

MGMT 8040 Project Procurement and Quality Management - 12 hours (1.2 CEUs)

COURSE OBJECTIVES

After completing this course, students will know:

- What quality is
- What the processes of project quality management are
- Tools and techniques to achieve quality
- What project procurement management is
- What the processes of project procurement management are

PREREQUISITE None

TEXTS

A Guide to the Project Management Body of Knowledge (PMBOK® Guide), 6th Edition, Project Management Institute, 2017

The Team® Handbook, Third Edition, Oriel, 2003

INSTRUCTOR

Module 1

Module Objectives

The objectives of this module are:

- Understand what quality is
- Identify the processes of project quality management
- Understand the Six Sigma steps for improving a process – define, measure, analyze, improve, and control

Reading Assignments

PMBOK® Guide, Chapter 8, Sections 8.1, 8.2

The Team Handbook, Introduction, Chapter 5

Quality

There are many definitions of quality. The definition used in the *PMBOK® Guide* is “the degree to which a set of inherent characteristics fulfills requirements”. The International Organization for Standardization (ISO) defines quality as “all features of a product (or service) which are required by the customer”.

As pointed out in the *PMBOK® Guide*, quality should not be confused with “grade”. Grade denotes the amount of functionality in the product or service. For example, software that is low grade has low functionality, but may be high quality with few bugs. Software that is high grade with high functionality may be low quality with many bugs. An inexpensive house may be high quality, and an expensive house may be low quality.

The Quality Movement

The Introduction to *The Team Handbook* discusses the Quality Movement or Quality Revolution, and mentions two of the leaders in this movement – Dr. Joseph Juran and Dr. W. Edwards Deming. Dr. Juran is best known for his *Quality Control Handbook*, a classic reference for quality managers and engineers. Dr. Deming is best known for his 14 Points, re-printed on p. xxv through xxvi of *The Team Handbook*.

Also prominent in the Quality Movement were two leaders from Japan – Dr. Genichi Taguchi and Dr. Kaoru Ishikawa. Dr. Taguchi is best known for Robust Design and Loss Function. Dr. Ishikawa is known for his work with Quality Circles and the Ishikawa, or Cause-and-Effect (fishbone) Diagram, discussed on p. 4-26 through 4-27 and B-6 of *The Team Handbook*.

Quality Standards

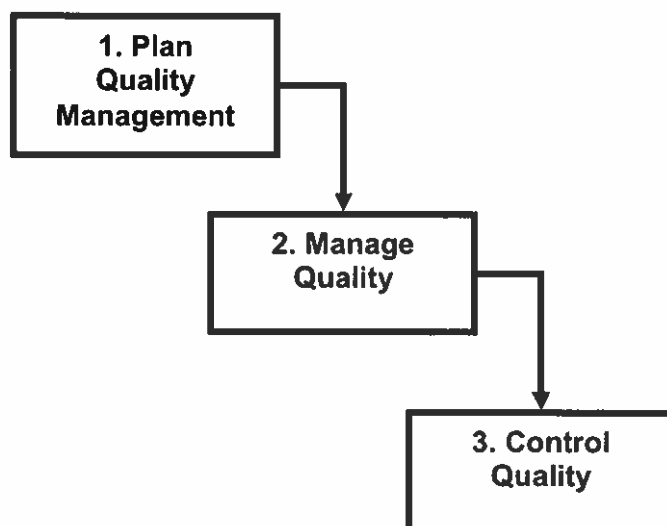
There are many standards for quality related to various products. However, the International Organization for Standardization (ISO) has developed a family of quality standards (ISO

9000) related to how well an organization performs quality management in terms of achieving:

- the customer's quality requirements
- applicable regulatory requirements
- enhanced customer satisfaction
- continual improvement of quality performance

Project Quality Management

The processes of project quality management developed by the Project Management Institute (PMI) are shown in the following figure:



These processes are defined in Chapter 8 of the *PMBOK® Guide* as follows:

1. Plan Quality Management – the process of identifying quality requirements and/or standards for the project and its deliverables, and documenting how the project will demonstrate compliance with quality requirements and/or standards.
2. Manage Quality Assurance – the process of translating the quality management plan into executable quality activities that incorporate the organization's quality policies into the project.
3. Control Quality – the process of monitoring and recording the results of executing the quality management activities to assess performance and ensure the quality outputs are complete, correct, and meet customer expectations.

Figure 8-4 of the *PMBOK® Guide* shows how these project quality management processes relate to other *PMBOK® Guide* processes.

Plan Quality Management

The process of Plan Quality Management identifies which quality requirements and standards will be used on the project. Some of the tools and techniques used in this process may include:

- Cost-benefit analysis – analyzing the benefits of quality on the project, including reduced rework, higher productivity, and higher customer satisfaction, to ensure that the benefits of higher quality are more than the costs of quality
- Costs of quality – the costs of conformance, including prevention and appraisal costs, as well as costs of nonconformance.
- Control charts – a chart to determine if a process is stable and predictable
- Benchmarking – comparing current project practices and methods to other projects, inside or outside of the organization
- Design of experiments – determining the optimal conditions for the product or process
- Statistical sampling – inspecting a random sample to determine quality compliance
- Flowcharting – diagramming a process

Some of the outputs of the Quality Planning process may include:

- Quality Management Plan – how the project team will implement the organization's quality policy on the project. The Quality Management Plan usually is a subset of the overall Project Management Plan, although on larger projects it is sometimes a stand-alone document.
- Quality metrics – what measurements will be made on the project to ensure a quality project or process
- Quality checklists – a structured tool to ensure that required steps have been performed
- Process Improvement Plan – a plan for identifying and improving processes that are used on projects

Manage Quality

The process of Manage Quality ensures that the project uses the appropriate quality policies and standards. Some of the tools and techniques used in this process include:

- Quality planning tools and techniques, including the tools and techniques used for the Plan Quality process
- Quality audits – a structured review to determine if project activities comply with quality policies and procedures
- Process analysis – analyzing the processes that the project is using to identify improvements

As listed in the *PMBOK® Guide*, some of the outputs of the Manage Quality process may include:

- Quality reports, discussed on p. 296 of the *PMBOK® Guide*
- Change requests – recommended actions to improve the processes that the project uses

Process Improvement

As discussed above, many of the changes to improve quality focus on improving the processes that the project uses. The most common process improvement approach used today is called Six Sigma. The term Six Sigma originated from methods used to reduce the variability of processes. However, it has now been developed to become a general method of improving processes in organizations.

The steps involved in Six Sigma are described on p. 5-25 through 5-26 of *The Team Handbook*. The following chart summarizes these steps:

Steps	Objective
• Define • Measure • Analyze • Improve • Control	• Define the purpose and the scope of the process • Gather information on the current situation • Identify causes of the current problems and confirm with data • Develop and implement solutions that address the causes of the problems • Maintain the benefits of the solutions

Summary of Six Sigma Steps

Six Sigma Step 1 – Define

The first step in the Six Sigma process is to define the purpose and scope of the process. The chart on p. 5-26 of *The Team Handbook* lists some of the strategies that can be used in this step. The primary strategies are:

- Identify customer needs
- Localize recurring problems
- Study the use of time
- Describe a process

1. Identify customer needs – the first action in identifying customer needs is to identify the customers. The list of customers should include not only immediate customers but also the eventual consumer or user of the product or service; not only current customers, but former

and potential customers. As stated in p. 5-41 through 5-42 of *The Team Handbook*, after the list of customers has been prepared, the plan for how to gather the information should be formulated.

2. Localize recurring problems – one of the ways that process improvement plans can be developed is to identify recurring problems that occur and assess the impact of these problems on the process. The method of performing this is described in p. 5-45 through 5-46 of *The Team Handbook*.

3. Study the use of time – in any given process, there is time that is productive and there is time spent on non-value-added activities. In order to shorten the amount of time in a process, It is desirable to maximize the productive time and minimize the non-value added time, as discussed in p. 5-43 through 5-44 of *The Team Handbook*.

4. Describe a process – the goal is to define the process as it currently exists. As discussed in p. 5-47 through 5-48 of *The Team Handbook*, this involves setting boundaries on the process and mapping and diagramming the current process. This will enable us to find ways to improve the process.

Module 1 Summary

In Module 1, we learned how to:

- Identify the processes in project quality management
- Implement the first Six Sigma step for improving a process – define

Discussion Postings

Post your discussion posting by the date shown in the Syllabus. Discussion postings must be a minimum of 100 words. In order to obtain full credit, review and comment on a minimum of two other students' discussion postings within two days after the scheduled posting date. Please respond to comments on your discussion postings.

The discussion posting for Module 1 is:

1. What processes/procedures do you use to make sure that deliverables that you accept from other people are of acceptable quality?
2. What processes/procedures do you use to make sure that deliverables that you deliver to other people are of acceptable quality?
3. What improvements in your processes/procedures would you make as a result of what you learned in this module?