

# A CASE STUDY ON PREPARATION OF QUALITY MANAGEMENT SYSTEM (QMS) MANUAL

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**Abstract:** - *Quality in education enables the students to enhance their skills and abilities by implementing the knowledge get through quality education. The students, pupils and teachers need to be treated differently by knowing their respective needs. Quality in education depends on multiple factors and elements In this thesis a quality management system manual and the necessary formats are prepared for a company which is not ISO certified, taking them a step closer to certification process. The manual is prepared as per the requirement of ISO 9001.2008 standard and the company's scope. ISO 9001.2008 and ISO 9000.2005 standards were referred for the preparation of the manual, where ISO 9000 states the fundamentals and vocabulary of QMS and ISO 9001 states the requirements in quality management system. ISO 9001 is the only certifying standard in ISO 9000 family. These standard guides the organization in implementing, maintaining, monitoring, improving QMS to meet the customer, statutory & regulatory requirements. Via visiting the organization, understanding the organizations scope of work, process and procedures adopted in the firm, collecting the required documents & data and integrating this process, procedures and formats a Quality manual is prepared.*

**Keywords:-** QMS, Management, ISO, Organization

## 1. INTRODUCTION

QMS is a method of organizing and logically systemizing sequence of activities & processes such that there quality can be observed, measured, validated and improved. QMS addresses the methods for meeting and improving statutory, regulatory and customer requirements. It is achieved by documenting the standard procedures and documentation of processes involved.

It improves the core / critical process and increases customer satisfaction thus improving the business performance and elevating employer's confidence. It also indirectly helps to decrease cost & wastage from rework due to systematic planning, review and inspection.

## 2. Types of QMS

QMS can be implemented by adopting following methods:

1. Process approach
2. System approach

## 3. LITERATURE REVIEW

1. Dr. Daw Alwerfalli, Dr. Aslihan Karatas & Muteb

Alshammari in their paper entitled "Application of Quality Management Systems (QMS) in Construction Industry" briefly explained about QMS, its importance & purpose. They have mentioned the elements or areas to be included in system approach of QMS & briefly explained the process, documentation involved including the process for any non-conformities. They showed the comparison of ISO 9001 to the latest ISO standard of 9001.2015 and discussed the significance of ISO standard.

2. Sepani Senaratne & Jeevana Mayuran in their paper entitled "Documentation Management based on ISO for Construction Industries in developing countries" started off with findings from various literature of the benefits and problems of documentations. With the help of a questionnaire a survey was carried out in Colombo, Sri Lanka for 1 grade ISO certified contractors, asking them to rank the degree of implementation & documentation currently adopted in site and the reason for no documentation and their suggestion. From analysis of the survey it was noted that the documentation involving communication with clients & site in charge along with work process instructions where ranked high. The key reason for no proper documentation management system was lack of interest, high initial cost and need for training, less staff and time. To overcome the stated some of the suggestions were to organize workshop, promote awareness, document only main process and make it simple & easy, to document certain process in hard copies and to conduct regular inspections. Thus the generic problems faced and suggestions were obtained.
3. Mat Naim Abdullah, Mohd. Hanaffi Ayop & Mohd. Noor Sudin in their paper titled "The Capability of a Construction Project Team in the Implementation of a Quality Management System" started with the brief explanation of QMS, its benefits during the project and the factors it depends on i.e., people and process. They conducted a case study on a part of Kuala Lumpur International Airport project after project completion. They conducted the analysis from collecting the data concerning QMS, due to combined input for various process from different contractors and consultants some of the data's were missing, this missing information was collected by interviewing the project manager contractor and

- consultant. It was observed both contractor and consultants had taken almost 2 years to produce quality plan, which created absence of proper processes, lot of deviation and nonconformity thus fragmenting QMS documentations. After conduction of workshops regarding QMS the documentation and auditing had improved tremendously.
4. George Guchu & Zsumbah Mwanaongoro in their paper titled "ISO Quality Management Implementation for Small to Medium Manufacturing Firms Kenya" mentions different codes, their uses and the advantages of certification. They had proposed the subsequent strategies for implementing QMS. They started with allotting a QMS team of 2 to 3 members consisting of an MR & an assistant to implement, maintain and promote QMS and also a calibrating team to calibrate all equipment's including contractors. Then a manual consisting of various procedures, their interactions & flowcharts, quality policy & objective for each department, audit procedures, formats, roles, responsibility & authority were drafted. For reviewing QMS, adequacy and compliance audit were conducted. They also discussed the factors considered in selection of the certifying body and the necessities for registering, i.e., minimum of 3 to 6 audits and 2 MRM. They have also give details regarding which data, from which document's to be analyzed for continual improvement.
  5. J. J. Smallwood & P. D. Rwelamila in their paper entitled "The Need for The implementation of Quality Management System in South African Constructions" from other literature review have noted that QMS helps in better communication through checklist and formats, reduces the cost of rework due to design review and better interaction in design stages, and also reduces waste generation due to proper planning specifications and inspection at each stage. They conducted the survey using questionnaire on 15 contractors of building industries federation of South Africa. The most voted description of quality was 'conformance to requirement' and 'excellence'. The contractors having QMS as reasons for QMS implementation vouched for 'Competitive advantage' and others who didn't for 'improve productivity' and 'reduce cost'. From the survey, it was noted lack of quality affected mostly 'cost', 'client satisfaction', 'productivity' & 'future work' at par. The factors influencing quality was mostly found to be 'unqualified artisans', 'shortened project period'. From the survey procurement based on design built was most preferred. It was concluded that with increase in responsibility of organization their education in quality increases.
  6. Bambang Trigunarsyah, Vaughan Coffey & Debby Willar in their paper entitled "An Empirical Study of Applying ISO 9001 Elements in Large Size Indonesian Contractors" discussed the current state of QMS implementation in grade 7 Indonesian Construction Company. They conducted a survey on 77 companies on the degree of QMS implementation in their company, it was found that majority of the company had not fully implemented QMS besides the applied criteria itself was partially implemented. It was noted the two least implemented area were 'customer-supplied product' and 'statistical techniques' for improvement. It was suggested to use chart and graph to statistically analyze to maintain and improve QMS and decision making.
  7. Behnam Neyestani in her paper "Effectiveness of Quality Management System (QMS) on Construction Projects" stated the significance of implementation of QMS and evaluated the effect of the implemented QMS in Metro construction in Manila, Philippines by conducting questionnaire on 37 managers. It was found that by implementing QMS, customer satisfaction was mostly improved as their main focus was in meeting the customer requirements in their process approach. It was noted that QMS also affected the time & cost and the quality, scope had the least impact. Implementing QMS had improved the overall execution of the project as a whole.
  8. S. Thomas Ng, Ekambaram Palaneeswaran & Mohan Kumaraswamy in their paper entitled "Costs and benefits of ISO9000-based quality management systems to construction contractors" mentioned the motive for implementation of QMS & compared the benefits with the implementation cost. A questionnaire survey was carried out in Hong Kong, it was estimated that implementation of QMS was 0.2% of the contracted sum of the project. From the survey, the two major benefits were 'cost reduction' and 'improved management system'. Indirect benefits were reduced cost overrun and reduced claims & disputes. It was found that implementing QMS reduces 5% of contract sum due to rework & wastage. It was concluded implementing QMS as per ISO 9001 has many benefits and contractors must commit to implementing QMS to improve the turnover profit.

#### Process of Implementing and Improving QMS

- The procedure of preparation, review, change, maintenance, accessibility, user responsibility, handling of superseded manual is explained.
- The top management's responsibility, awareness towards ISO processes is essential. For assistance in

QMS implementation, promotion, maintenance and improvement the, top management appoints a management representative who along with their work ensures effectiveness of QMS.

- MR is responsible for organizing, scheduling, coordinating audit. The auditor's qualification requirements & the auditing process is explained.
- The auditing checklists are formed with the reference of ISO standards, the company's scope of work, customer's requirement.

#### 4. CONCLUSION

- From Observation & interaction with the members of organization the required data and the current ongoing process was understood.
- The QMS manual and the other necessary documents were prepared as per the requirement of ISO standard and the company's scope. The manual is used as a reference document.
- Only certain time related documentation and formats are being used on site due to delay. Other documents are yet to be implemented on site.
- Some of the reason for resistant to implement QMS
  - Lack of interest
  - Resistance to change
  - Increased work load
  - Shortage in time.

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