PMI-CAPM®
Certified Associate Project Manager

5. Quality

3 Processes

Quality - Table of contents

Processes

Definitions & Notes

1. Plan Quality Management

Determine quality requirements and how to fulfil them

⇒ the plan will establishes how an organization's quality policies, methodologies, and standards will be implemented in the project.

Planning

Plan Quality Management

Input

- Scope Baseline
- Stakeholders Engagement Plan
- Stakeholders Register
- List of deliverables
- Risk Threshold
- Approval requirement
- Assumption Log
- Requirement Traceability Matrix
- EEFs
- OPAs

T&Tools

- Expert judgment
- Data Gathering
  - Brainstorming & Benchmarking
- Decision Making
- Data Analysis
  - Cost-Benefit Analysis
  - Cost of Quality (COQ)
- Data Analysis
  - Logical data models
  - Matrix diagram
  - Mind Mapping
  - Flowcharts
- Test & Inspection
- Meetings

Output

- Quality Management Plan
- Quality metrics
- Project Management Plan updates
- Project documents updates

2. Manage Quality

Quality action to perform

Quality plan

Executing

Manage Quality

Input

- Project Management Plan
  - Quality Management Plan
- Project Documents
  - Quality metrics
  - Quality control measurements
  - Lesson Learned Register
  - Risk Report

T&Tools

- Data Gathering
  - Checklists
- Decision Making
  - Multicriteria decision analysis
- Data Analysis
  - Document Analysis
  - Alternative Analysis
  - Process Analysis
  - Root Cause Analysis
- Audits
- Design for X
- Problem solving
- Quality improvement methods
- Data Representation
  - Affinity Diagrams
  - Matrix Diagrams
  - Cause-and-effect Diagrams
  - Flowcharts and Histograms
  - Scatter Diagrams

Output

- Quality reports
- Test and evaluation documents
- Change requests
- Project management plan updates
- Project documents updates

3. Control Quality

Monitor quality activities performance

Monitor & Control

Control Quality

Input

- Deliverables
- Work Performance Data
- Project Documents
  - Lesson Learned Register
  - Test & Evaluation documents
  - Quality Metrics
- EEFs
- OPAs
  - Quality templates

T&Tools

- Data Representation
  - Control Charts
  - Scatter Diagrams
  - Cause-and-effect diagrams
  - Histograms
- Data Gathering
  - Checklists
  - Checksheets
  - Statistical Sampling
  - Question & Surveys
- Data Analysis
  - Performance Reviews
  - Root Cause Analysis
- Meetings
- Inspections

Output

- Quality Control measurements
- Verified Deliverables
- Change Requests
- Work performance information
- Project management plan updates
- Project documents updates

What is Quality?

Quality is the degree to which the project fulfills requirements.

Examples of quality metrics: percentage of tasks completed on time, cost performance measured by CPI, failure rate, number of defects identified per day, total downtime per month, and customer satisfaction scores.

KA: Quality

What are Quality Metrics?

Quality metrics describes a product or project attribute and **how** the **Control Quality process will measure it**.

Output of Plan Quality Management process.

Exemples

- Percentage of tasks completed on time
- Cost performance measured by CPI
- Failure rate
- Number of defects identified per day
- Total downtime per month
- Customer satisfaction scores

KA: Quality

What is Quality Assurance?

Quality Assurance is the process of **implementing the planned acts** and processes defined in the Project Quality Management Plan.

KA: Quality

What is Cost of Quality (COQ)?

Cost of quality (COQ) is a methodology that allows an organization to determine the extent to which its resources are used for activities that prevent poor quality, that appraise the quality of the organization's products or services, and that result from internal and external failures.

KA: Quality

Which are the 7 Basic Quality Tools?

- **Flowcharts**: Provides visual representations of project processes. Displays the sequence of steps and the branching possibilities that exist that transform one or more inputs into one or more outputs.
- **Check Sheet**: Tally sheets that are used to gather data. Useful for tallying how often a problem occurs.
- **Pareto Diagram**: Chart that consists of a vertical bar and sometimes a bar-and-line graph. A vertical bar represents **the frequency of defects** from most to least, and the line represents a cumulative percentage of the defects.
- **Histogram Chart**: A bar graph that illustrates the frequency of an event occurring using the height of the bar as an indicator.
- **Control Chart**: A graphic display of process data over time and against established control limits that has a centerline that assists in detecting a trend of plotted values toward either control limit.
- **Scatter Diagram**: Analyzes the relationship between two variables.
- **SIPOC (Suppliers, Inputs, Process, Outputs, Customers)**: Visual diagram tool for documenting a business process from beginning to end. Requirements and feedback loop used in S, P, and C.

What about Control Chart?

Control Chart is used to determine **whether or not a process is stable** or has predictable performance.

The **range on a control chart** is usually calculated based on **-3 or +3 sigma**.

- A process is considered **out of control** when the control chart's data points are outside of the upper and lower control limits.
- A process is considered **in control** when the control chart's data points are within the upper and lower control limits.

What's included

- Upper control limit
- Lower control limit
- Assignable cause
- Out of control, normal and expected variation
- Rule of seven
- Specification limits
- Three sigma
- Six sigma
- Normal distribution curve

KA: Quality

What is Design for X?

Design for X is a set of **technical guidelines** that may be applied during the design phase for the **optimization** of a specific aspect of the design.

Design for X is T&Tool used in Manage Quality process

KA: Quality

What is the difference between… ?

Quality Audit

Audits can determine if work activities conform to policies and procedures set forth in the project planning.

VS

Deliverable Inspection

Inspections assess the quality of a particular deliverable, not adherence to requirements and standards.

VS

Root Cause Analysis

It refers to an analytical technique which determines the reasons for the occurrence of a problem.

…and **Quality Control Measurements** is a project document that evaluates a project against standards or requirements

KA: Quality

What is the difference between… ?

Verified Deliverables

⇒ Output of **Control Quality**

⇒ Verified by internal processes

VS

Accepted Deliverables

Output of **Validate Scope**

⇒ Only deliverables verified can enter this step!

⇒ Verified (and accepted) by the customer

KA: Quality

Annalisa Cecchini

https://annalisacecchini.com/

annalisacecchini.dev@gmail.com

0039 349 251 23 35

THANK YOU