PROJECT MANAGEMENT FOR PROJECT MANAGERS

Lesson 5: Project Quality Management

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5.1: Definition

Project Quality Management is…

managing all the **ACTIVITY** of the performing organization that determines **quality policies**, **objectives and responsibilities**, so that the project will **satisfy the needs** for which it was undertaken.

5.1.1: JKR Quality Policy

5.3 DASAR KUALITI JKR

Pengurusan Atasan JKR telah menggubal Dasar Kualiti seperti berikut:

"JKR komited bagi menghasilkan produk berkualiti yang memenuhi kepuasan pelanggannya berasaskan amalan profesionalisme yang terbaik.

JKR akan memastikan penambahbaikan yang berterusan dilaksanakan ke atas Sistem Pengurusan Kualiti"

Pengurusan Atasan JKR akan memastikan Dasar Kualiti sentiasa:

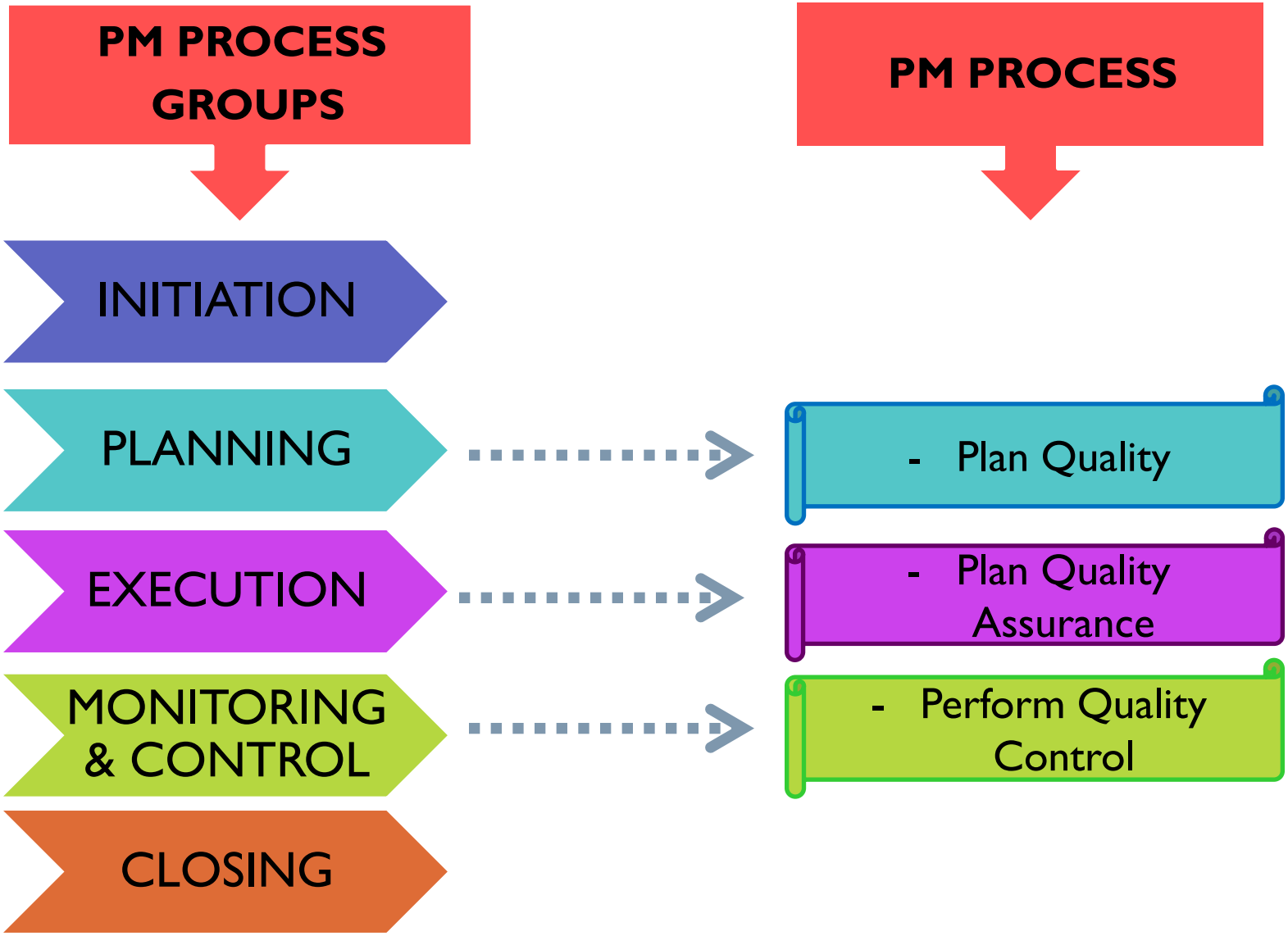
a) Bersesuaian dengan fungsi dan halatuju JKR,

b) Dijadikan agenda Kajian Semula Pengurusan untuk meningkatkan keberkesanannya dan menjaminkan kesesuaiannya secara berterusan,

c) Difahami dan dihayati oleh semua staf JKR, dan

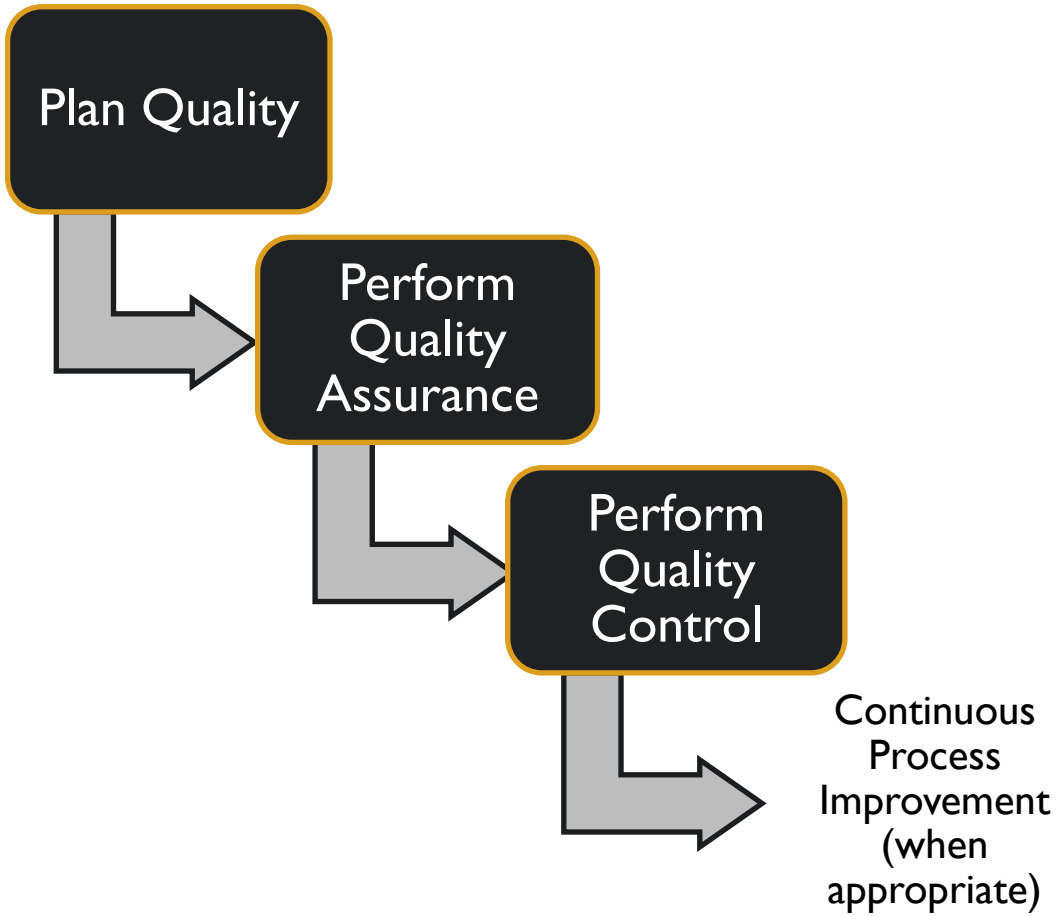
d) Dijadikan asas dalam mewujudkan dan mengkaji semula Objektif Kualiti.

5.2: Project Quality Management Processes



……Project Quality Management Processes

- Implements the quality management system through the policy, procedures and processes of:



5.4: Plan Quality

- **Definition:** Identifying quality standards and/or requirements for the project and documenting how to satisfy them.
- Reflected in the document, the “Quality Plan”.
  - Q-Plan, D-Plan, C-Plan (including ITP).

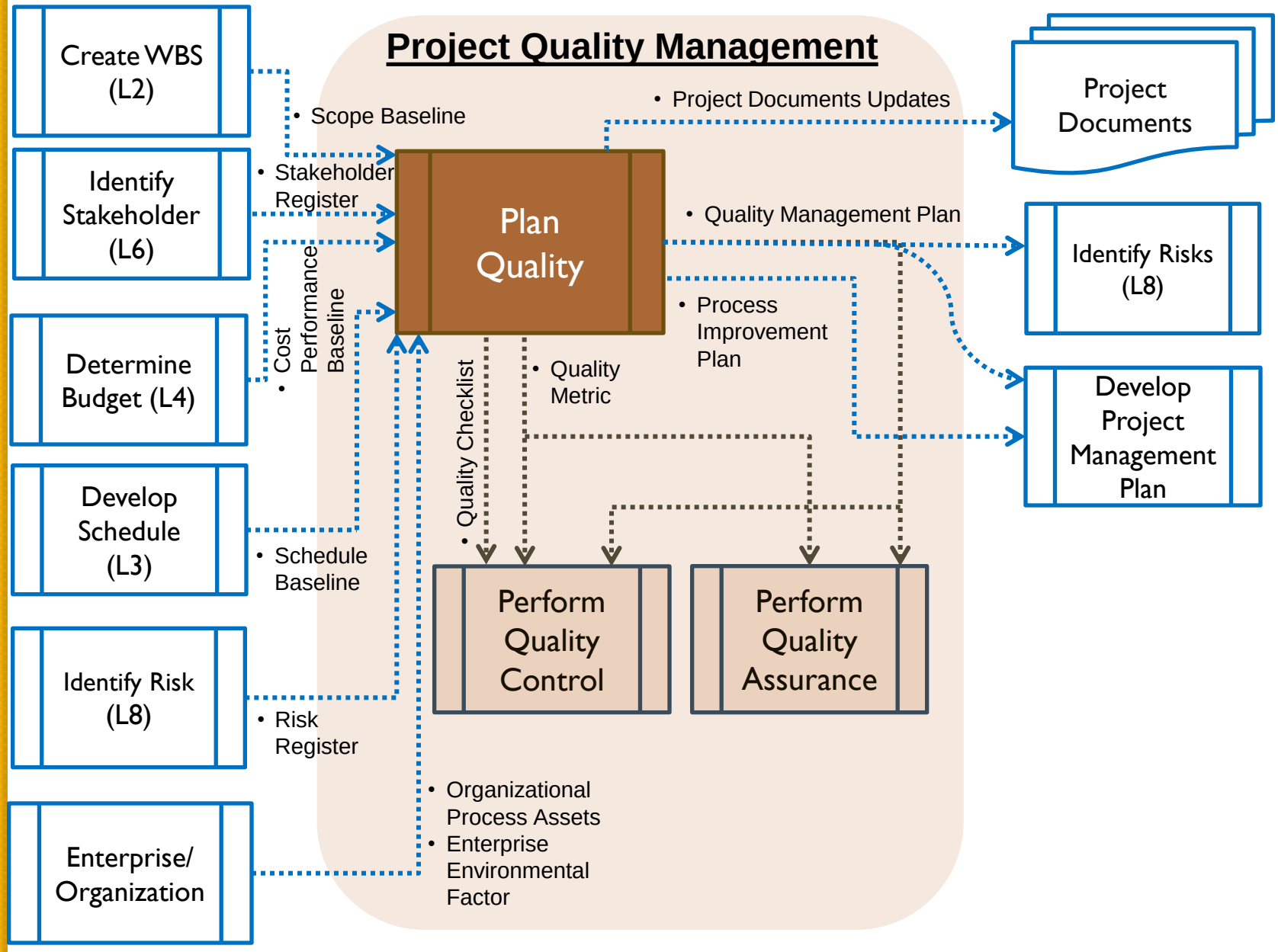
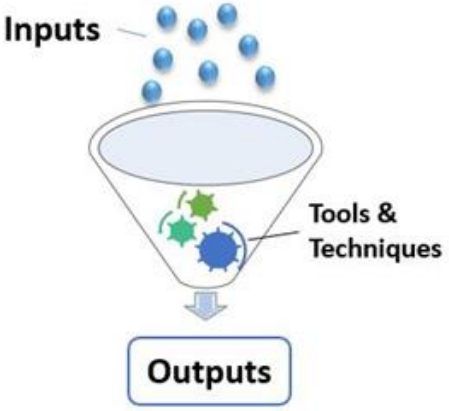


Figure 5.1: Plan Quality Data Flow Diagram

5.4.1 Inputs

- **Input:**
  - Scope baseline; project description, deliverables and acceptance criteria.
  - Schedule baseline, stakeholder register, risk register.
  - Organizational process assets; quality system (JKR's SPB), guidelines, databases and lesson learned.
  - Environment factors; e.g. local authority regulations, environmental requirements, wild life protection, and working or operating conditions of the project.



5.4.2: Tools & Techniques

- **Tools and techniques:**
  1. ***Cost-benefit analysis*** – for meeting quality requirements.
     - Cost – expenses associated with implementing quality management activities. E.g. Inspection, testing, auditing, training & survey.
     - Benefit – benefits associated with implementing quality management activities. E.g. Less rework, lower costs, higher productivity & increased stakeholder satisfaction.
     - Example for cost benefit analysis , e.g.:
       - Feasibility study
       - Value management
       - Life cycle cost

……Tools & Techniques (Cont.)

2. ***Benchmarking*** **–** comparing project practices to those of comparable projects to identify best practices, generate ideas for improvement, and provide a basis for measuring performance.
   - ❑ Example how to do benchmarking :
     - POE (Post Occupancy Evaluation)
     - LCC (Life Cycle Cost)

……Tools & Techniques (Cont.)

3. ***Design of experiments*** **–** a statistical method for identifying which factors may influence the overall outcome of a product or process under development or in production. Example, cost and schedule trade-offs.

5.4.3: Outputs

- **Output:**
  1. ***Quality management plan*** – describes how the project management team will implement the quality policy. E.g. PMP, Q-Plan, D-Plan & C-Plan (ITP).
  2. ***Quality metrics*** – describes an activity in specific terms and how the quality control process measures it in actual value. E.g. Failure rate, reliability, test coverage & performance indicator.

  Example for quality metrics, need to table out need statement, mockups, specification, TNC etc.

……Outputs (Cont.)

3. ***Quality checklists*** – a structured tool, usually component-specific, used to verify that a set of required steps has been performed (e.g. SPB inspection forms). The checklists are used in quality control process.

……Outputs (Cont.)

4. ***Process improvement plan*** – details out the steps for analysing processes that will facilitate the identification of waste and non-value added activity.

   Example :

   - Mesyuarat Kajian Semula Pengurusan (MKSP)
   - Input from SPB Audit
   - Business Re-engineering

5.5: Perform Quality Assurance

- **Definition:** Applying the planned, systematic quality activities to ensure that the project employs all processes needed to meet standards and/or requirements.

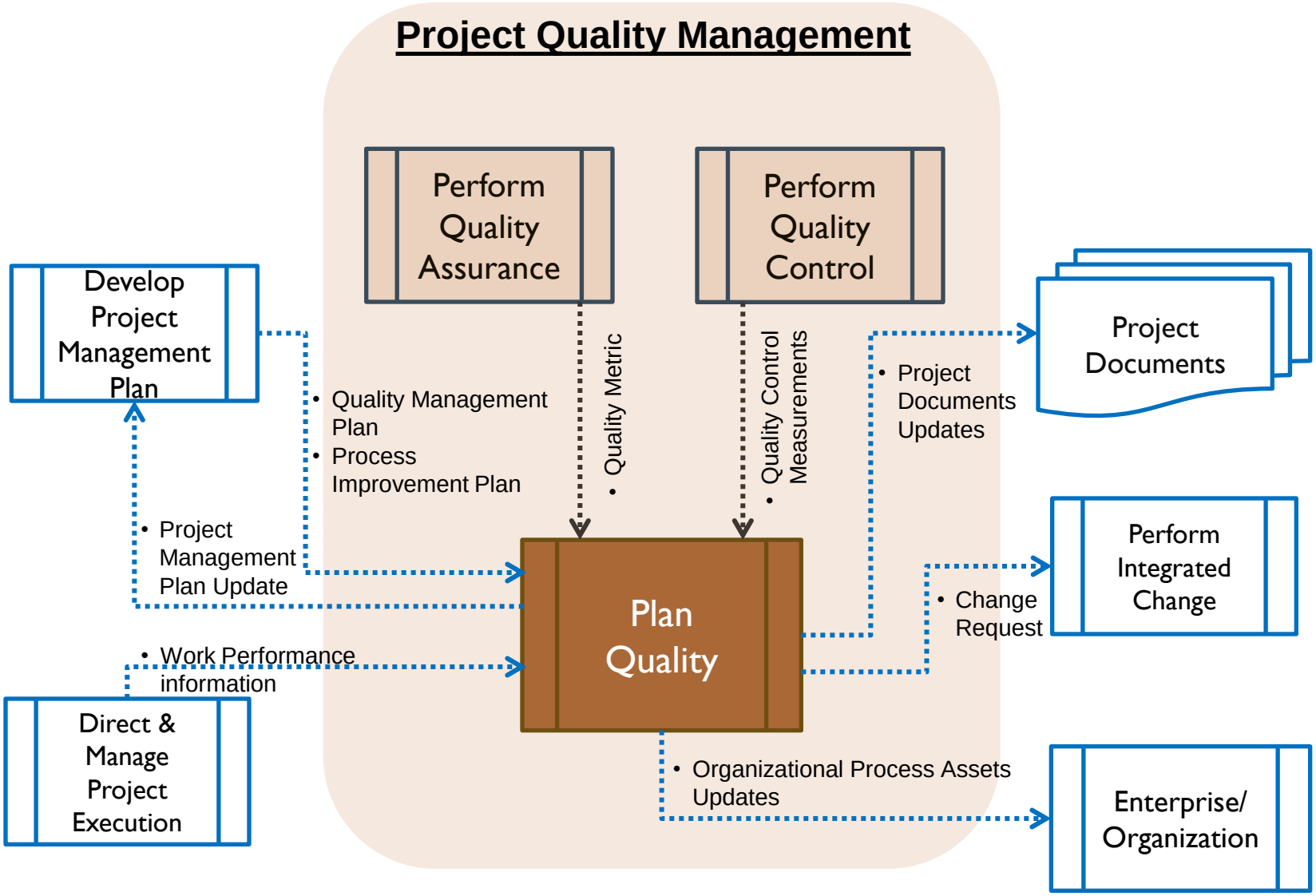


Figure 5.2: Perform Quality Assurance Data Flow Diagram

5.5.1 Inputs

Inputs required:

1. Quality Management Plan (from Quality Planning process).
2. Quality Metrics (from Quality Planning process).
3. Process Improvement Plan (from Quality Planning process).
4. Work Performance Information, i.e. technical performance measures, project deliverables status, required corrective action and performance report.
5. Feedback from Quality Control activities.

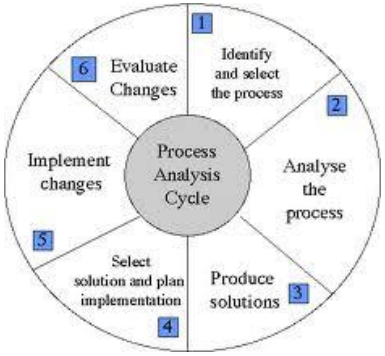
5.5.2 Tools & Techniques

- **Tools and techniques:**
  1. ***Quality audit***
     - A structured, independent review to determine whether project activities comply with project policies, processes and procedures (Quality system).
     - Confirms the implementation of approved change request, corrective actions, defects repairs and preventive actions.

……Tools & Techniques (Cont.)

2. ***Process analysis***

- Identifies needed improvements using root cause analysis techniques to analyze a problem, its causes and create preventive actions.
- Used to review the process with the aim of ensuring that it works both efficiently and effectively.



……Tools & Techniques (Cont.)

3. Plan quality and perform quality control tools and techniques.

- Example SPK JKR :
  - ✓ Design Verification
  - ✓ Mockup Approval
  - ✓ QA Plan

5.5.3 Output

Outputs acquired:

1. Requested changes for quality improvements to increase effectiveness and efficiency of policies, processes and procedures.(Dibincang di dalam Mesyuarat Kajian Semula Pengurusan JKR)

2. Recommend corrective action to effectiveness and efficiency after conducting quality assurance activities.

   (NCP , NCR , Obsevation For Improvement)

3. ***Project management plan updates*** – updates to the project management plan.
4. ***Project document updates –*** updates include, but not limited to, quality audit reports, training plans and process documentation.

5.6: Perform Quality Control

- **Definition:** The process of monitoring specific project results to determine whether they comply with relevant quality standards and identifying ways to eliminate causes of unsatisfactory performance.

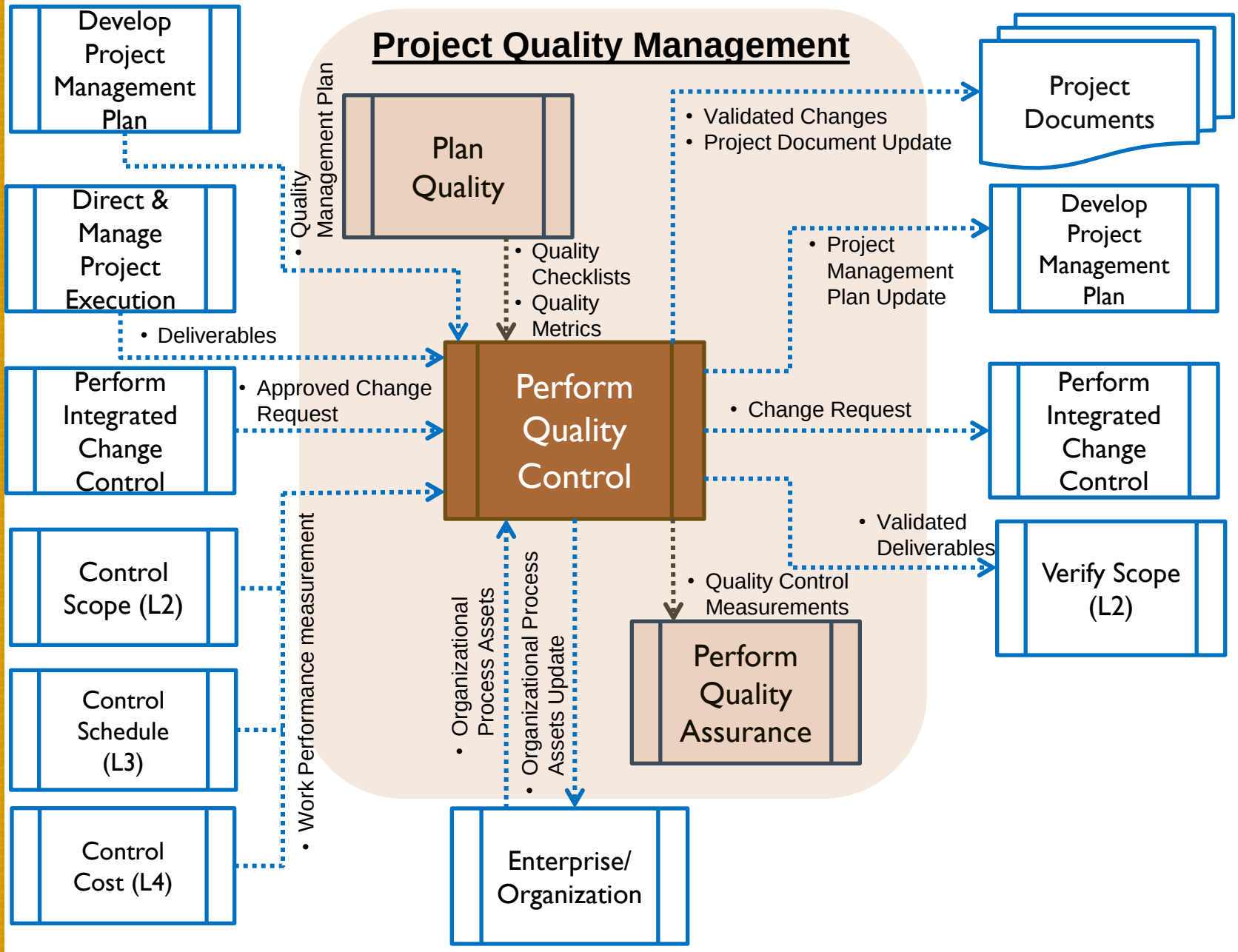


Figure 5.3: Perform Quality Control Data Flow Diagram

5.6.1: Input

- **Input:**
  - Quality management plan
  - Quality metrics
  - Quality checklists
  - Work performance information
  - Approved change requests
  - Organizational process assets (SPB, guidelines, databases, and lesson learned)
  - Deliverables or end-products

5.6.2: Tools & Techniques

- Tools and techniques:
  1. *Flow charts*
  2. *Check sheets*
  3. *Histograms*
  4. *Scatter plots*
  5. *Control charts*
  6. *Run charts*
  7. *Cause-and-effect diagram*
  8. *Pareto charts*
  9. *Physical inspections*

……Tools & Techniques (Cont.)

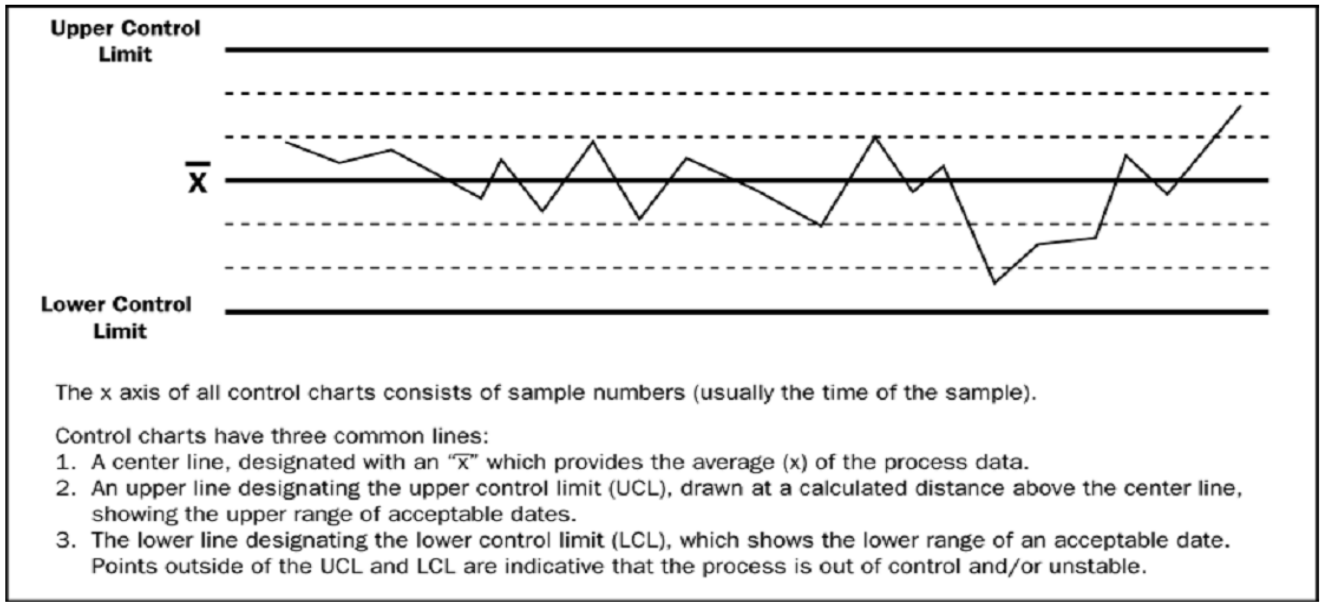


Figure 8-7. Example of a Control Chart of Project Schedule Performance

- To determine if a PRODUCT is stable or has predictable performance.
- Example ; analysis of concrete cube test for JKR project.

……Tools & Techniques (Cont.)

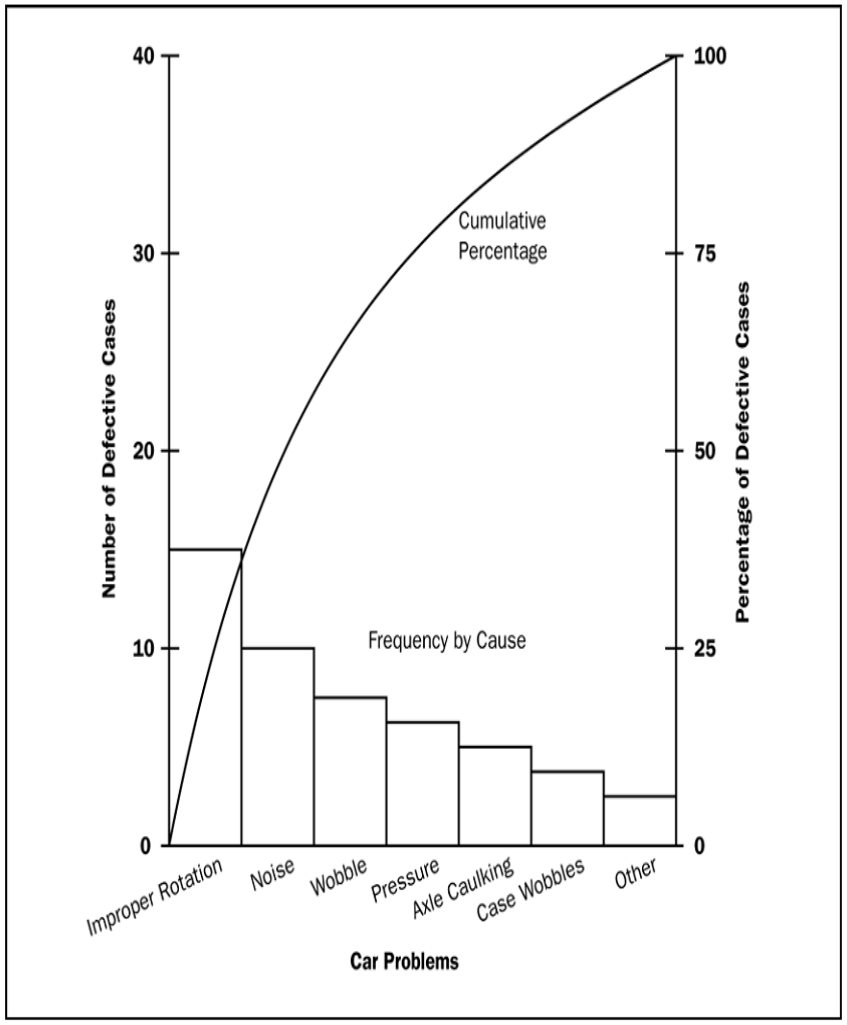


Figure 8-9. Pareto Diagram (Chart)

- A histogram ordered by frequency of defects occurring by type or category of identified causes.
- Problems that are causing greatest defects are tackled first.
- Example: NCR analysis from post mortem audit to establish the trend (source: Unit Kualiti, CPK)

5.6.3: Output

- **Output:**
  1. ***Quality control measurements* –** documented results of quality control activities in the format specified during quality planning (e.g. SPB inspection checklists).
  2. ***Validated changes*** – any changed or repaired items are inspected and will be either accepted or rejected.

……Outputs (Cont.)

3. ***Validated deliverables –*** the results of the execution of quality control processes are validated deliverables.
4. ***Organizational process assets updates*** – updates include, but not limited to, completed checklist (become part of quality records) and lesson learned documentation.
5. ***Change request –*** if recommended corrective or preventive actions or defect repair requires a change to the PMP, a change request should be initiated.

……Outputs (Cont.)

6. ***Project management plan updates*** – updates include, but not limited to, quality management plan.
7. ***Project document updates –*** updates include, but not limited to, quality standard.

……Outputs (Cont.)

- Example from SPK forms for design (design validation form) & construction.
- Update PMP through project status report.
- Document issues and lesson learned.

5.7: Quality System In JKR

In JKR, there are quality system that need to be included in Project Quality Management processes:

a. JKR SPK (Quality Management System)

b. JKR EMS (Environmental Management System)

c. OSHAS (Occupational Safety and Health Assessment Series)

5.7: Exercise

Exercise 1

Plan quality base on information provided. Use quality tracking schedule template.

Project Quality Management Template: Plan Quality

	PENGURUSAN PROJEK Jadual Pengesanan Kualiti	Rujukan : JKR.PMMM.36 No Mukasurat : 1 No Keluaran : 1 No Semakan : 1 Tarikh : 17.07.2013

PROJEK:	
PENGURUS PROJEK:	TARIKH PENYEDIAAN:

Fasa	*Deliverable* / Sistem / Item	Piawaian Bersesuaian	Rujukan Terperinci	Tindakan Diperlukan	Tanggungjawab

DISEDIAKAN OLEH:	TANDATANGAN:
DISEMAK OLEH:	TANDATANGAN:

Piawaian termasuk:

- *ISO; BR or JKR Organisational standards;*
- *Malaysian, State and district compliance related to environment, workplace safety, heritage, noise, traffic, waste*

Project Quality Management: Example

QUALITY TRACKING SCHEDULE

PROJECT: CADANGAN TAMBAHAN UNIVERSITI PERTAHANAN NASIONAL MALAYSIA (UPNM)	PREPARED BY: Zaizul Hisham Zainol
	REVIEWED: Mas Abdul Rahman
PROJECT MANAGER: Mas Abdul Rahman	DATE OF PREPARATION: 02 Mei 2008

Identifier WBS	Deliverable / System / Item	Applicable Standard	Detailed Reference	Action Required	Responsibility
1	Procurement	SPK JKR, SMM (Stand. Method Measurement), Buku Panduan Kos Purata Semeter Persegi Kerja-Kerja Pembinaan Bangunan	-	All procurement works shall comply with requirement and guidelines.	Ali
2	Tender	SPK JKR, SMM (Stand. Method Measurement)	-	All tender works shall comply with requirement and guidelines.	Ali
3	Design				
	i) Civil	Malaysian, British or International Codes of Practice or Standard & Standard Specification (Water, Road, Sewer, Drainage, UBBL)	-	All design works shall comply with requirement, guidelines and design standard.	HODT Zaizul
	ii) Structure	Malaysian, British or International Codes of Practice or Standard & Standard Specification (JKR, UBBL, Roof)	-	All design works shall comply with requirement, guidelines and design standard.	HODT Zaizul

5.9: Summary

- Project quality management must address management of the project and the final product or deliverable of the project..
- A critical element of project quality management is to turn stakeholder needs, wants and expectation into requirements.
- Project quality management does not conflict with modern quality management concepts.

References

- A Guide to the Project Management Body of Knowledge (PMBOK® Guide) – 4th Edition
- https://www.jkr.gov.my/prokom

Terima Kasih

Thank You