



ACBA 5001

Project Planning for Construction

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What is quality?

If we look at quality, it has several definitions over the years. These definitions are not necessarily contradicting but instead diversifies its meaning. Many Quality pioneers such as Cosby (1979) defined quality as conformance to requirements, Juran (1988) as fitness for use and Giltow et al. (1989) as the extent to which the customer or users believe their product or service surpasses their needs and expectations. (Howarth and Greenwood, 2018, p.3)

However, the ISO 9000 formally defines quality. The ISO 9000 standards explain the basic ideas, principles, and vocabulary for Quality Management Systems. They also explain how to set up quality systems that illustrate a commitment to quality and the ability to meet customer needs.

It may be considered as a means of improving overall project quality, assisting organisations in achieving their goals, or improving project management and many companies tend to become ISO certified to build a competitive edge.

The international Standard defines quality as the degree to which the entirety of an entity, item or object meets the requirements stated, generally implied, or obligated. (ISO 2015)

This simply means that quality is a distinctive characteristic inherited by product or service that bears on its ability to meet a stated or implied need. Quality can be accompanied by descriptive words such as poor, good, excellent to state the degree to which the item meets expected requirements.

What is Quality Management?

The ISO 9000 defines Quality Management as is an organizations initiative which can be establishing policies, objectives, and processes to direct and control with regards to the requirements set.

The ISO 9000 fundamental concepts are Quality, Quality Management Systems, understanding the context of the organization and identifying interested parties. These fundamental concepts are supported by even (7) quality management principles:

1. Customer Focus - The main goal of quality management is to satisfy client needs and try to go above and beyond their expectations.
2. Leadership - Leaders at all levels of the organization develop a unified purpose and create an environment that encourage employees to work toward the organization's quality goals.
3. Engagement of people - For an organization to improve its capacity to generate and deliver value, knowledgeable, empowered, and engaged individuals are crucial at all levels.
4. Process Approach - Activities need to be understood and managed as interdependent processes that function as a well-organized system to produce consistent and predictable results, effectively and efficiently.
5. Improvement – successful organisations tend to prioritise improvement.

6. Evidence based decision making. – making decisions based on the analysis of researched results are more likely to produce intended results.
7. Relationship management – In order to achieve lasting success organizations must manage their relations with interested parties such as suppliers. (ISO, 2015)

What is quality in construction?

Quality in construction can be difficult to define because each product is unique and has specific characteristics or requirements that are defined by the client's needs. In the case of building construction, the product could be an entire structure, a section of a structure, or simply a prefabricated component that will eventually become a part of a structure. The requirements are usually established not only to meet the needs of the client, but also to meet the needs of the community into which the finished building will be integrated. Quality is also influenced by the cost of construction and the time it takes to complete the project. All these factors should be considered when designing the building, and the results should be clearly expressed in drawings and specifications. (Chung, 1999, p.3)

What is Quality Control?

The phrase "quality control" (QC) refers to all processes, procedures, and methods used to produce specified quality attributes and eliminate the causes of unsatisfactory performance. Random samples and statistical techniques are frequently employed as methods for approving or rejecting finished work and batches of goods to ensure compliance.

In the building Industry, the finished project is controlled by inspection and testing. This 'inspectorial system' of quality control can be problematic as it identifies problems after the fact.

An evaluation of the minimum quality required to meet the specified objectives and how that quality can be consistently attained should be done before a project. (Chung, 1999, p.4)

The purpose of quality control is to confirm that the organization's quality goals are being met. Quality control is referred to as the technical facet of quality management in the PMBOK® Guide (2017). Members of the project team who have specialised technical knowledge about the many parts of the project take an active part in quality control. They set up the technical procedures and processes that guarantee that every stage of the project, from design and development to implementation and maintenance, produces a high-quality outcome. To ensure that quality is attained, each step's output must adhere to the overall quality standards and quality plans.

Processes should be continuously monitored, the sources of problems identified and eliminated, and statistical process control implemented to minimise variability and boost process efficiency.

Examples of Quality Control in Construction outlined in (Rumane, 2013, p.99) is:

1. Conducting regular inspections of workmanship and materials: This entails examining the calibre of the supplies utilised on a building project as well as the calibre of the labour put out by those who installed those supplies. This may entail inspecting the alignment of walls and floors, confirming the strength and durability of the concrete, and making sure that all the components adhere to the necessary standards.
2. Testing materials and equipment: It is important to test materials and equipment to assure the quality of a building project. This may entail doing concrete strength tests, vetting materials for durability, and checking that machinery is in good operating order.
3. Implementing corrective actions: Implementing remedial measures to resolve errors that are found during the quality control process is crucial. To avoid such issues in the future, this may entail doing things like fixing or replacing faulty materials, retraining employees, or putting new processes and procedures in place.

What is Quality Assurance?

Quality Assurance (QA) aims to reduce the likelihood of errors occurring in the first place, obviating the need for rework, repair, or rejection.

Quality assurance is the process of ensuring that the appropriate quality systems, methods, and procedures are in place. It is the name given to a collection of documents that demonstrate when and how different quality control systems and procedures are really employed. These documents show that quality management systems exist and that the measures put in place to ensure adherence to the quality policy are effective. (Chung, 1999, p.6)

It is considered by the Project Management Institute to be the management component of quality management in the PMBOK® Guide (2017). The project manager can have the biggest influence on the calibre of his project in this area. To assure and often demonstrate that the scope statement complies with the real requirements of the client, the project manager must implement the administrative processes and procedures required. To guarantee that all stakeholders have faith that the quality activities will be carried out effectively, the project manager must collaborate with his team to decide which methods they will employ. In addition, all pertinent legal and regulatory criteria must be fulfilled.

Examples of Quality Assurance in Construction outline in (Rumane, 2013, p.99) is:

1. Developing and Implementing a Control Plan: This plan explains the precise steps that will be taken to guarantee that all construction work is finished in accordance with the necessary standards. This might entail things like carrying out routine inspections of the work and the materials, evaluating the concrete's strength and durability, and making sure that all the materials used on the project adhere to the necessary requirements.

2. Using materials and Equipment that are certified: Construction businesses frequently utilise certified materials and equipment to guarantee the quality of the finished project. In order to verify that they fulfil the necessary requirements, the materials and equipment have been examined and verified by a third party.
3. Employing qualified Workers: Making sure that every worker on the project can perform their job is a crucial component of quality assurance in construction. This can entail setting minimum experience or certification requirements for employees and offering regular training to keep staff members current on safety regulations and best practises.

The development in Quality Management

Prior to World War II, post-production inspection dominated quality management practises. After World War II, significant advancements in quality management theory and practise were observed. (Howarth and Greenwood, 2018, p.6)

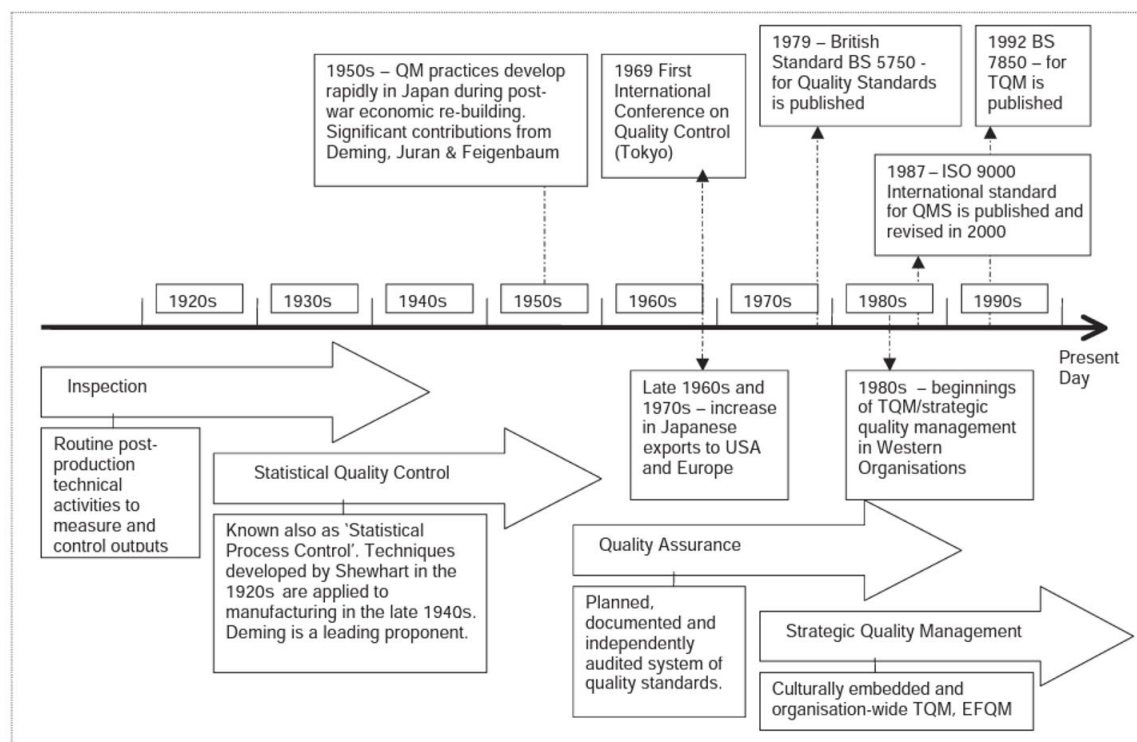


Figure 1 Highlights the key developments in Quality Management practice (Howarth and Greenwood, 2018, p.7)

What is Total Quality Management?

Total quality management is a method of managing an organisation to ensure that the needs and expectations of both internal and external customers, such as shareholders, consumers of its goods and services, employees, and the community in which it operates, are met at every stage by ensuring that processes and each job is executed correctly, the first time, and every time to minimize rework and maximize on profitability.

Total Quality Management requires the entire organization operating as a single unit to achieve customer satisfaction.

W. Edwards Deming, a statistician and management consultant who worked with Japanese manufacturing companies following World War II, is credited with developing the notion of Total Quality Management. The TQM strategy, which stresses continuous improvement, customer satisfaction, and the engagement of all employees in the quality management process, was developed because of Deming's work, which also contributed to raising the standard of Japanese products. Deming is frequently referred to as the "father" of TQM, and his concepts are still widely used today. (Howarth and Greenwood, 2018, p.24)

The Deming theory can be applied to construction in several ways, outlined in (Rumane, 2013, p.12-13):

1. Continuously Improving processes: The Deming quality theory emphasises the value of ongoing process and procedure improvement. To guarantee that processes and procedures are as effective and efficient as feasible in the construction industry, this may entail routinely examining and modifying them.
2. Focusing on the customer: The Deming quality theory places a strong emphasis on the value of comprehending and satisfying customer demands. This can entail working closely with the project owner to comprehend their unique requirements and make sure that every work is finished to their satisfaction in the construction industry.
3. Investing in training and development: The Deming quality theory emphasises the value of supporting employee growth and development. In the field of construction, this can entail offering workers continuing training to keep them current on the best practises and safety regulations as well as possibilities for professional advancement.
4. Encouraging teamwork and collaboration: The Deming quality theory encourages collaborating as a team to accomplish shared objectives. In the context of construction, this can entail fostering cooperation and teamwork among staff, subcontractors, and other stakeholders in order to raise the project's overall calibre.
5. Measuring and tracking performance: The Deming quality theory also highlights the significance of monitoring performance to spot areas that may be improved. This can entail monitoring indicators like project completion rates, safety incident rates, and customer satisfaction levels and using that information to pinpoint areas where the project's quality could be enhanced.

Why does TQM provide better project effectiveness?

The TQM technique is frequently recognized as the ideal strategy to raise the standard of an organization's products and services for a several reasons. First, TQM incorporates every employee in the process of quality improvement, which implies that everyone has a share interest in the organization's success. Employees may have a greater feeling of dedication and ownership as a result, which may be a strong motivator.

Second, TQM places a strong emphasis on using data and statistics to make evidence-based decisions, which helps to guarantee that improvements are founded on facts rather than arbitrary judgments. This may assist in avoiding the implementation of inefficient or erroneous improvement initiatives.

Third, rather to only attempting to solve issues as they emerge, TQM emphasises the ongoing improvement of processes. This proactive strategy can assist in avoiding quality problems before they arise, which can help the business save time and costs.

Overall, since it incorporates all employees, is founded on data and statistical analysis, and emphasises continual development, the TQM strategy is frequently regarded as the finest technique to raise the calibre of an organization's goods or services.

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