308.46 Billion) to the national trade value. The government has projected by 2020 that the logistics sector will contribute 12.1 % to country's GDP.

Ports in Malaysia can be classified as federal ports and state ports. All federal ports are under the jurisdiction of the Ministry of Transport. At present there are seven major federal ports, namely, Port Klang, Penang Port, Johor Port, Port of Tanjung Pelepas, Kuantan Port, Kemaman Port, and Bintulu Port. In tandem with the expansion of the economy and trade, ports in the country registered impressive growth in recent years. Two of the ports; Port Klang and the Port of Tanjung Pelepas, are ranked among the top 20 container ports in the world. Johor Port Authority oversees the port regulatory matters of their two major ports. Under the privatization agreement, these private terminals will have to pay a levy to Johor Port Authority for the land rental used for port operations. Being a separate business organization, Port X is required to comply with all the business legal requirements prescribe under the Malaysian law. Wherever necessary, Johor Port Authority will provide support to

Port X to align themselves with the port and marine operations requirements both at national and international legal requirements.

1.2.2 Company Profile

Located at the southern-most tip of Peninsular Malaysia, the company is strategically positioned in the heart of the sprawling 8,000 acre industrial estate. The area is home to a comprehensive range of industries specializing in petrochemicals, engineering, furniture, telecommunications, electronic goods and food products among others. The company is linked to important commercial and industrial centres in Malaysia as well as other ports and neighbouring countries. As one of ‘Critical National Information Infrastructures’ (CNII) under Transportation Sector, the company lies in the ISO Management Systems adopted through Certifications of ISO ISO9001:2008 as the main performance improvement system. The company has also become the first multi-purpose port in Malaysia certified with ISO9001:2008 and OHSAS 18001:2007, which known as Integrated Management System.

1.3 Problem Statement

In order to assist companies of various sizes in different sectors to implement and operate an effective QMS, the ISO 9000 standard is improving the firm’s ability to design, produce, and deliver quality products and services (Wahid and Corner, 2009). The guidelines on procedures, controls, and documentation for a QMS are provided by the standard, in order to help a company identify problems, rationalise its operations, and maintain a consistent level of quality (Karth, 2004). Whilst, the generic features and terminology of the ISO 9001 standard has been used by all types

of companies in the service sectors (Lee et al., 2009). The acceptance of ISO 9001 certification has begun to increase rapidly in the services sector. The standard benefits exceed its costs by improving the performance of any company and building a sustainable competitive advantage, if the ISO 9001 system is implemented effectively (Koc, 2007). There are significant internal and external benefits to be received by any organization that adopts the standard, when the ISO 9001 standard is understood and implemented correctly, as opposed to being used as a marketing and promotional tool, (Sampaio et al., 2009).

However, the implementation of the QMS within the organization and firms does not always produce the desired results. In practice, this is usually due to ineffective implementation. A wide variety of factors that might have an adverse impact on the implementation of a quality standard (such as ISO 9001) have been suggested by many researchers (Magd, 2008; Feng et al., 2008; Zaramdini, 2007). Referring to the older versions of the ISO quality standards (such as ISO 9000:1994), Augustyn and Pheby (2000) noted that there was a need to determine and identify the critical factors that influence the effective implementation of a quality standard. This still continues to be a matter that needs to be discovered in the case of the subsequent revised versions of these quality standards, i.e. ISO 9001:2008 version. Although there are many instances of the successful adoption of the revised versions of the standard, the problems of achieving sustainable implementation mean that the critical success factors require ongoing identification and exploration (Sampaio et al., 2009).

As Malaysia is an exporting nation, it is very important for companies in the port industry ensure that their business policies are geared to customers' needs and to creating value for customers. Customers expect dependence and availability of services from the company and this concept has become essential where certification has been viewed as key factors in customer satisfaction and a strategy of organizational branding. However, despite efforts by the port to improve their performance, even though with their ISO certification status, there are still complaints resulting from operational division. Port X is a newly adopter of Quality Management System, and as to date, there is no study that examines the

implementation of QMS and its impact on operational performance within the organization. Therefore, the comparison of QMS critical success factors based on employee's perceived level may assist to identify the level of important factors which can be focusing during QMS implementation, in order to support competitive position of the organization, as well as to fulfil needs of customers. All of these necessitate a strong quality focus and this cannot be accomplished without adopting an effective strategy and measuring its impact on operational performance. Therefore, the study of QMS critical factors implementation in Port X context is very important. The need for QMS implementation is also being driven by the competition between port operators. The lack of literature on how quality management system (QMS) standard based on ISO 9001 in the various activities in the port also demand the necessity to undertake a study to provide adequate information on the relationship with the operational performance. Hence, this study aims to determine the critical factors affecting the operational performance in implementing QMS standard based on ISO 9001:2008 requirements.

1.4 Research Questions

This study attempted to answer the following questions:

- 1) What is the perceived importance level of QMS critical factors by employees at Port X?
- 2) What is the employee's perceived level of operational performance at Port X?
- 3) What is the relationship between the QMS critical factors with operational performance of Port X?
- 4) How operational performance can be best predicted based on critical factors of QMS?

1.5 Research Objectives

Based on the research questions, this study aimed to:

- 1) Identify the perceived importance level of QMS critical factors by employees at Port X.
- 2) Identify the perceived level of operational performance at Port X.
- 3) Identify the relationship of QMS critical factors with the operational performance of Port X.
- 4) To predict the operational performance based on critical factors of QMS.

1.6 Significant of the Study

The success of ISO 9001 implementation depends on the presence of the contributing critical factors. It is a concern that effective QMS is practically implemented in the company in line with the management mission to comply with the ISO 9000 certification. Thus, the finding from this study able to provide the information and insight of the QMS implementation within the company in port industry and its relation with the operational performance from its employees' point of view.

This study may contribute to QMS literature by attempting to satisfy the need for an analytical study that examines recognised elements of critical factors and then linking them to organization performance using appropriate statistical methods. This research applies this as a means of recognising the relationship between elements of

QMS and operational performance of company in port industry. The research will also add to the literature by developing a framework illustrating linkage between all recognised factors and elements.

The study also contribute to the literature by analysing the impact of the ISO 9001 certification and the methods used to determine the application of QMS principles prior examining the link between QMS and operational performance. The results of the study will also beneficial for other companies in port industry in implementing QMS practices and improving their business performance as well as assisting the organization to adopt their principles. This may result in increasing of the performance of the company as well as port industry.

In a more general perspective, most of the previous research on QMS has mainly focused on the manufacturing and service industries. To date, there are less research on QMS implementation and critical success factors has been conducted in port industries. Thus, this study will explores the key factors of the ISO 9001:2008 series of standards and the effect on operational performance of firm in port industries.

1.7 Scope of the Study

The scope of the study is focus on the service sector which is limited to Port X as a case study. The primary study is on the actual current status of QMS implementation, and included all related departments which implementing and adapting formal QMS requirements. Conducting the research in the port environment with a good number of employees, enable the study to develop better results of the research. This study is focus on QMS critical success factors as the independent variable and organizational performance as the dependent variable.

The six (6) QMS critical success factors in this study, used for improving operational performance and roadmap to implement QMS, were generated from an extensive literature review, and supported by many authors.

The extent of QMS implementation was evaluated using six accepted QMS critical success factors, i.e. Quality Process Management (QPM), Top Management Support (TMS), Human Resources Management (HRM), Customer Focus (CuF), Measurement, Monitoring and Control (MMC) and Continuous Improvement (CI). The operational performance was operationalized using several measures which include Customer Satisfaction, Process Performance, Financial Performance, Employee Morale and Market Share.

1.8 Organization of Thesis

The thesis is set out into five chapters. The Chapter 1 provides an overview on the research background, problem statement, research objectives and questions and its significance. Chapter 2 displays a review of literature on previous research. Theoretical framework as well as hypotheses for this study is also discussed in the second chapter. Chapter 3 explains the methodology and tools of analysis for this study while analysis and findings for this study can be found in Chapter 4. Lastly in Chapter 5, a discussion on the findings is included. Recommendations, limitations and conclusion for this study are also included in this last chapter.

1.9 Operational Definition

1.9.1 Quality Factors

The quality factors based on this study is the essential things that must be achieved by the firm or organization in order to produce the greatest “competitive leverage” (Brotherton & Shaw, 1996). The quality factors are not objectives, but are the actions and processes that can be controlled and affected by management to achieve the organisation’s goals. The selection of measures incorporated in quality factors, are based on further research and review of previous empirical studies, with the purpose of finding adequate measures which are theoretically grounded. The descriptions of the measures of each variable are depicted as follow:

- i) **Quality Process Management (QPM)** - measured based on the allocation of resources related to the improvement of processes, identification of core processes and their interrelationship, standardization and documentation of operating procedures, and the importance of having an organizational wide focus on quality of all processes.
- ii) **Top Management Support (TMS)** - measured by several items which comprising the views on the involvement of top management in communicating the quality objectives throughout the organization, management's allocation of adequate resources, the evaluation of the top management based on quality performance, and their ability to make quality responsibility visible and complied throughout the organization.
- iii) **Human Resources Management (HRM)** - measured based on the degree of employee responsibility for quality, the emphasis on employee development plans; the recognition and reward granted to employees for their performance related to quality and the inclusion of employee opinions with regards to quality decisions.

- iv) **Customer Focus (CuF)** – measured based on the established methods for customer feedback and needs, expectations and requirements, the availability of procedures to deal with customer complaints, and the focus on customer relationships.
- v) **Measurement, Monitoring and Control (MMC)** - measured based on the extent of documentation, reporting and use of quality data throughout the organization, the availability of quality data in strategic decisions and the use of quality data in the assessment of desired and actual outcomes in processes.
- vi) **Continuous Improvement (CI)** - measured based on effectiveness of methods and measurements used for continuous improvement processes, corrective actions on non-conformities, and results of continuous improvement in competitive advantage.

1.9.2 Operational performance

The operational performance is the effect of efficient use of resources and processes in order to generate better quality products and services (Francisco, 2012). It also includes the actual output or results of an organization as measured against its intended outputs, i.e. objectives. Therefore, the operational performance will be measured by using several indicators such as customer satisfaction, process performance, financial performance, employee morale, and market share.

1.10 Conclusion

In this chapter, it can be concluded that this is the background of the study which known as introduction. Also, in this chapter has presented the description of the problem statement, research objectives, research questions and also the significant of the study. The next chapter will discuss more about literature review.

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