Chapter 8

Quality Management

Introduction

Quality Management is making sure that the needs of the project are satisfied. Quality management requires coordination of all activities required to meet the products quality policy and the quality objectives.

Quality Management Plan can be:

Formal or informal and it is part of the Project plan

Processes in Quality Management

1) Quality Planning - Identifying the standards that are relevant to the project and satisfying them

2) Quality Assurance - Evaluating overall project performance to provide confidence in the quality plan

3) Quality Control - Monitoring specific project results

Practical Tips

- Quality standards MUST be established from the beginning of the project
- Quality planning involves identifying the quality standards relevant to the project and satisfying them.
- If the organization does not have a quality standard, it is the Project managers' responsibility to facilitate the creation of a quality standard
- If quality standards are not met, the consequences can have negative impact e.g. low morale, increased risk etc
- Note that everyone is responsible for Quality but the project manager and the project team have the primary responsibility for quality.

QUALITY MANAGEMENT PROCESSES

- Quality Planning
- Quality Assurance
- Quality Control

QUALITY STANDARDS

- ISO 9000/10000
- Six sigma
- Total Quality Management (TQM)
- Deming/Juran/Crosby

SIGMA VALUES

- +/-1 sigma=68.73%
- +/-2 sigma=95.46%
- +/-3 sigma=99.73%
- +/-6 sigma=99.99%

FORMULAS

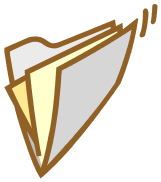
- PERT= (P-O)/6
- PERT= (O+4M+P)/6
- P= Pessimistic
  O=Optimistic
  M= Most likely estimate

Quality Management Processes

	Quality Planning *(Done in the Planning phase)*	**Quality Assurance** *(Done in the Execution phase)*	**Quality Control** *(Done in the Controlling phase)*
How to distinguish between the different Quality Management processes	In Quality Planning, the project team will determine <u>how</u> they will maintain quality. They have to review all the Quality policies, Standards and regulations, Industry standards (benchmarking) to come up with a proactive Quality Plan. So there has to be a plan in place before the product is developed	In Quality Assurance, the Quality plan is already in place but the team has to <u>Audit</u> (tool) the Quality plan to be <u>confident</u> that the plan is still viable and still meets the standards for which it was created.	In Quality Control we look at the Quality of the end product i.e. the output which is measured against the Quality criteria set.
Note *Hints for remembering Outputs*	Once the definition of Quality Planning is understood, then it is easy to remember that the major output of Quality Planning is the **Quality Plan (output)**	The buzz words in Quality Assurance are: **Audit**, **Confidence and Improvement**. Once the quality standards are audited, then there will be a need for **Quality Improvement (output).**	After evaluation of the project outputs, **Rework and Acceptance decisions (outputs)** may be required.
Test Tips In order to answer Quality test questions, you MUST be able to distinguish which process the question is referring to.	If the question says that the team is trying to determine which Quality standards to use, then the question is referring to the Quality Planning process.	If a question refers to the project team <u>reassuring</u> the client that the Quality process they have established is accurate, then more than likely the question is referring to the Quality Assurance process. Always look for the "key word" for instance the key word is <u>reassure</u> or <u>confidence</u>	If a question refers to checking the quality of an <u>output</u> then the question is referring to the Quality Control process.

Quality Planning

Quality Planning: Identifying the standards that are relevant to the project and satisfying them

Inputs	*Tools & Techniques*	*Outputs*
		
Quality Policy	Benefit/Cost Analysis	Quality Management Plan
Scope Statement	Benchmarking	Checklists
Product Description	Flow Charting	Operational Definitions
Standards/Regulations	Design of Experiments	

Definitions

Benefit/Cost Analysis: Reviewing the cost of implementing the Quality Standards and measuring it against the benefits of having quality products i.e. Benefit to Cost ratio (BCR).

Benchmarking: Reviewing historical records of similar projects to get ideas e.g. reviewing publications for information on a particular technology to get a better understanding of the benefits

Flow Charting: Creating a graphic representation of the process flow

Design of Experiments: Performing various tests and experiments to determine the final end product e.g. painting a product red and trying it in blue to see which color looks better

Quality Management Plan: The quality management plan addresses all the factors affecting quality i.e.quality control, quality assurance, quality improvements

Checklists: The checklist shows a list of required actions or steps, it is basically a "to do" list

Operational Definitions: Detailed definition and description of quality process that describes the extent to which quality will be tracked

Key Terms & Definitions

- Grade: Levels of quality e.g. The difference between a Mercedes Benz and a Toyota. Both products are good they just have different grades.
- Quality: Satisfying the needs for which the project was intended
- Quality Policy: The formal Quality standard that the company has adopted
- Control Charts: A chart that shows the defects over a period of time.
- Cost of Quality: The price paid due to lack of quality e.g. the cost of rework, returns etc. Remember Quality is planned in not inspected. Cost of quality also includes cost required to prevent defects e.g. inspections etc
- Gold Plating/Scope Creep: Adding a feature to the end product which is not part of the initial specification, neither is a customer request
- Probability : The likelihood that a particular event may occur due to certain circumstances
- Standard Deviation: How close to the mean i.e. the accuracy of the end product when compared to perfection
- Six Sigma: A quality standard used by industries to determine the level of quality of a product
- Cost of Conformance: The price paid to institute quality standards e.g. testing
- Statistical Independence: The probability of one event occurring does not affect the probability of another event occurring
- Mutually Exclusive:
- ISO: International Organization for Standardization
- Total Quality management (TQM): Implementation of a quality improvement program

Notes