

Project Quality Management

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What is Project Quality Management?

- Completing a project on time and within cost, loses importance if Quality is not attained
- Since rework, condemnation and accidents may be the results, which ultimately leads to delays and cost overruns
- Project Quality Management is designed to assure the attainment of Quality.

“do the right things the first time”

“quality is never an accident, it is the result of intelligent effort”

- **Project Quality Management includes** the processes and activities of the performing organization that:
 - **determine quality policies, objectives, and responsibilities**
 - so that the project will satisfy the needs for which it was undertaken.
- It **supports continuous process improvement** activities as undertaken on behalf of the performing organization.
- Project Quality Management works to ensure that the project requirements, including product requirements, are met and validated

Understanding Quality

- Fitness for use
- Compliance with requirements
- Conformance
- Performance
- Reliability
- Durability

GAP Model

- It recognises five major areas where quality gaps can occur between expectations and reality:
 - Customer expectations and manager expectations
 - Management perceptions of what is required and what is actually delivered
 - Documented quality levels and actual delivered quality levels
 - Level of quality promised and level of quality delivered
 - Customers expectations and perceptions

Quality Management Planning

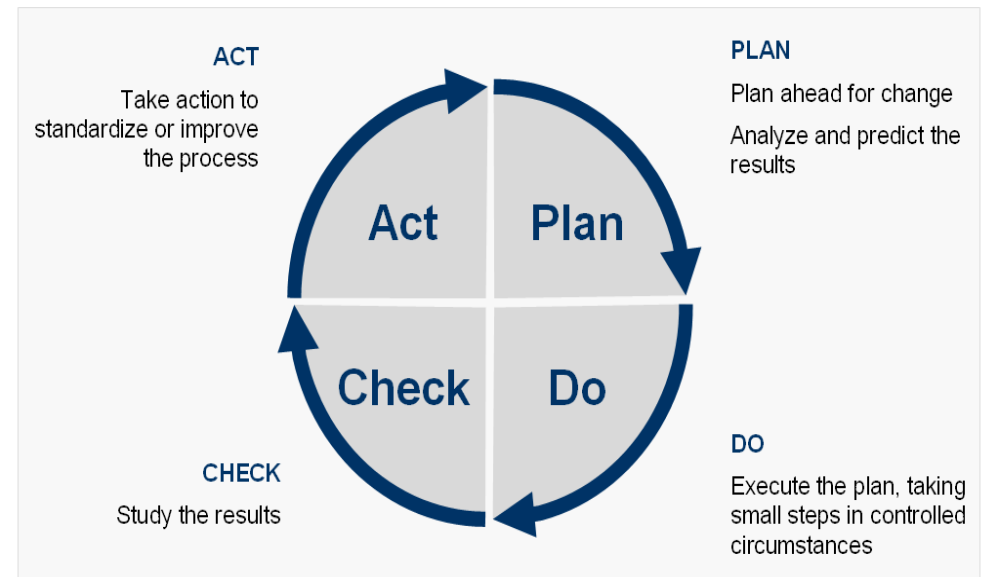
- To achieve quality requires a clear definition of function, performance objectives and Design
- Translation of the requirements into drawings, procedures and instructions
- Therefore, it is the process of identifying:
 - quality requirements and/or standards for the project and its deliverables,
 - and documenting how the project will demonstrate compliance with relevant quality requirements.
- As such, it provides guidance and direction on how quality will be managed and validated throughout the project.

Quality Management Frameworks

- PDCA cycle
- ISO 9000:2015
- PMI Quality Management Processes

PDCA Cycle

- Developed by Deming
- Create vision and demonstrate commitment
- Learn the philosophy of quality – meeting customer satisfaction levels
- Understand inspection
- Don't make decisions purely on cost
- Improve constantly and forever



ISO 9000:2015

- ISO 9001:2015 specifies requirements for a quality management system when an organization:
 - a) needs to demonstrate its ability to consistently provide products and services that meet customer and applicable statutory and regulatory requirements, and
 - b) aims to enhance customer satisfaction through the effective application of the system, including processes for improvement of the system and the assurance of conformity to customer and applicable statutory and regulatory requirements

ISO 9000:2015 Structure

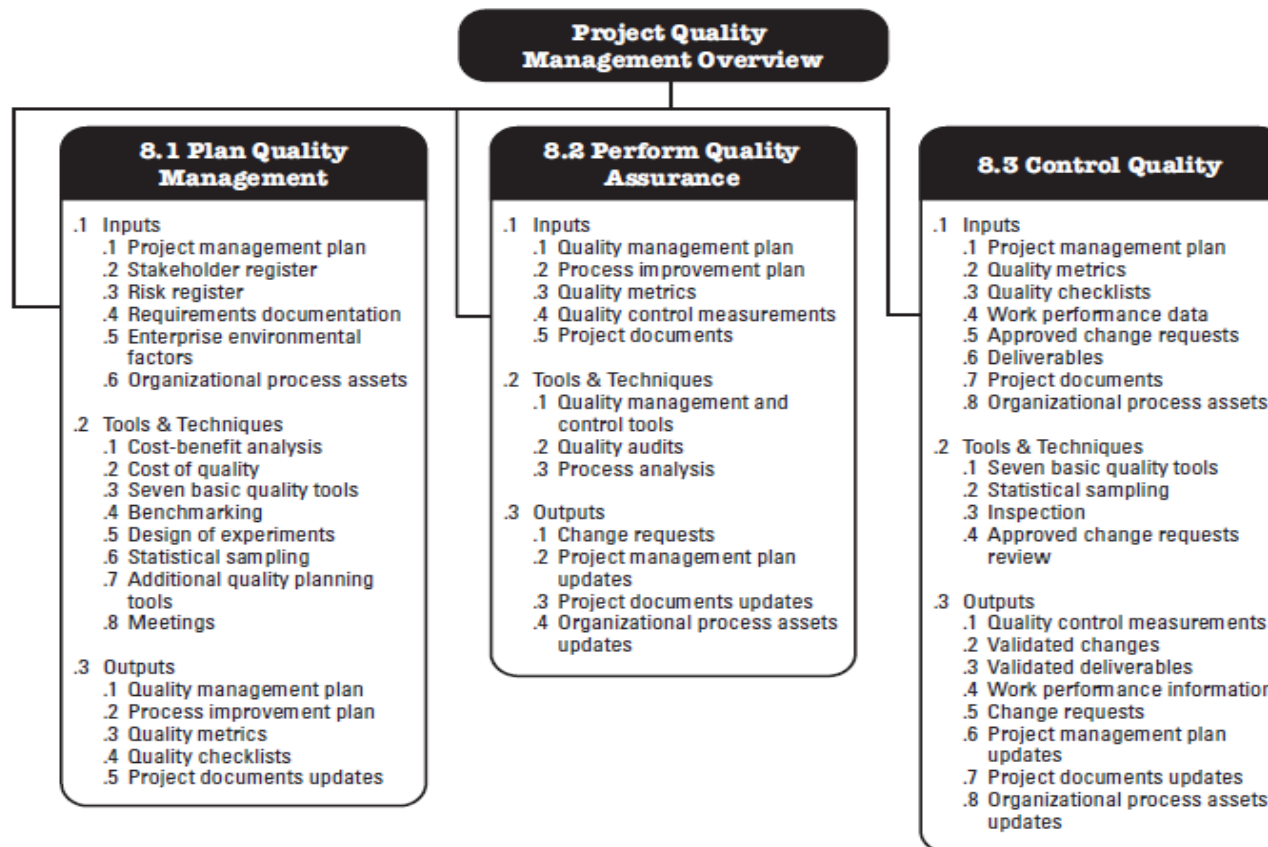
- Clause 0-3 – Introduction and scope of the standard
- Clause 4 – Context of the organization
- Clause 5 – Leadership
- Clause 6 – Planning
- Clause 7 – Support
- Clause 8 – Operation
- Clause 9 – Performance evaluation
- Clause 10 – Improvement

Representation of the structure of ISO 9001:2015 Standard in the PDCA cycle



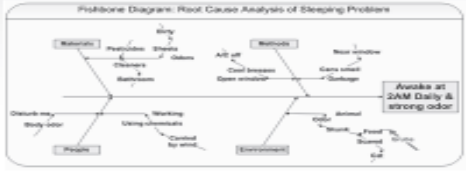
Reference: ISO 9001:2015 Figure 2

PMI Quality Management Processes



Quality Control Tools- 7QC Tools

Cause & Effect Diagram



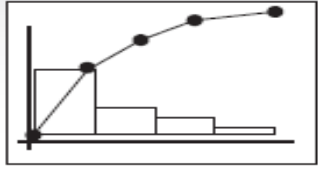
Flowcharts



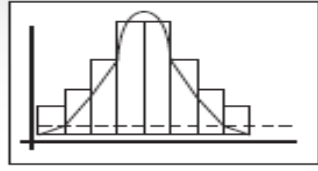
Checksheets

Category	Strokes	Frequency
Attribute 1		
Attribute 2		
Attribute ..		
Attribute n		

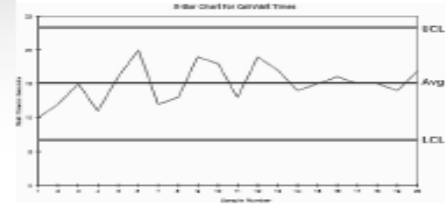
Pareto Diagrams



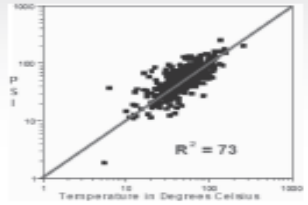
Histograms



Control Charts



Scatter Diagrams

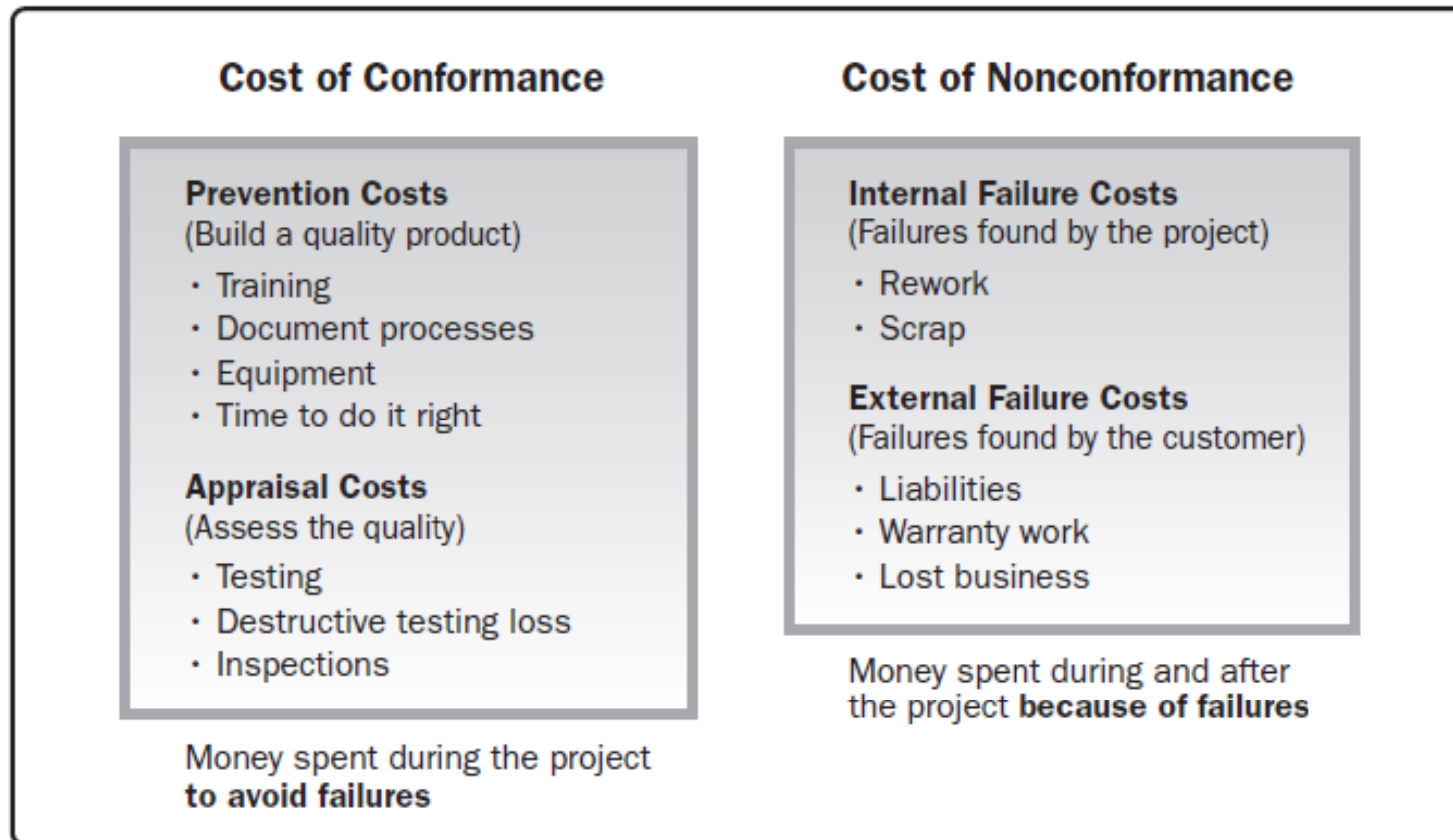


Other Control Tools

- **Benchmarking**- involves comparing actual or planned project practices to those of comparable projects to identify best practices, generate ideas for improvement, and provide a basis for measuring performance
- **Design of Experiments**- statistical method for identifying which factors may influence specific variables of a product or process under development or in production. DOE may be used during the Plan Quality Management process to determine the number and type of tests and their impact on cost of quality.

- **Inspection-** is the examination of a work product to determine if it conforms to documented standards.
- The results of an inspection generally include measurements and may be conducted at any level.
- For example, the results of a single activity can be inspected, or the final product of the project can be inspected.
- Inspections may be called reviews, peer reviews, audits, or walkthroughs. In some application areas, these terms have narrow and specific meanings.
- Inspections also are used to validate defect repairs.

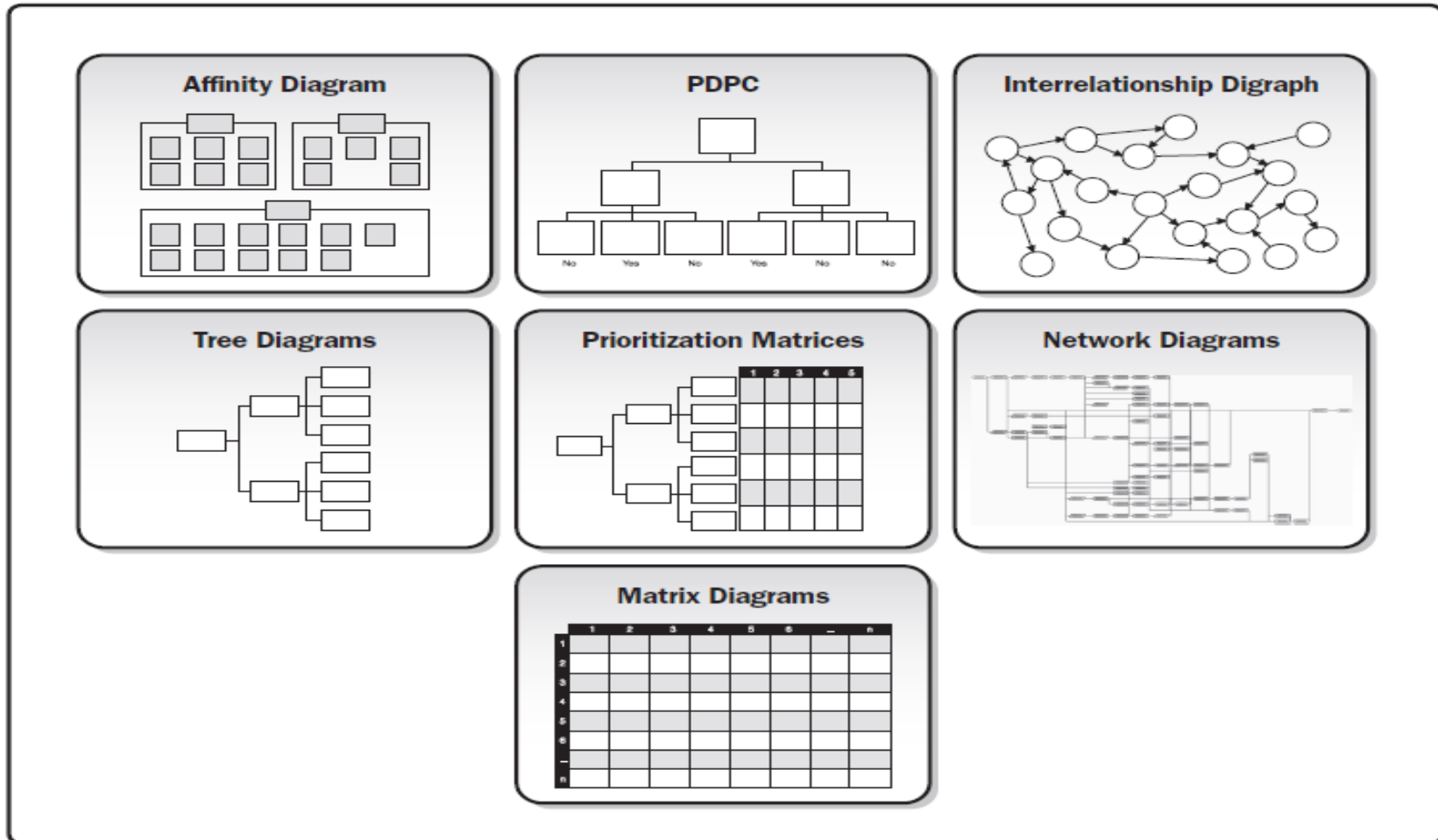
Cost of Quality



Quality Assurance

- Quality Assurance is the process of:
 - auditing the quality requirements
 - and the results from quality control measurements
 - to ensure that appropriate quality standards and operational definitions are used.
- The key benefit of this process is that it facilitates the improvement of quality processes.
- Seeks to build confidence that a future output will be completed in a manner that meets the specified requirements and expectations.
- Preventing defects through the planning processes or by inspecting out defects during the work-in-progress stage of implementation

Quality Assurance Tools



BMW Quality Management

<https://www.youtube.com/watch?v=TiuaFwzJ4FU>



Useful Reading

- http://daaam.info/Downloads/Pdfs/science_books_pdfs/2012/Sc_Book_2012-051.pdf
- https://primo.anglia.ac.uk/primo-explore/fulldisplay?docid=TN_proquest1669885272&context=PC&vid=ANG_VU1&search_scope=CSCOP_APU_DEEP&tab=default_tab&lang=en_US