

# ICT Project Management

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## Unit 8: Project Quality Management

Project quality management is the process of continually measuring the quality of all activities and taking corrective action until the team achieves the desired quality.

- ✓ Quality management processes help to:
  - ◆ Control the cost of a project
  - ◆ Establish standards to aim for
  - ◆ Determine steps to achieve standards
- ✓ Effective quality management of a project also lowers the risk of product failure or unsatisfied clients.

“Project Quality Management includes the processes for incorporating the organization’s quality policy regarding planning, managing, and controlling project and product quality requirements in order to meet stakeholders’ objectives.”  
- PMBOK

- ✓ Project Quality Management also supports continuous process improvement activities as undertaken on behalf of the performing organization.

**Quality** is what the stakeholder or customer expects from the project deliverables. Meeting the requirements mentioned in the beginning and the expectations set by the customers’ means you are maintaining the quality of the project at hand.

**Quality** is a relative parameter, not absolute. Quality is not exactly an attribute of a project, product, or service. There are various perspectives involved in defining quality – the customers’ perspectives, team’s perspectives, comparison of the project with other projects, and more. So, what’s acceptable for one client may not be for others.

**Grade:** Grade is a category assigned to products that have the same functional use but different technical characteristics. There is a big difference between Quality and Grade. A product can be a high grade (high-end) or a low grade (low-end). It is perfectly acceptable for a product to be a low grade as long as it fulfills its stated requirements.

**Accuracy:** It is an assessment of correctness. Accuracy is how close you are to the true value. For example, let’s say you know your true height is exactly 5’9”. You measure yourself with a yardstick and get 5’0”. Your measurement is not accurate. You measure yourself again with a laser yardstick and get 5’9”. Your measurement is accurate

**Precision:** It is a measure of exactness. Precision is how close two or more measurements are to each other. For example: If you consistently measure your height as 5’0” with a yardstick, your measurements are precise.

## 8.1. Project Quality Management Process

The Project Quality Management processes are:

### 1. Plan Quality Management:

- ✓ 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.
- ✓ This process is concerned with the quality that the work needs to have.

### 2. Manage Quality:

- ✓ Process of translating the quality management plan into executable quality activities that incorporate the organization's quality policies into the project.
- ✓ This process is concerned with managing the quality processes throughout the project. During the Manage Quality process, quality requirements identified during the Plan Quality Management process are turned into test and evaluation instruments, which are then applied during the Control Quality process to verify these quality requirements are met by the project

### 3. Control Quality:

- ✓ Process of monitoring and recording the results of executing the quality management activities to assess performance and ensure the project outputs are complete, correct, and meet customer expectations
- ✓ This process is concerned with comparing the work results with the quality requirements to ensure the result is acceptable.

### Why Quality Management?

- ✓ Quality Product or services
- ✓ Customer Satisfaction
- ✓ Increased productivity
- ✓ Financial gains
- ✓ Reduce the chances of project Failure and Rework
- ✓ Remove Silos
- ✓ Reduces Time and Cost on Future Projects
- ✓ Consistent Improvement

**There are five levels of increasingly effective quality management as follows:**

- ✓ Usually, the most expensive approach is to let the customer find the defects. This approach can lead to warranty issues, recalls, loss of reputation, and rework costs.

- ✓ Detect and correct the defects before the deliverables are sent to the customer as part of the quality control process. The control quality process has related costs, which are mainly the appraisal costs and internal failure costs.
- ✓ Use quality assurance to examine and correct the process itself and not just special defects.
- ✓ Incorporate quality into the planning and designing of the project and product.
- ✓ Create a culture throughout the organization that is aware and committed to quality in processes and products.

## 8.2. Plan Quality Management

- ✓ Plan Quality Management is 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.
- ✓ Quality Management plan provides guidance and direction on how quality will be defined, achieve, control, predict, managed and verified throughout the project.
- ✓ This process is performed once or at predefined points in the project
- ✓ Quality planning should be performed in parallel with the other planning processes

Quality management plan starts with a clear definition of the goal of the project. First, be clear on what the product or deliverable is supposed to accomplish. Then, ask following:

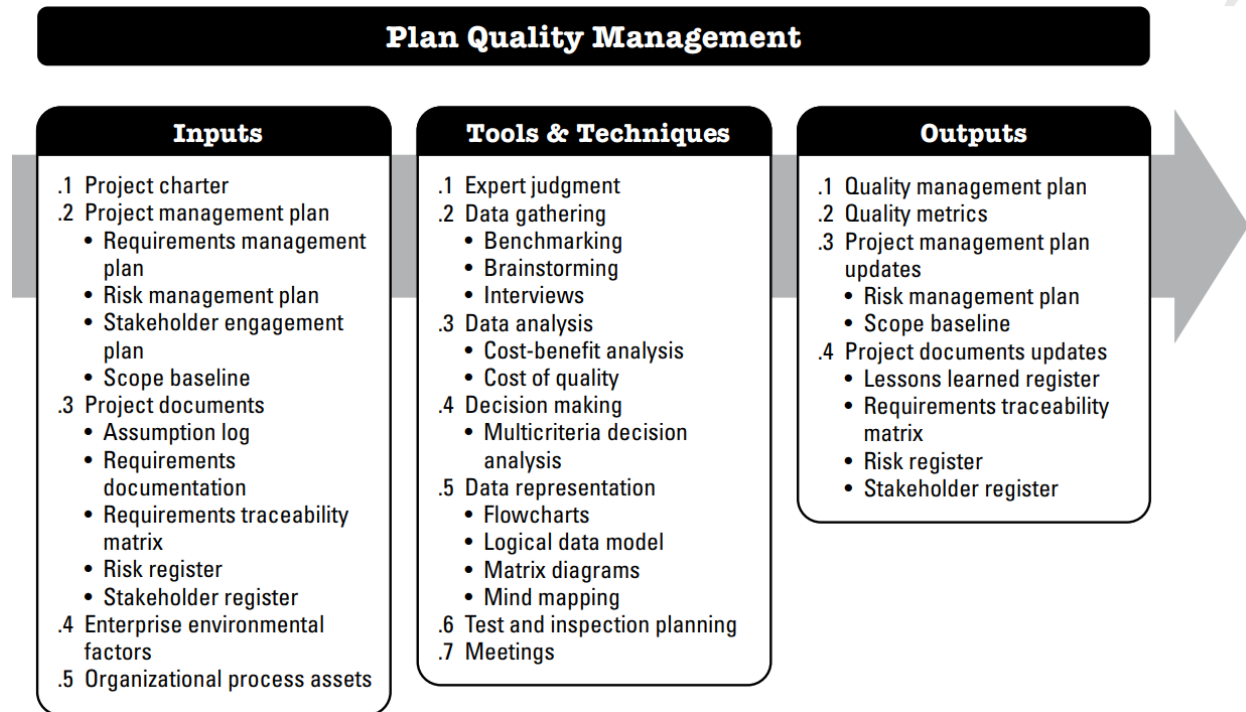
- ❖ What does it look like?
- ❖ What is it supposed to do?
- ❖ How do you measure customer satisfaction?
- ❖ How do you determine whether the project was successful?

Answering these questions and others will help to identify and define quality requirements, allowing to discuss the approach and plans needed to achieve those goals.

### **Plan Quality Management includes,**

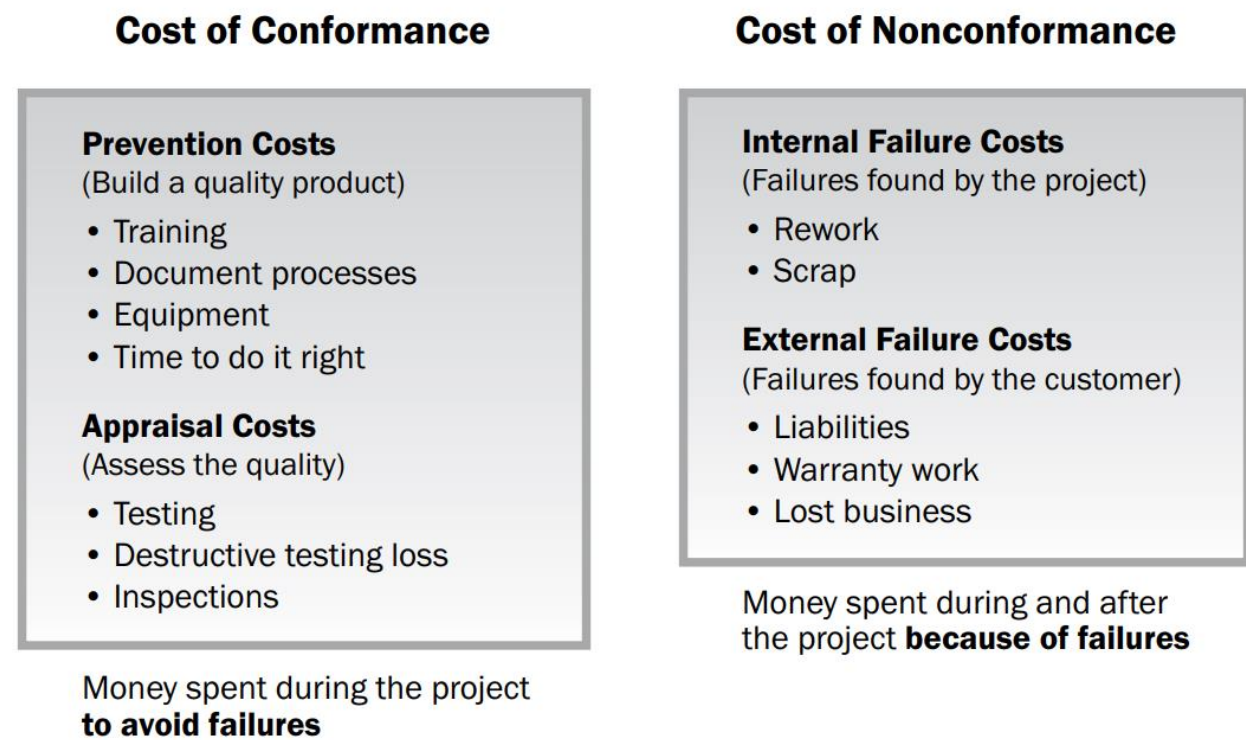
- ✓ Quality standards that will be used by the project;
- ✓ Quality objectives of the project;
- ✓ Quality roles and responsibilities;
- ✓ Project deliverables and processes subject to quality review;
- ✓ Quality control and quality management activities planned for the project;
- ✓ Quality tools that will be used for the project;
- ✓ Major procedures relevant for the project, such as dealing with nonconformance, corrective actions procedures, and continuous improvement procedures

### **Inputs, Tools and Techniques and Outputs of the process: Plan Quality Management**



**Figures:** Inputs, Tools and Techniques and Outputs of the process: Plan Quality Management

**Cost of Quality:** The optimal COQ is one that reflects the appropriate balance for investing in the cost of prevention and appraisal to avoid failure costs.



**Figure:** Cost of Quality

## 8.3. Review of Quality Assurance and Quality Control

**Quality Assurance (QA)** is a planned and systematic way of creating an environment to assure that the software product being developed meets the quality requirements.

- ✓ QA refers to the implementation of well-defined standard practices and methods.
- ✓ It is a pro-active quality process.
- ✓ This process is controlled and determined at managerial level.
- ✓ Quality assurance focuses on the process checklists, process standards, project audits, methodology and procedures for development.
- ✓ It is a preventive process that aims at establishing the correct methodology and standards to provide a quality conducive environment to the product being developed.

**i.e. “QA is part of quality management focused on providing confidence that quality requirements will be fulfilled.”**

Examples of quality assurance activities include process checklists, process standards, process documentation and project audit.

**Quality Control (QC)**, is the set of activities that control the quality of product being developed by identifying any bugs that might be present.

- ✓ Quality control process is a subset that falls under the quality assurance.
- ✓ It is a corrective process.
- ✓ The task of actual testing is performed to find out and identify the bugs present in the product. The bugs are raised to the developers, who then try to fix them. After fixes, the product is verified again such that the functionalities and features are working as required.
- ✓ QC process assures that the product being developed is of the required quality.

**i.e. “QC is part of quality management focused on fulfilling quality requirements”**

Examples of quality control activities include inspection, deliverable peer reviews and the software testing process

**Let’s consider a Software development project,**

The primary difference between quality assurance vs quality control is that the quality assurance activities are conducted during the software development. Quality control activities are performed after the software has been developed.

**Manage Quality is sometimes called quality assurance (QA),**

- ✓ Although Manage Quality has a broader definition than quality assurance as it is used in non-project work.
- ✓ In project management, the focus of quality assurance is on the processes used in the project.
- ✓ Quality assurance is about using project processes effectively.

- ✓ It involves following and meeting standards to assure stakeholders that the final product will meet their needs, expectations, and requirements.
- ✓ Manage Quality includes all the quality assurance activities, and is also concerned with the product design aspects and process improvements.
- ✓ Manage Quality work will fall under the conformance work category in the cost of quality framework

## Quality Assurance vs Quality Control

Quality Assurance	Quality Control
QA is the implementation of processes, methodologies and standards that ensure that the software developed will be up to the required quality standards.	QC is the set of activities that are carried out to verify the developed product meets the required standards.
QA focuses on the improvement of process and methodologies used to develop product.	QC focuses on the improvement of the product by identifying the bugs and issues.
It is process oriented.	It is product oriented.
QA is preventive process as it establishes the methods which prevent the bugs.	QC is corrective process as it focuses on identifying the bugs and getting them fixed.
Quality Assurance is a verification activity that verifies you are doing the right thing in the right manner.	Quality assurance is a validation activity that validates the product against the requirements.
All the persons involved in the project starting from the requirement.	It is the responsibility of Quality Control inspector or the testing team that finds the issues.
Defining Processes, Quality Audit, Selection of Tools, Training.	Defining Processes, Quality Audit, Selection of Tools, Training.

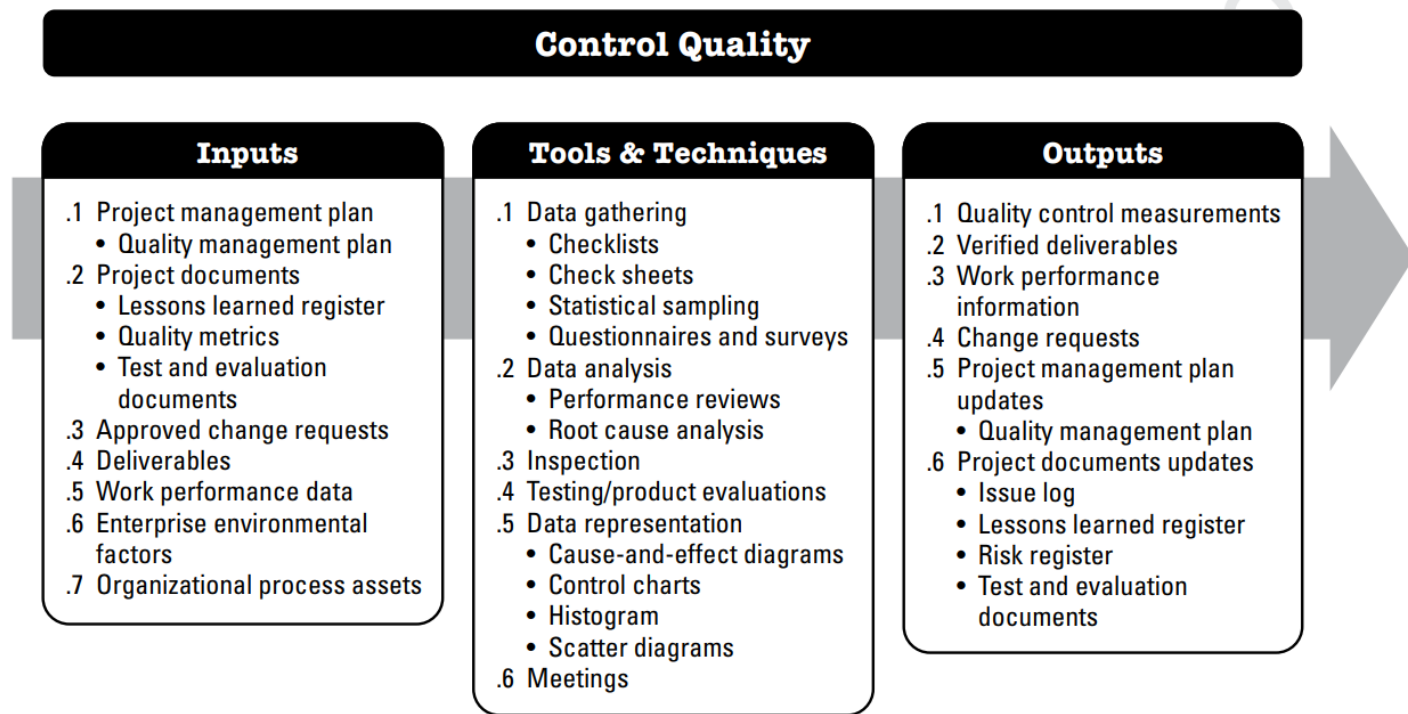
Examples of quality assurance activities include process checklists, process standards, process documentation and project audit.	Examples of quality control activities include inspection, deliverable peer reviews and the software testing process.
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*Note: See Manage Quality in details in A Guide to PMBOK, page no 324 edition: 6<sup>th</sup>*

## Control Quality

- ✓ Control Quality is the process of monitoring and recording results of executing the quality management activities in order to assess performance and ensure the project outputs are complete, correct, and meet customer expectations.
- ✓ The key benefit of this process is verifying that project deliverables and work meet the requirements specified by key stakeholders for final acceptance.
- ✓ The Control Quality process determines if the project outputs do what they were intended to do.
- ✓ Those outputs need to comply with all applicable standards, requirements, regulations, and specifications.
- ✓ This process is performed throughout the project to formally demonstrate, with reliable data, that the sponsor's and/or customer's acceptance criteria have been met.
- ✓ The Control Quality process is performed to measure the completeness, compliance, and fitness for use of a product or service prior to user acceptance and final delivery.
- ✓ This is done by measuring all steps, attributes, and variables used to verify conformance or compliance to the specifications stated during the planning stage.
- ✓ The level of effort to control quality and the degree of implementation may differ between industries and project management styles



**Inputs, Tools and Techniques and Output of the process: Control Quality****Figure:** Inputs, Tools and Techniques and Output of the process: Control Quality**\*\*End of Unit 8\*\***