

# Project Quality Management

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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.

# Processes of project quality management

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# 1. Plan quality management

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- 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.
- **Key benefit:** provides guidance and direction on how quality will be managed and verified throughout the project.

# Plan quality management- Overview

## Plan Quality Management

Inputs	Tools & Techniques	Outputs
<ul style="list-style-type: none"><li>.1 Project charter</li><li>.2 Project management plan<ul style="list-style-type: none"><li>• Requirements management plan</li><li>• Risk management plan</li><li>• Stakeholder engagement plan</li><li>• Scope baseline</li></ul></li><li>.3 Project documents<ul style="list-style-type: none"><li>• Assumption log</li><li>• Requirements documentation</li><li>• Requirements traceability matrix</li><li>• Risk register</li><li>• Stakeholder register</li></ul></li><li>.4 Enterprise environmental factors</li><li>.5 Organizational process assets</li></ul>	<ul style="list-style-type: none"><li>.1 Expert judgment</li><li>.2 Data gathering<ul style="list-style-type: none"><li>• Benchmarking</li><li>• Brainstorming</li><li>• Interviews</li></ul></li><li>.3 Data analysis<ul style="list-style-type: none"><li>• Cost-benefit analysis</li><li>• Cost of quality</li></ul></li><li>.4 Decision making<ul style="list-style-type: none"><li>• Multicriteria decision analysis</li></ul></li><li>.5 Data representation<ul style="list-style-type: none"><li>• Flowcharts</li><li>• Logical data model</li><li>• Matrix diagrams</li><li>• Mind mapping</li></ul></li><li>.6 Test and inspection planning</li><li>.7 Meetings</li></ul>	<ul style="list-style-type: none"><li>.1 Quality management plan</li><li>.2 Quality metrics</li><li>.3 Project management plan updates<ul style="list-style-type: none"><li>• Risk management plan</li><li>• Scope baseline</li></ul></li><li>.4 Project documents updates<ul style="list-style-type: none"><li>• Lessons learned register</li><li>• Requirements traceability matrix</li><li>• Risk register</li><li>• Stakeholder register</li></ul></li></ul>

# Outputs

1. **Quality management plan** – It is a component of the project management plan that describes how applicable policies, procedures, and guidelines will be implemented to achieve the quality objectives.

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It describes the activities and resources necessary for the project management team to achieve the quality objectives set for the project.

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

# Outputs

2. **Quality metric** - describes a project or product attribute and how the Control Quality process will verify compliance to it.

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**examples of quality metrics:**

- percentage of tasks completed on time
- cost performance
- failure rate
- number of defects identified per day
- total downtime per month
- errors found per line of code
- customer satisfaction scores

# 2. Manage quality

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- Process of translating the quality management plan into executable quality activities that incorporate the organization's quality policies into the project.
- **Key benefit:** it increases the probability of meeting the quality objectives as well as identifying ineffective processes and causes of poor quality.

# Manage quality- Overview

Manage Quality		
Inputs	Tools & Techniques	Outputs
<ul style="list-style-type: none"><li>.1 Project management plan<ul style="list-style-type: none"><li>• Quality management plan</li></ul></li><li>.2 Project documents<ul style="list-style-type: none"><li>• Lessons learned register</li><li>• Quality control measurements</li><li>• Quality metrics</li><li>• Risk report</li></ul></li><li>.3 Organizational process assets</li></ul>	<ul style="list-style-type: none"><li>.1 Data gathering<ul style="list-style-type: none"><li>• Checklists</li></ul></li><li>.2 Data analysis<ul style="list-style-type: none"><li>• Alternatives analysis</li><li>• Document analysis</li><li>• Process analysis</li><li>• Root cause analysis</li></ul></li><li>.3 Decision making<ul style="list-style-type: none"><li>• Multicriteria decision analysis</li></ul></li><li>.4 Data representation<ul style="list-style-type: none"><li>• Affinity diagrams</li><li>• Cause-and-effect diagrams</li><li>• Flowcharts</li><li>• Histograms</li><li>• Matrix diagrams</li><li>• Scatter diagrams</li></ul></li><li>.5 Audits</li><li>.6 Design for X</li><li>.7 Problem solving</li><li>.8 Quality improvement methods</li></ul>	<ul style="list-style-type: none"><li>.1 Quality reports</li><li>.2 Test and evaluation documents</li><li>.3 Change requests</li><li>.4 Project management plan updates<ul style="list-style-type: none"><li>• Quality management plan</li><li>• Scope baseline</li><li>• Schedule baseline</li><li>• Cost baseline</li></ul></li><li>.5 Project documents updates<ul style="list-style-type: none"><li>• Issue log</li><li>• Lessons learned register</li><li>• Risk register</li></ul></li></ul>

# Tools and Techniques

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## 1. Audit

- An audit is a **structured, independent process used to determine if project activities comply with organizational and project policies, processes, and procedures.**
- A quality audit is usually **conducted by a team external to the project**, such as the organization's internal audit department, PMO, or by an auditor external to the organization.
- Quality audit objectives may include but are not limited to:
  - i. Identifying all good and best practices being implemented
  - ii. Identifying all nonconformity, gaps, and shortcomings

# Tools and Techniques

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## 2. Design for excellence

- Design for excellence (Design for X, DfX) is a set of technical guidelines that may be applied during the design of a product for the optimization of a specific aspect of the design.
- DfX can control or even improve the product's final characteristics.
- Ex: Design for Reliability (DfR), Design for Safety (DfS), Design for Cost (DfC)

# Outputs

## Quality report

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- Quality reports can be graphical, numerical, or qualitative.
- The information provided can be used by other processes and departments to take corrective actions in order to achieve the project quality expectations.

# 3. Control quality

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- 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.
- **Key benefit:** verifying that project deliverables and work meet the requirements specified by key stakeholders for final acceptance