

FACTORS AFFECTING CONSTRUCTION ORGANIZATION QUALITY MANAGEMENT SYSTEM IN THE MALAYSIAN CONSTRUCTION INDUSTRY

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ABSTRACT:

The main focus of the construction industry is to ensure that projects are successfully completed within the constraints of best quality, stated period and at minimum cost possible. The implementation of QMS in Construction Industry is meant to assist the industry to improve the efficiency and effectiveness of the organization management system in ensuring successful objectives of company. In the era of globalization where economic competition is intensifying, the implementation of QMS will improve the overall construction process and subsequently lead to the formulization of successful business strategies to meet international requirements. This study is carried out to analyze the scenario of QMS application, to identify factors affecting the construction organization and to issue recommendations on how to improve the implementation of ISO 9001:2000 QMS in Construction Industry. The data will be gathered via questionnaires distributed to the construction organizations at every level of management. Statistical analysis software SPSS 13.0 will be used to analyze the data. Factors affecting the successful implementation of QMS in Malaysia Construction Industry will be identified and recommendations will be suggested on ways to mitigate the problems.

Keywords: *Quality Management System, Malaysian Construction Industry, Construction Industry Players*

INTRODUCTION

Quality Management System (QMS) is synonym for a concept and application in an organization within the Malaysian Construction Industry. A misunderstanding among organization players on QMS concepts has become a stumbling block for its successful implementation. Theoretically As a matter of fact, QMS could be implemented either at the organization level or at the project level itself. Looking at the construction industry scenario in Malaysia, there are approximately 4000 ISO 9001:2000 QMS certified organizations in the Malaysian construction related industry. However, the number is still relatively small when compared to the total number of 63,204 organizations in this industry. Looking at the current scenario in the Malaysian construction industry, QMS compliance is a required factor to improve the quality of the Malaysian Construction Industry (SIRIM, 2005).

RESEARCH QUESTIONS

The main objective of this paper is to study the factors affecting the application of construction organizations Quality Management System (QMS) in Malaysia construction industry. In addition to that, recommendations to improve the QMS implementation in Malaysia construction industry will be issued to serve as a guide to other researchers. The objectives of this research are: (i) to study the scenario of QMS applications in Malaysia construction industry, (ii) to identify the factors affecting construction organization and (iii) to

issue recommendations on how to improve the implementation of QMS in Malaysia Construction Industry.

Quality Management System (QMS)

Quality management system (QMS) is defined as “all activities of the overall management function that determine the quality policy, objectives and responsibilities, and implement them by means such as quality planning, quality Control, quality assurance and quality improvement within the quality system” (MS ISO 8402, 1994). Most organizations today view quality more as a process rather than a product. To be more specific, it is a continuously improving process where lessons learned are used to enhance future products and services in order to retain existing customers, win back lost customers and welcome new customers. Therefore, companies today are developing and integrating quality improvement processes in the companies’ management system.

Factors Affecting Construction Organization

According to Chew and Chai (1996), there are three main factors affecting the construction quality management system. The factors are as follows:

Lack of Management Commitment

Result of the survey indicated that 37.3% of the organizations surveyed encountered problems with this requirement of the standard. Reasons that can account for the lack of commitment are (i) Lack of awareness of the benefits of quality management system, (ii) Implementation of a quality system because of market pressures.

Inconclusive Interpretation of Standard Requirements

The ISO standards are a generic standard that has its origin from the engineering field. As generic standards, some of the terms used in the standard could be misconstrued as being vague, ambiguous and imprecise. Confusion also arises as there is a lack of the definition of these terms in the standards (Chew and Chai, 1996).

Training Policies

Looking into the general training policy, the ISO 9001 registered companies have more concern on the training of their employees than the non-registered ones. They not only pay for the course fees, but also allow them to receive training during working hours. For non-registered companies, the company may reimburse the course fees but employees have to attend training sessions outside of working hours. Moreover, regular training programmes on technical and computer knowledge were commonly provided in many companies. The most

popular training programme organized by ISO 9001 registered companies was Quality Knowledge (Lee et.al, 1992).

The Successful Organization Implementation the QMS

According to Goh and Chong (2000), the following recommendations are made to increase the usefulness and effectiveness of the QMS in construction industry. They are (i) Increase in Effort by Management, (ii) Internal Quality Audit training for staff of all levels and (iii) Increase the frequency of conducting Internal Quality Audit (IQA).

RESEARCH METHODOLOGY

Research Design

The first stage involved studying and understanding of the topic area and to identify scope and objective of research proposal. This study also employed the survey method by using questionnaires. The questionnaires were distributed by the researcher to the top, medium and lower level management in Klang Valley, N. Sembilan, Melaka and Johore area.

Data Collection

The task in this stage is to identify project data and to conduct study for further details of the research. The data sources were classified into prime sources and secondary sources. Prime sources provide original data and latest information for the research. A total number of 150 questionnaires were distributed to the respondents. The respondents consist of top, medium and lower level management. The secondary sources are journals, books and thesis from library, articles and journals published in the internet.

Data Analysis

The results of the questionnaires will be analyzed using SPSS Version 13 (Statistical Package for the Social Sciences) software. SPSS provides a broad range of capabilities for the entire analytical process. All data and information from the questionnaires were entered into SPSS Version 13 program for statistical analysis in order to obtain mean and mode of variables.

Descriptive Analysis

Descriptive analysis was conducted to describe and to interpret data. The descriptive analysis used in this study was frequency analysis to examine the respondents' demographic factor, mode and rank data. Based on frequency test; the scenario of QMS application, the rank of factors affecting of construction organization of QMS and the recommendation for the problems solution were obtained whereby the conclusion for the study could then be made.

DATA ANALYSIS AND RESULTS

Background of Respondents

In this study, questionnaires were distributed to 150 respondents in top, medium and lower level management.

The Sectors of Respondents in the Company

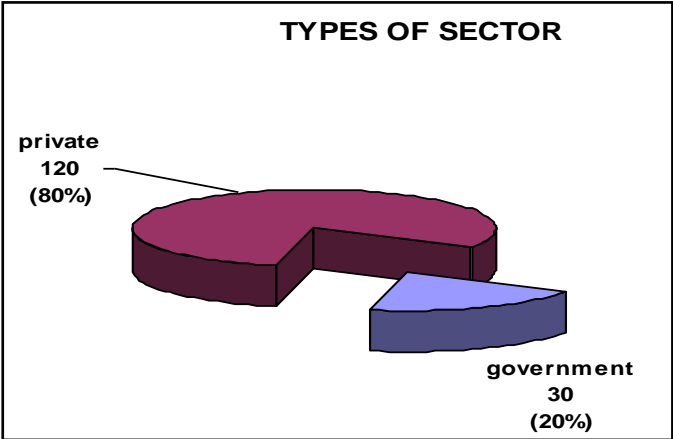


Figure 1: Respondents Based on Types of Sector of Organization in the Malaysian Construction Industry

Types of Service of Respondents in the Construction Industry

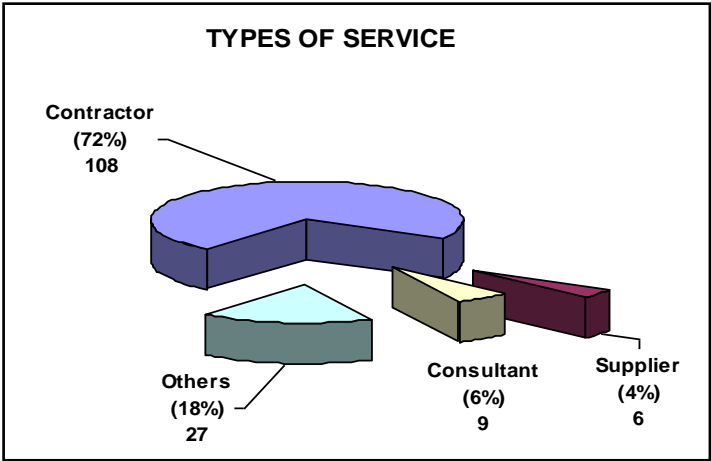


Figure 2: Respondents Based on Types of Service of Organization in the Malaysian Construction Industry

Position of Level Respondents in the Construction Industry

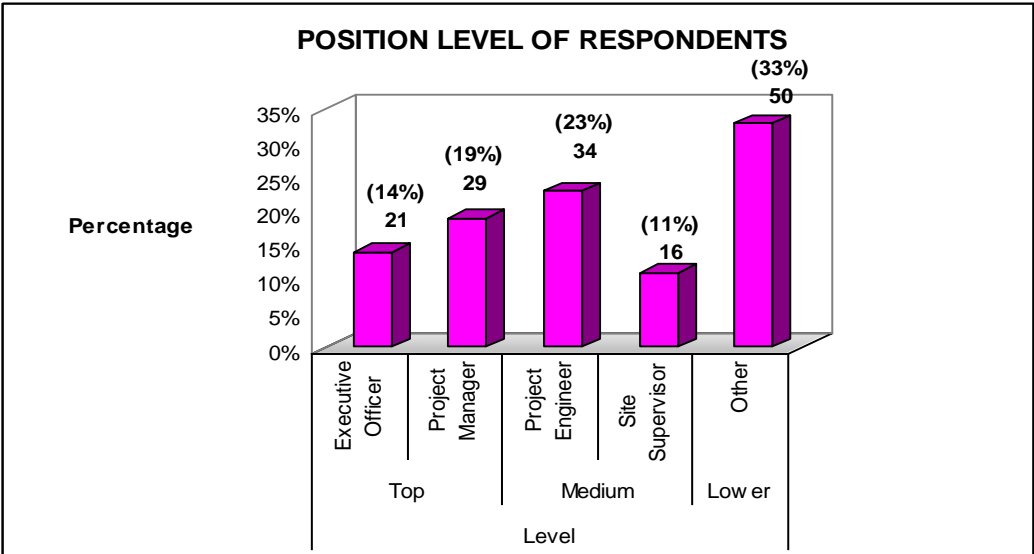


Figure 3: Percentage Frequency of Respondents Based on Position Level of Organization in the Malaysian Construction Industry

Period of Services Respondents in the Construction Industry

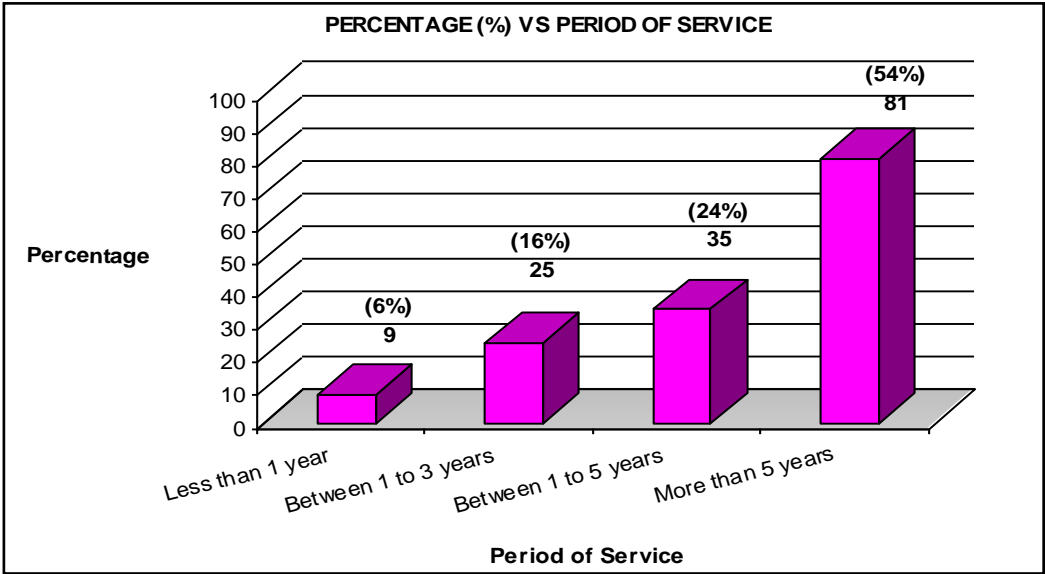


Figure 4: Percentage Frequency of Respondents Based on Period of Service Organization in the Malaysian Construction Industry

Contractor Grade

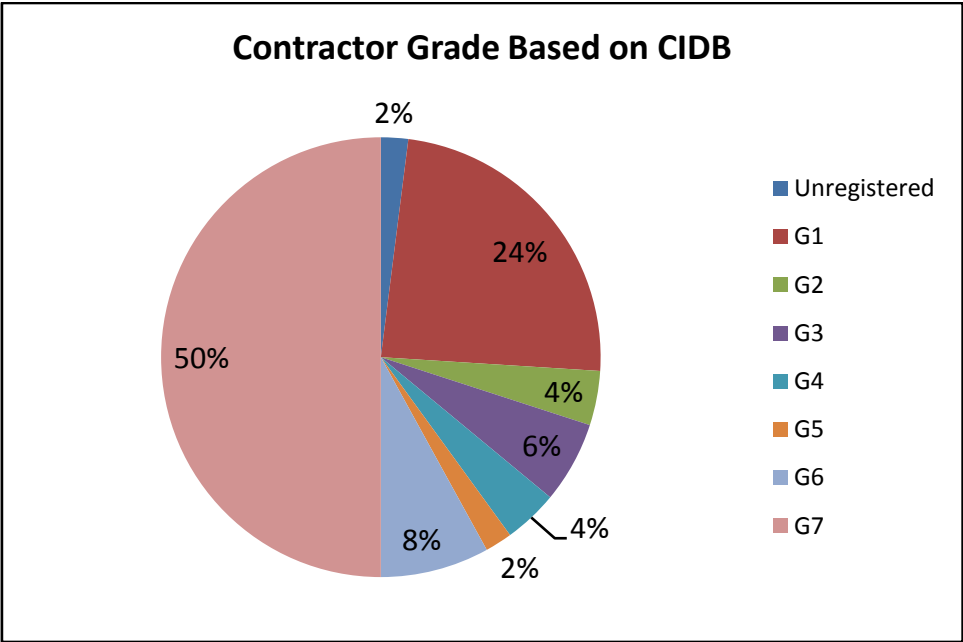


Figure 5: CIDB Percentage of Contractor by Grade

According to the statistics earlier, 50% of the respondents fall within the category of grade G7 CIDB and 45% are Grade A PKK. The reason of the disproportionate distribution of the questionnaires is due to lack of cooperation of some of the respective company.

Table 1: Distribution of the Advantages of QMS Application in Malaysia Construction Based on Mode and Mean Statistic

List of Advantages	Mean	Mode
Enhanced image and reputation of organization	4.19	4
Performance improvement and increase customer satisfaction	4.16	4
Clear line of duties	3.97	4
Facilitates access to certain markets	3.87	4
Increase chances to be award the tenders/contracts	3.89	4
Improved relationship and cooperation between clients, contractors, consultants and suppliers	3.84	4
Establishing clear documented procedures and instructions	4.15	4
Consistency in quality of services	4.15	4
Efficiency of operations in construction site	4.15	4
Reduction of Quality Cost	4.05	4
Prevention of errors at the earliest stage of the project	3.98	4
Project completion within the stated period of time	3.66	4

Table 2: The Ranking of the Advantages of QMS Application in Malaysia Based On Mean Statistic

Ranking	List of Advantages	Mean
1	Enhanced image and reputation of organization	4.19
2	Performance improvement and increase customer satisfaction	4.16
3	Establishing clear documented procedures and instruction	4.15
4	Consistency in quality of services	4.15
5	Efficiency of operations in construction site	4.15
6	Reduction of Quality Cost	4.05
7	Prevention of errors at the earliest stage of the project	3.98
8	Clear line of duties	3.97
9	Increase chances to be award the tenders/contracts	3.89
10	Facilitates access to certain markets	3.87
11	Improved relationship and cooperation between clients, contractors, consultants and suppliers	3.84
12	Project completion within the stated period of time	3.66

For the ranking of QMS application advantages in the Malaysian Construction Industry, “Enhanced Image and Reputation of Organization” topped the list followed by “Performance Improvement and Increase Customer Satisfaction”. The respondent’s results put “Establishing Clear Documented Procedures and Instruction” as the third in the line up, followed by “Consistency in Quality Services” and next “Efficiency of Operations in Construction Site”. “Project Completion within the Stated Period of Time” was listed as the least in bringing about advantages in the Malaysian Construction Industry.

The Analysis: The Problems Encountered By Organization in the Implementation of QMS in Malaysia Construction Industry

Table 3: Distribution of the Problems Encountered By Organization in the Construction Industry

List of Problems	(%) Frequency	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Lack of understanding in the QMS	(%) n	(1.3) 2	(12.0) 18	(17.3) 26	(49.3) 74	(20.0) 30
Lack of understanding in the process requirement	(%) n	(2.7) 4	(13.3) 20	(15.3) 23	(47.3) 71	(21.3) 32
Lack of awareness in benefits of QMS	(%) n	(1.3) 2	(6.0) 9	(22.7) 34	(48.7) 73	(21.3) 32
Lack of support from the top management	(%) n	(4.7) 7	(14.0) 21	(19.3) 29	(50.0) 75	(12.0) 18
Lack of available Quality System documentation such as procedures records construction construction period, work instruction and records	(%) n	(0.7) 1	(18.7) 28	(30.7) 46	(40.7) 61	(9.3) 14
Lack of documentation for suppliers, materials and services	(%) n	(1.3) 2	(10.7) 16	(36.0) 54	(37.3) 56	(14.7) 22
Lack of planning to implement QMS	(%) n	0 0	(14.7) 22	(19.3) 29	(50.7) 76	(15.3) 23
Lack of continuous professional development (CPD)	(%) n	(0.7) 1	(10.7) 16	(26.7) 40	(39.3) 59	(22.7) 34
Lack of QMS exposure among workers	(%) n	(0.7) 1	(10.0) 15	(18.7) 28	(51.3) 77	(19.3) 29
High cost to implement QMS	(%) n	(2.7) 4	(12.7) 19	(28.0) 42	(36.0) 54	(20.7) 31
Lack of time to implement QMS/Time Consuming	(%) n	(3.3) 5	(8.7) 13	(30.7) 46	(40.0) 60	(17.3) 26

Table 4: Distribution of the Problems of QMS Application in Malaysia Construction Industry Based on Mean and Mode Statistic

List of Problems	Mean	Mode
Lack of understanding in the QMS	3.75	4
Lack of understanding in the process requirement	3.71	4
Lack of awareness in benefits of QMS	3.83	4
Lack of support from the top management	3.51	4
Lack of available Quality System documentation such as procedures, records construction period, work instruction and record	3.39	4
Lack of documentation for suppliers, materials and services	3.53	4
Lack of planning to implement QMS	3.67	4
Lack of continuous professional development (CPD)	3.73	4
Lack of QMS exposure among workers	3.79	4
High cost to implement QMS	3.59	4
Lack of time to implement QMS/Time Consuming	3.59	4

Table 5: The Ranking of the Problems Encountered by Organization in the Implementation of QMS in Malaysia Construction Industry Based on Mean Distribution

Ranking	List of Problems	Mean
1	Lack of awareness in benefits of QMS	3.83
2	Lack of QMS exposure among workers	3.79
3	Lack of understanding in the QMS	3.75
4	Lack of continuous professional development (CPD)	3.73
5	Lack of understanding in the process requirement	3.71
6	Lack of planning to implement QMS	3.67
7	High cost to implement QMS	3.59
8	Lack of time to implement QMS/Time Consuming	3.59
9	Lack of documentation for suppliers, materials and services	3.53
10	Lack of support from the top management	3.51
11	Lack of available Quality System documentation such as procedures, records construction period, work instruction and record	3.39

DISCUSSIONS

Over the years, QMS application systems in the Malaysian Construction Industry have been on an increasing trend. Currently, there are more than 4,000 QMS certified organizations as compared to when it was first introduced in 1987 (SIRIM,2005). So far, QMS has brought about positive changes in the Malaysian Construction Industry. However, the industry is still facing problems in the implementation of QMS. From this research, four main advantages have been identified. They are (i) organization image and reputation enhancement, (ii) performance and customers' satisfaction improvement, (iii) documentation procedures & instructions establishment and (iv) constant quality service. QMS application can enhance the image and reputation of an organization, as QMS is a versatile and flexible management tool that an organization can use to improve their goals, efficiency and profitability. The application of QMS also can influence the organization to improve their performance and increase customers' satisfaction. Moreover, organization are also able to establish clear documented procedures and instruction that includes the documented statements of policy quality and objectives quality, manual quality, documented procedures, effective standard requirement planning, operation, record and control of the processes are also needed. Besides that, the implementation of QMS can serve as a guideline to ensure quality services are able to meet the required standard.

Nevertheless, organizations in the industry faced some problems after the implementation of QMS. The problems are lack of awareness in benefits of QMS, lack of QMS exposure among workers, lack of understanding of QMS and lack of continuous professional development (CPD). In general, the organizations are unaware about the benefits of QMS because they lack in fulfilling commitment responsibilities and failure to disseminate organization policy to all level of management. Furthermore, the organization also lack of competence skill to be applied in different levels of management. Another problem is inadequate QMS monitoring, training and unawareness in abiding by the standard requirement. Some of the terms used in the standards could be vague, ambiguous and imprecise which will cause lack of QMS understanding in the organization. The poor guidance in the training programs affects the lack of CPD for every level of management.

From the findings, most organizations in the Malaysian Construction Industry face four major problems, which are; lack of awareness in the benefits of QMS, lack of QMS exposure among workers, lack of QMS understanding and lack of Continuous Professionals Development (CPD). In order to ensure the success of implementing ISO 9001:2000 QMS standard in Malaysia Construction Industry, the management should endeavour towards being focused and systematic. The recommendations to solve this problem are extracts of the from respondents' opinions and established organization suggestions. The recommendations are to increase management effort, to train all organization management levels [by conducting conducted Internal Quality Audit (IQA)], to ensure proper documentation system is in-place , to increase the level of QMS understanding, promote new Construction Technology usage to enable the government to extend its tax incentives, to promote and monitor levels of management participation in training and motivation programs and lastly, to provide the guidance for ISO 9001: 2000 QMS for organizations in the Malaysian construction Industry.

CONCLUSION

From the results of the questionnaires and analysis using SPSS 13.0 Software, a majority of the respondents suggested the main advantages of implementation of QMS are "Enhanced Image and Reputation of Organization" followed by "Performance Improvement and Increased Customer Satisfaction". Overall, the result of the analysis also shows that the main problems encountered by organizations with the implementation of QMS in Malaysia Construction Industry is "Lack of Awareness in Benefits of QMS", followed by "Lack of QMS exposure among workers".

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