

# The Research Study in Quality Management for a Ship Construction Company

Mohamad Kamal Mohamad Dasuki<sup>1</sup>, Dr. Rizal Razalli<sup>2</sup>

<sup>1</sup>Othman Yeop Abdullah, Graduate School of Business, Universiti Utara Malaysia, 06010 UUM Sintok, Kedah, Malaysia

<sup>2</sup>School of Technology Management and Logistic, College of Business, Universiti Utara Malaysia, 06010 UUM Sintok, Kedah, Malaysia

**Abstract:** *This paper report focusing on a study in quality management for a ship construction project. In order to gather the experience and knowledge of the implementation of quality management work process in ship construction industry, a case study research in qualitative method was selected as the most appropriate research method among those available. The findings are to identification of those tasks and activities that must be done well in order to succeed in the quality management implementation in a ship construction project. The research focuses on the problems that need to be identified and solved. Once these factors have been identified, the value from the research methodologies will draw attention to those tasks that are factors in the success of the work inspection planning in a ship construction project. The research paper presents new thinking on ship construction project management and the operations strategy implementation especially in quality management work process. In this context the factors that are required for successful implementation are identified*

**Keywords:** Research Study, Ship Construction, Quality Management, Quality Control

## 1. Introduction

Over the years, development in a company often uses a theoretical account of quality; it has increased to ease the evolution of many of these societies. The target is to determine and enhance the contribution of their merchandise to customers (McManus & Wood-Harper, 2007). Thus, the conceptual framework for this research survey was grounded on the implementation of quality management in a shipbuilding company. This theoretical account will function as a guideline for the growth of a research field. This is a conceptual framework as a beginning level in identifying weaknesses in the carrying out of the implementation of quality management in ship building and maintenance work processes associated with the culmination of the task.

Some organizations implement and carry out quality management concepts without any problems, execute and integrate them into standard processes.

Other organizations are unsuccessful in implementation, while some have been successful and well-substantiated, depending on the application of the concept itself (Gremyr & Elg, (2014). "Construction firms have been continuously struggling with Quality Management implementation especially in TQM. Historically, construction has been an industry unenthusiastic to implement the transformation as a result it has remained behind (Haupt and Whiteman, 2004).

The scenario of the construction industry in Malaysia has been stated in the Construction Industry Development Board of Malaysia (CIDB) and cited by Said (2005). The problem scenario is regarding to the lack of work skill, technical knowledge, and low productivity and also decreasing the quality standard in the global construction industry. The ascension of the problems connected to quality management, it is passed on the stake to the research field in the ship

construction company especially involving the quality management toward the task completion.

Generally, problems and weaknesses come from several facial expressions. In this research study conducted in ship construction company, the weaknesses and problems can be identified as the termination of work observation and the execution of quality management that's been executed by the Quality Department in the completion of ship building and upkeep tasks.

## 2. Literature Review

The comparison and documentation review on related previous studies are being used to find any theoretical gaps regarding to the scope of the research field. The focus study will be necessitated in the quality management and the building industry in ship project construction especially in Malaysia. Additionally, research on quality management practices taken in manufacturing industry in Malaysia has been principally concerned with: the automotive industries, such as the work by Deros et al. (2006), Halim et al. (2008), the electric and electronics manufacture, such as the work by Agus (2005), Abdullah et al. (2008), SMEs in general, such as the work by Abdul Rahman and Tannock (2005) and Thiagaragan et al. (2001), SMEs in the food processing industry by Abdul Talib et al. (2014).

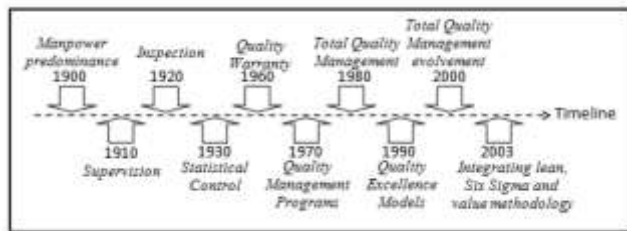
The definition of quality and the relation of management process in the construction industry involve with the Quality Control, Quality Plan, Quality Improvement, Quality Management System and also Total Quality Management. The implementation of quality management in construction company, especially in ship construction project. The problems occur in quality management implementation.

The Quality Management organization, a way the company set up their organization according to the quality standard.

Three elements (inspection, verification and monitoring) will be applied in the execution or implementation of quality management. The record documentation management involving with the formulation of the project quality report. And also the ISO standard

### 3. Quality of Evolution

The beginning in focusing on quality involvement, the activity from inspection to quality control been develops and later to quality assurance and to advance quality management. The timeline for integration of best quality practices been presented on figure 1.



**Figure 1:** The timeline on integration of best quality practices

The term and definition of Quality maybe subjective, it also has a different significance to different people under varying circumstances (Al-Saket, 2003). When speaking of quality, the meaning of the term should be clearly defined. These are the following definitions of quality: the Oxford Dictionary explains that quality is a degree of excellence of the product or service provided. Juran (1998) states that quality is related to customer satisfaction or dissatisfaction with the product, fitness for use, and also the conformity to the specifications. It been widely used the definition of quality has been mentioned and verified by the International Organisation for Standardization (McManus & Wood-Harper, 2007).

Deming (1986) did not define quality in a single phrase but asserted that the quality of any product or service depends on the customer's definition. Deming defined quality as "satisfying the customer beyond expectations" and aiming at the customer requirements, present and future (Hassan, Baksh&Shaharoun, 2000; Zairi, 2013). Furthermore, he states that quality is a relative term that is subject to change depending on the customer's needs.

The dictionary definition of quality does not really help in this area as it is too vague. The general perception of quality can often confuse theoretical quality with specification.

As an example, we might assume that a high specification product is inherently of higher quality than a lower specification product. The purpose of the definitions and work was aimed at improving overall quality. The simple definition of quality suggests that if specifications meet customer requirements, the product can be considered to satisfy quality specifications (Lee & Zhou, 2000).

### 4. Methodology

The intention of this study is to explore the implementation of quality management in the ship construction industry, especially in project completion. The following research questions will utilize and give consideration by using a qualitative approach with explanatory methods of data collection.

The general research design and justification engaged as an outlines for this research study. It includes an argument of the basic research design, data collection, sample selection and method of management, reliability and validity issues, principled considerations, and data analysis strategy.

In an understanding of the involvement for qualitative methods in the ship construction industry, the information data collection and analysis will be the result for quality management research.

In the research study by using the triangulation data will be defined as the combination for the similarity of the same phenomenon in the methodologies, a methodological metaphor can also been describe as triangulation overview. Triangulation speaks about the methods of convergence generally will producing valid information and more objective results. However, it is not fundamentally differing on the subjectivism and it will explain in detail in the discussion section on the importance subject of more open and stirring approaches (Jonsen & Jehn, 2009).

### 5. Research Findings

A study was carried out on the ship construction activities. The work process should ensure that all work must be inspected and properly organized in accordance with the specifications. The result finding will be explain during the observation and document review. Refer to table 1; the research study will concentrate on these related work process.

**Table 1:** Quality Department involvement in ship construction project

No	Related Issue
1	Calibration
2	Data inspection control
3	Documentation control
4	Non Conformity Report
5	Quality inspection record
6	Surveillance
7	Test inspection record
8	Welding Qualification Test
9	Work Inspection Planning
10	Work inspection process – Dimensional and Alignment
11	Work inspection process – Incoming Material
12	Work inspection process – construction and installation process
13	Work inspection process – Test and Trial

The result finding clearly define that there are lots of problems and issue in the work inspection process in the implementation of quality management. This issue including

the demarcation of involvement in work inspection process flow, rejection and cancellation of activities, training need to be done, weaknesses in knowledge sharing and no record information management especially in preparing a quality report. Some findings are also in line with the existing literature, while some are new finding. The result finding showed that the important of the understanding in managing the work planning and work information especially in managing quality management process.

## 6. Discussion and Conclusion

The work recommendation of improvement will give the beneficiary to the company and also contribute to the body of knowledge of the implementation of quality management study. In order to fulfil the research objectives, The work inspection planning involvement of Quality Control in the ship construction project is need to be clear and mention in the project quality plan as the requirement of work demarcations in inspection work activities.

As a conclusion, the research study have to identify the utilization of quality management knowledge in the ship construction company especially in the quality department through the ship construction projects, to identifying the issues that occurs in research problems, to provide an analysis of the study that can give the company beneficiary and academic knowledge, and also to accomplish the company's vision and mission.

## 7. Acknowledgement

The author wishes to sincerely thank the all related parties that involve in the research study. The author takes responsibility for any typographical errors that went through unnoticed.

## Reference

- [1] Abdul Rahman, M.N. and Tannock, J.D.T. (2005), "TQM best practices: experiences of Malaysian SMEs", *Total Quality Management*, Vol. 16 No. 4, pp. 491-53.
- [2] Abdul Talib, H.H, Mohd Ali, K.A. & Idris, F., (2014), "Critical success factors of quality management practices among SMEs in the food processing industry in Malaysia", *Journal of Small Business and Enterprise Development*, Vol. 21 Iss 1 pp. 152 – 176. Doi:1.118/JSBED-1-213-162
- [3] Abdullah, M.M., Ahmad, Z.A. and Ismail, A. (2008), "The importance of soft factors for quality improvement: a case study of electrical and electronics firms in Malaysia", *International Journal of Business and Management*, Vol. 3 No. 12, pp. 6-69.
- [4] Agus, A. (2005), "The structural linkage between TQM, product quality performance, and business performance: preliminary empirical study in electronic companies", *Singapore Management Review*, Vol. 27 No. 1, pp. 87-15.
- [5] Al-Saket, A. (2003). *A Case Study of Total Quality Management in a Manufacturing and Construction Firm*. Rand Afrikaans University.
- [6] Ahmad, M.M, & Elhuni, R., (2014), "Critical quality factors for successful TQM implementation in Libyan oil and gas sector", *Benchmarking: An International Journal*, Vol. 21 Iss 5 pp. 713 – 733 doi: 1.118/BIJ-6-212-45
- [7] Dahlgaard, J.J., Kristensen, K., & Kanji K.G (2007), Historical evolution of Total Quality Management. *Fundamentals of Total Quality Management Process analysis and improvement*, (pp 7-10) (Edition). Taylor & Francis e-Library
- [8] Deros, B.M., Yusof, S.M.M. and Salleh, A.M. (2006), "A benchmarking implementation framework for automotive manufacturing SMEs", *Benchmarking: An International Journal*, Vol. 13 No. 4, pp. 396-43.
- [9] Gremyr, I., & Elg, M., (2014), "A developmental view on implementation of quality management concepts", *International Journal of Quality and Service Sciences*, Vol. 6 Iss 2/3 pp. 143 – 154. Doi:1.118/IJQSS-2-214-12
- [10] Halim, M.L., Ramayah, T. and Norzieiriani, A. (2008), "Total productive maintenance and performance: a Malaysian SME experience", *International Review of Business Research Papers*, Vol. 4 No. 4, pp. 237-25.
- [11] Hassan, A., Baksh, M. S. N., & M.Shaharoun, A. (200).Issues in quality engineering research. *International Journal of Quality & Reliability Management*, 17(8), 858–875.
- [12] Haupt, T. C., & Whiteman, D. E. (2004).Inhibiting factors of implementing total quality management on construction sites. *The TQM Magazine*, 16(3), 166–173. doi:1.118/95447841532891
- [13] Jonsen, K. & Jehn, K.A., (2009), "Using triangulation to validate themes in qualitative studies", *Qualitative Research in Organizations and Management: An International Journal*, Vol. 4 Iss 2 pp. 123 – 15 doi:1.118/174656491978391
- [14] Kheradia, A., (2011), "TALEVAS model: an integrated quality methodology", *The TQM Journal*, Vol. 23 Iss 4 pp. 43 – 422. Doi:1.118/17542731111139482
- [15] Lee, C. Y., & Zhou, X. (2000).Quality management and manufacturing strategies in China.*International Journal of Quality & Reliability Management*, 17(8), 876–899.
- [16] Mahajan, R., Agrawal, R., Sharma, V., & Nangia, V., (2014), "Factors affecting quality of management education in India", *International Journal of Educational Management*, Vol. 28 Iss 4 pp. 379 – 399. Doi:1.118/IJEM-1-212-115
- [17] McManus, J. & Wood-Harper, T., (2007), "Software engineering: a quality management perspective", *The TQM Magazine*, Vol. 19 Iss 4 pp. 315 – 327
- [18] doi:1.118/95447871756223
- [19] Said, I. (2005).*The implementation of ISO 9 Quality Management System and Business Performance of Contractors in Malaysia*. Universiti Utara Malaysia.
- [20] Thiagaragan, T., Zairi, M. and Dale, D.G. (2001), "A proposed model of TQM implementation based on an empirical study of Malaysian industry", *International Journal of Quality & Reliability Management*, Vol. 18 No. 3, pp. 289-36.
- [21] Zairi, M. (2013).The TQM legacy – Gurus' contributions and theoretical impact. *The TQM Journal*, 25(6), 659–676. doi:1.118/TQM-6-213-69

## Author Profile



**Mohamad Kamal Mohamad Dasuki** received the Bachelor of Science, in Production Industrial Engineering from Universitaire Nice Sophia Antipolis, France in 2005 and Diploma in Organization Management Engineering from same university in 2004. Also received Diploma in Electrical Engineering from Malaysia France Institute in 2001. Now work with Naval Ship Construction Company in Malaysia.