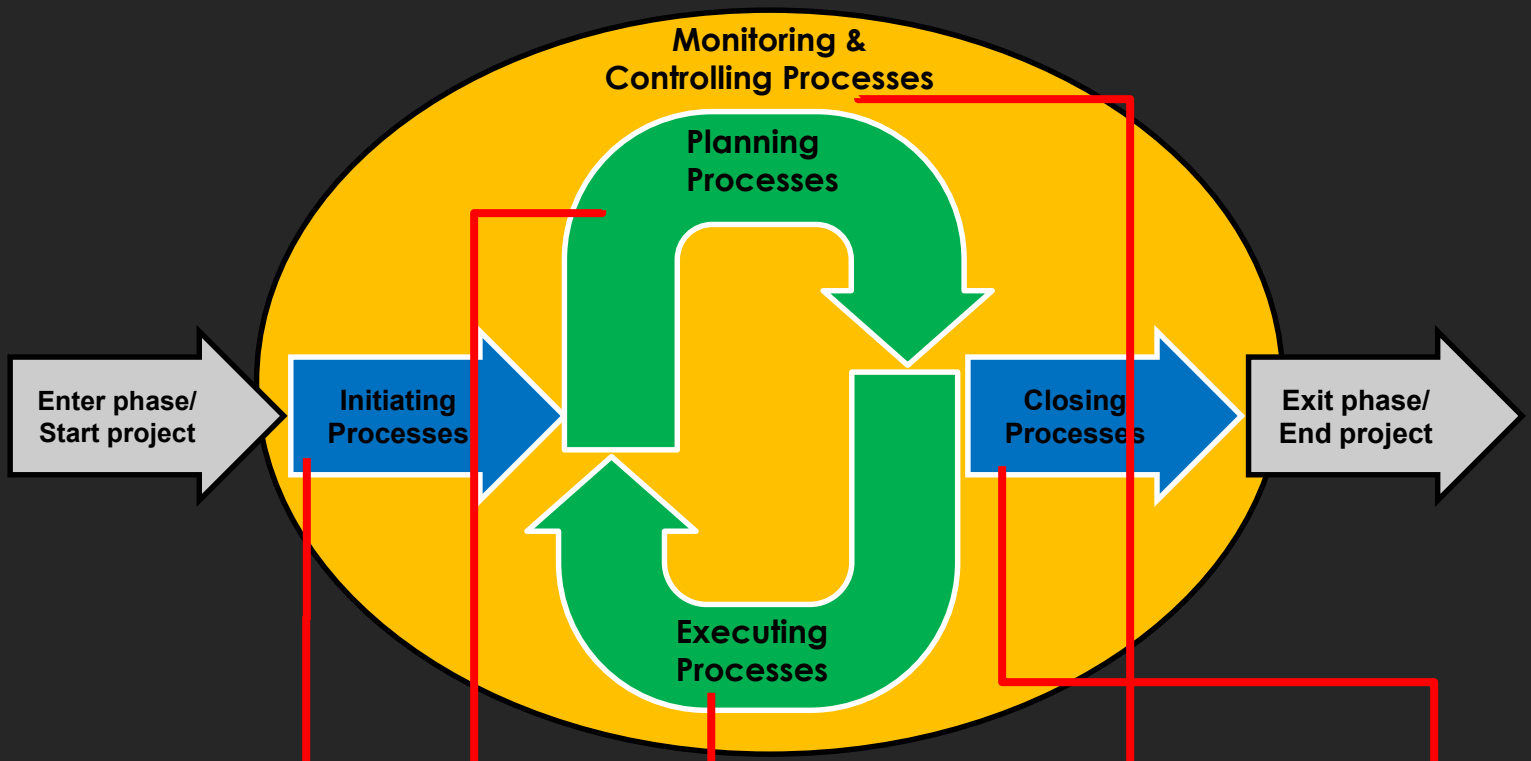
#4 Project integration

PMBOK 5 Ed. – DEI-

Project Integration



Knowledge Area	Process				
	Initiating	Planning	Executing	Monitoring & Control	Closing
Integration	• Develop Project Charter	• Develop Project Management Plan	• Direct and Manage Project Execution	• Monitor and Control Project Work • Perform Integrated Change Control	• Close Project

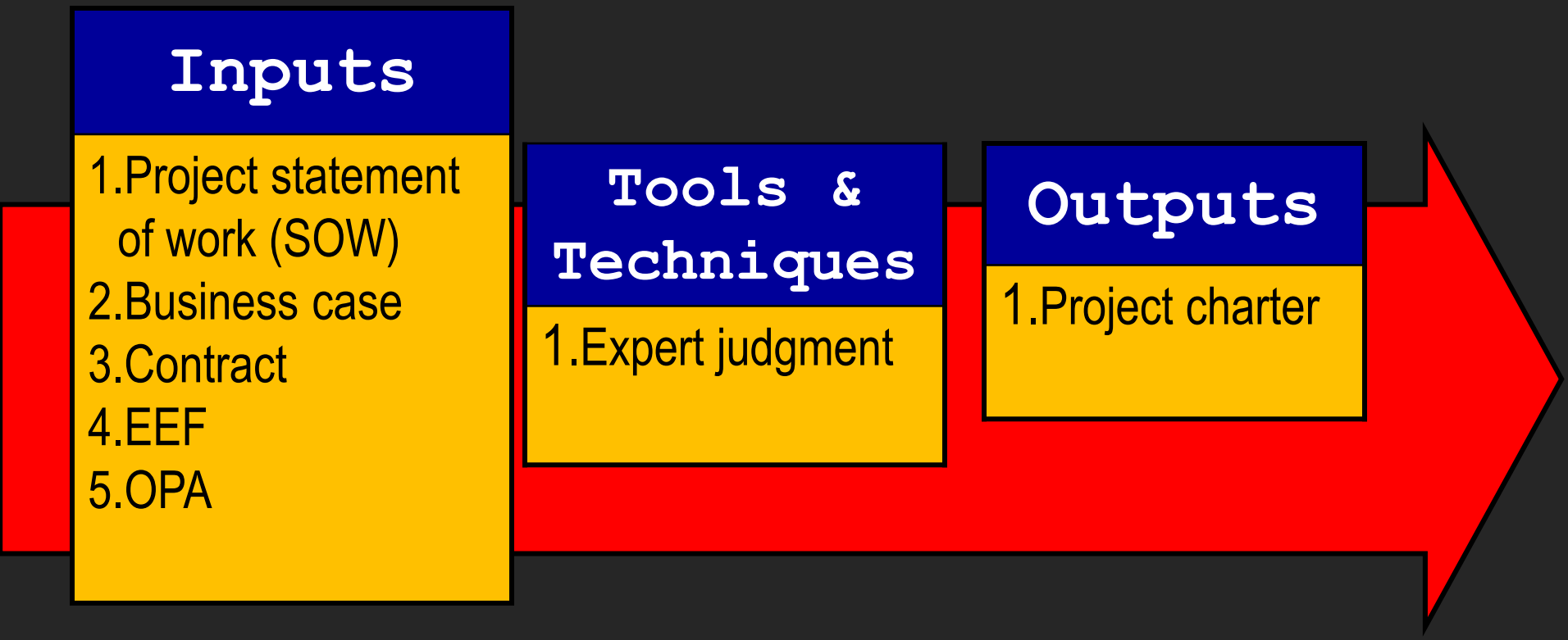
INTEGRATION

"to identify, define, combine, unify, and coordinate the various processes and project management activities"

4.1 Develop Project Charter

"A document that formally authorizes a project or a phase"

" Documenting initial requirements that satisfy the stakeholder's needs and expectations"


Inputs
1.Project statement of work (SOW)
2.Business case
3.Contract
4.EEF
5.OPA
Tools & Techniques
1.Expert judgment
Outputs
1.Project charter

“Project are **authorized** by someone external to the project such as **sponsor, PMO, portfolio steering committee**”

“Project charter can **be created by them or delegated** to Project Manager”

- STATEMENT OF WORK
  - A narrative description of products or services to be delivered by the project.
  - The SOW references:
    - Business need
    - Product scope description
    - Strategic plan

SOW

Business case

» Determine whether or not the project is worth the required investment.

- Market demand
- Organzation need
- Customer request
- Legal
- Technological
- ecological
- Social need

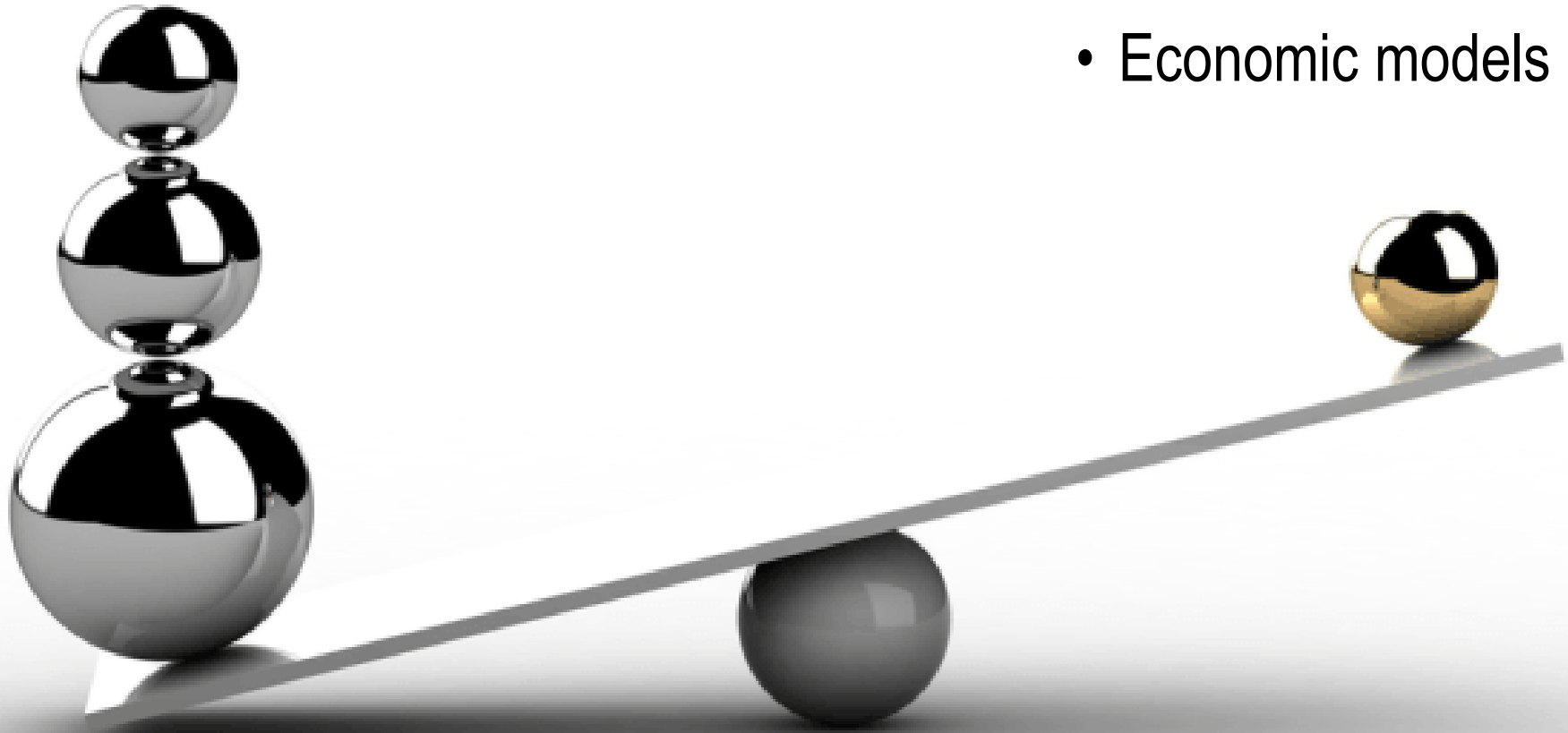
Project Selection

Benefit measurement methods (Comparative approach)

Constrained optimization methods (Mathematical approach)

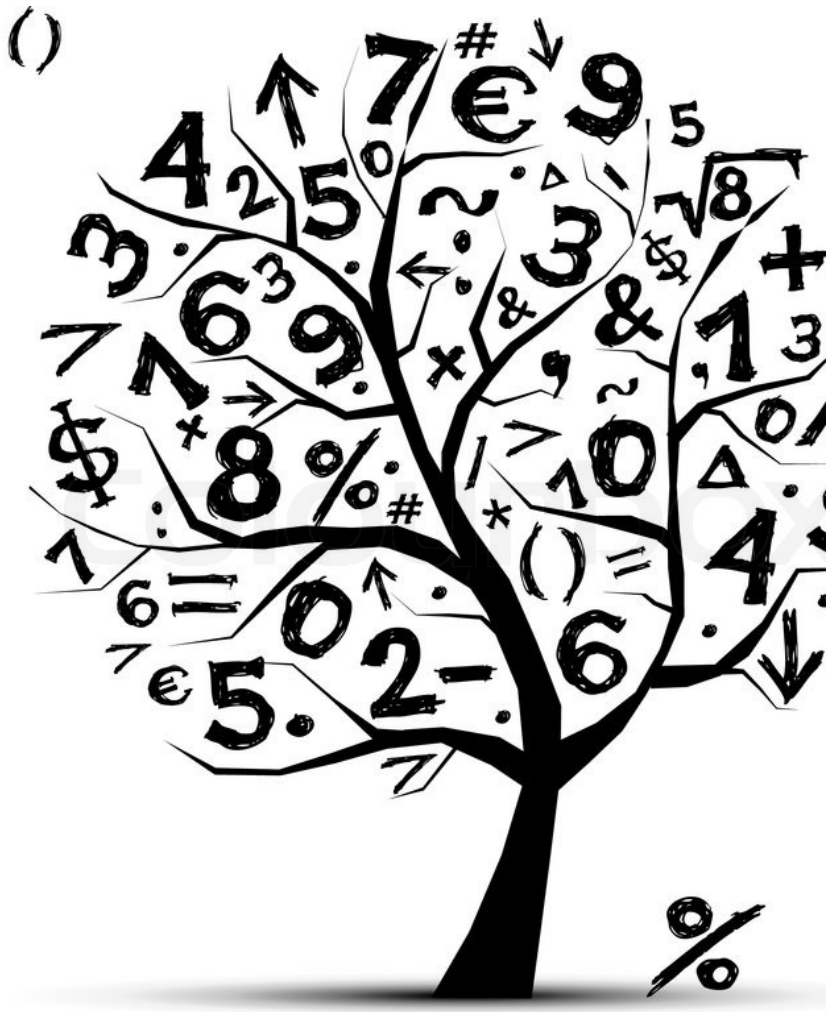
Benefit measurement methods

- Murder board (**a panel of people** who try to shoot down a new project idea)
- Peer review
- Scoring models **(Factor Rating)**
- Economic models



Constrained optimization methods (Mathematical approach)

- Linear programming
- Integer programming
- Dynamic programming
- Multi-objective programming



Project Selection – Economic Models

- **Present value (PV**
- **Net present value (NPV)**
- **Internal rate of return (IRR)**
- **Benefit-cost ratio:**

BIGGER THAN ZERO

- **Payback Period**

The quicker the better

Project Selection – Important Terms

- **Economic Value Added (EVA):**
  - concerned with whether the project returns to the company more value than it costs.
- **Opportunity Cost:**
  - the opportunity given up by selecting one project over another
- **Sunk Costs:**
  - Are expended costs
  - Should not be considered when deciding whether to continue with a troubled project.
- **Law of Diminishing Returns:**
  - after a certain point, adding more input/resource will not produce a proportional increase in productivity

Project Selection – Important Terms

- **Working Capital**
  - current assets minus current liabilities for an organization or
  - amount of money the company has available to invest

- Depreciation
  - **Straight line depreciation**
    - The same amount of depreciation is taken each year.
  - **Accelerated depreciation**
    - Depreciates faster than straight line
    - Two forms: (1) Double Declining Balance, (2) Sum of the Years Digits

EXPERT JUDGEMENT

- Other unit within organization
- Consultants
- Stakeholders including customer or sponsor
- Subject matter experts
- PMO
- Industry groups
- Professional & technical association

BUSINESS NEED

S & DON'T
APPROVAL

MAJOR
STAKEHOLDER

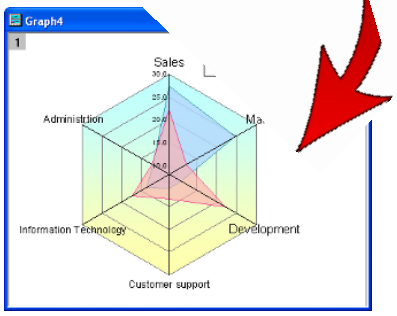
DURATION

PROJECT
CHARTER

BUDGET
SUMMARY

PM ROLE

OBJECTIVE



MEASUREMENT

SPESIFICATION

Project Charter

To Reduce Canal Cleaning Cost by 50%

Project Overview

Business Case

- Canal is required for water management and transportation in peat land area
- Canal need to be cleaned twice in one rotation due to sedimentation
- Canal cleaning activities are done by contractor with fixed rate USD 3/ meter of canal
- Due to fuel price and spare part cost rising up, contractor propose to increase the rate or they do not want to do canal cleaning activity
- This project to address one of BSC KPI (F.1 Maintain wood delivery budget)

Problem Statement

If we accept contractor proposal:

•Water management operational cost will be higher

But If we don't accept contractor proposal:

- Less availability of heavy equipment for canal cleaning
- Low accessibility and costly for firefighting and supervision

Project Scope

Canal Cleaning activity
Start : Mapping analysis
End : Canal cleaned

Goals Statement

Metric	UOM	Current rate	Goal
Canal cleaning cost	USD/m	3	1,5

Opportunity Statement

Hard saving:

= Baseline x target x canal cleaning plan 2010
= USD 3x 50% x 43,186 m
= **$ 64,779**

Intangible benefit:

- Improve ability to control and firefighting (reduce fire expression)
- Improve accessibility to compartment (reduce waiting time to compartment)

Project Plan (June – October

Phase	Start	End
Define	June 1	June 16
Measure	June 18	June 30
Analyze	July 2	July 21
Improve	July 23	Oct 12
Control	Oct 15	Oct 31

Team Selection

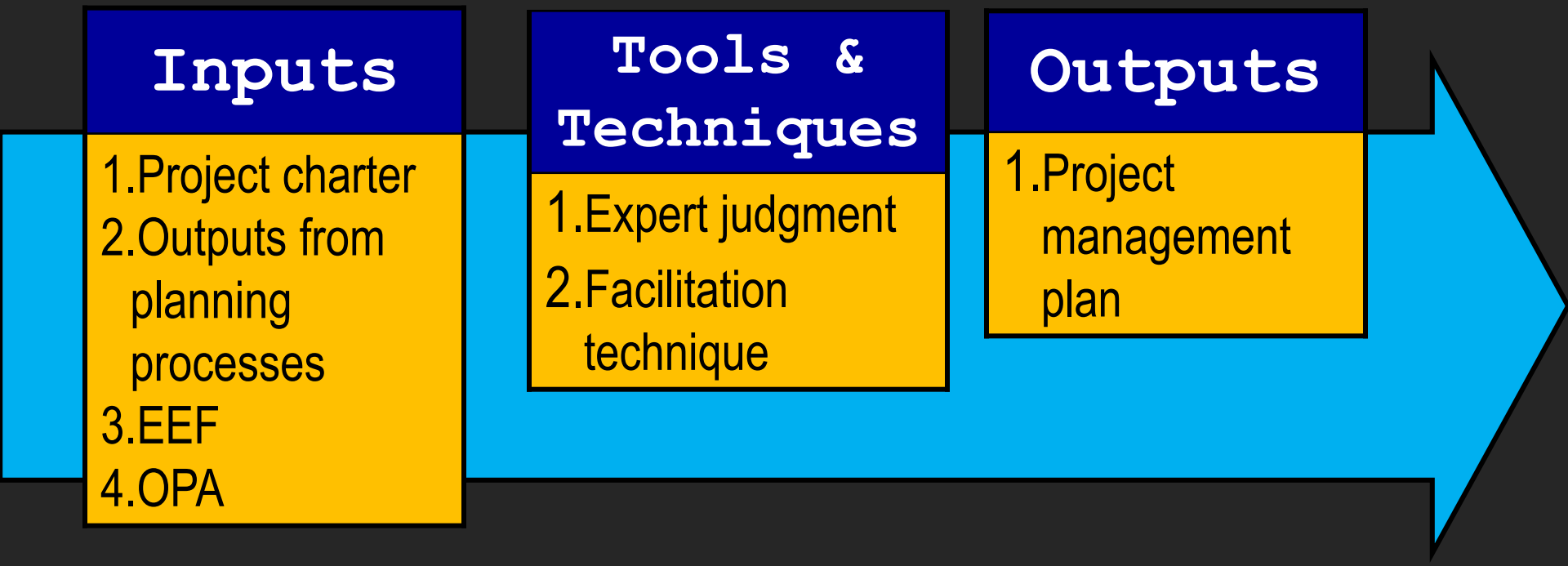
		Core Team Members:		Subject Matter Experts:	
Green Belt:	Yudha	Budi	Wahju	Brad	LP&C
Project Sponsor:	Michaer	Sigit	Guntar		
Project Champion:	Sofyan	Arumi			

- Project Charter, includes:
  - Project **purpose** or justification,
  - Measurable **project objectives** and related success criteria,
  - High-level **requirements,**
  - High-level **project description**,
  - High-level **risks,**
  - Summary **milestone schedule,**
  - Summary **budget,**
  - Project **approval requirements**
  - Assigned **project manager, responsibility, and authority lev**el
  - Name and a**uthority of the sponso**r or other person(s) authorizing the project charter.

4.1 Develop Project Management Plan

"Documenting the actions necessary to define, prepare, integrate and coordinate all subsidiary plans"

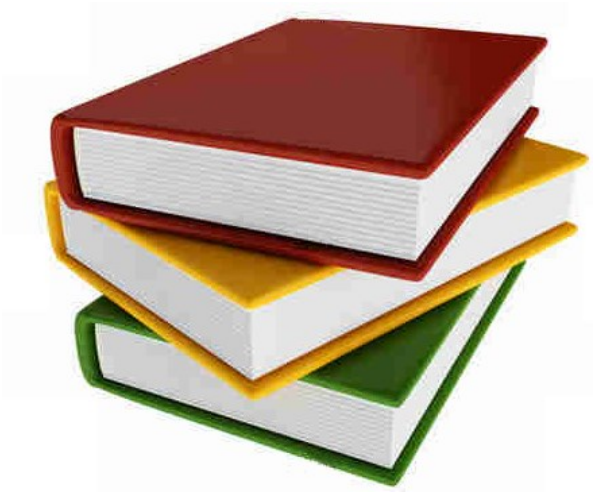
Documenting 10 knowledges area


Inputs
1.Project charter
2.Outputs from planning processes
3.EEF
4.OPA
Tools & Techniques
1.Expert judgment
2.Facilitation technique
Outputs
1.Project management plan

Facilitation Tehcnique

» **Barinstorming, meeting, solving the problem, conflict resolution**

Project Management Plan



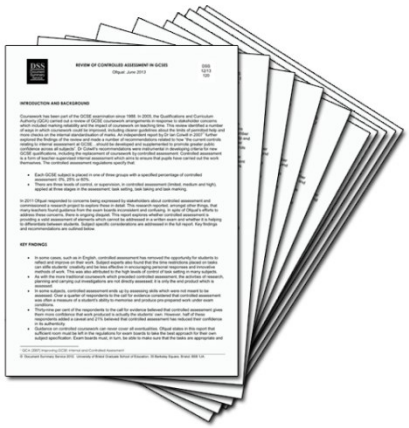
Project Baseline

Subsidiary Plan

Anaylze the gap or Deviation

Project Baseline

VS



Actual

scope

cost

time

Planning

Baseline

Actual

Baseline

Project baselines include:

- **Schedule baseline**
- **Cost performance baseline**
- **Scope baseline**

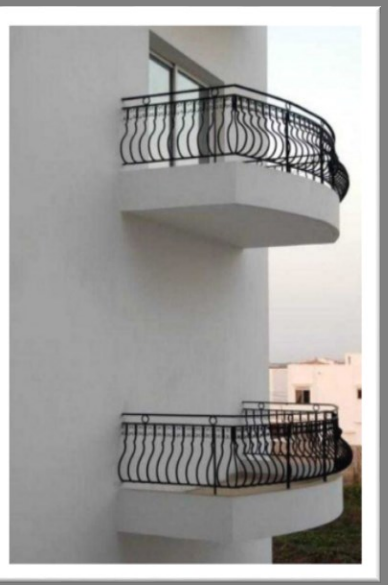
Subsidiary

Subsidiary plan include:

- **Scope management plan**
- **Requirement management plan**
- **Schedule management plan**
- **Cost management plan**
- **Quality management plan**
- **Process improvement plan**
- **Human resource plan**
- **Communications management plan**
- **Risk management plan**
- **Procurement management plan**

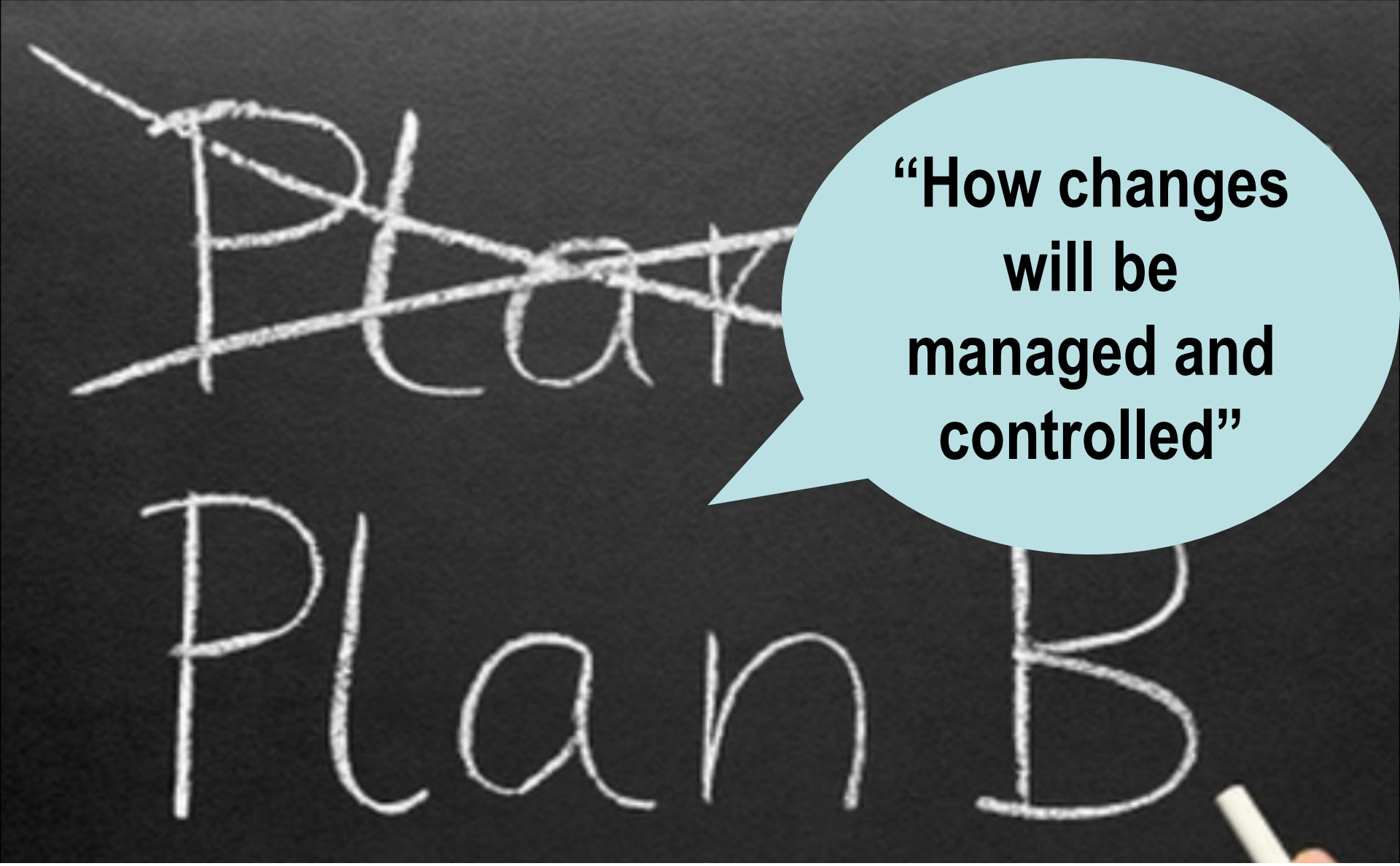
Project Management Plan

- **The strategy** for managing the project
- Define, plan,



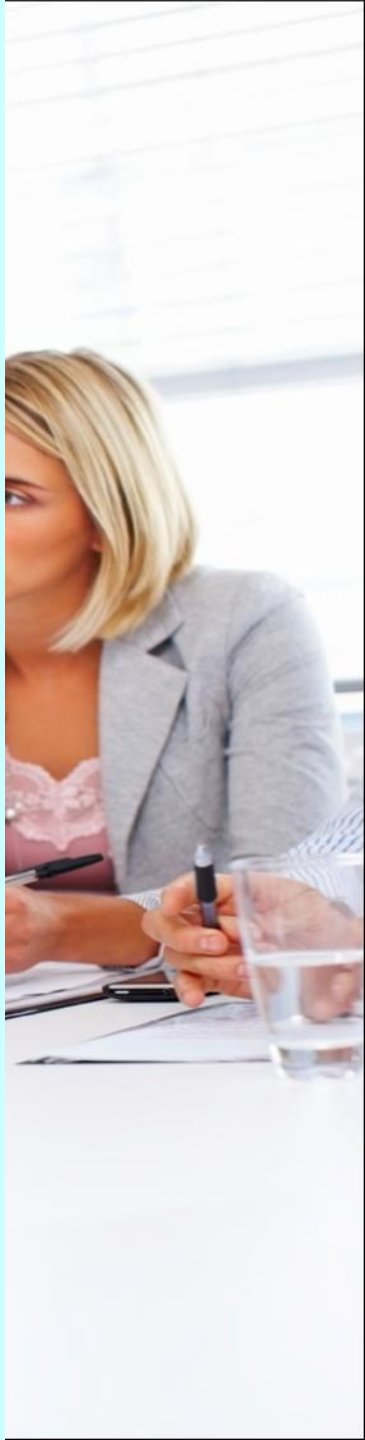
Change management plan
Configuration management plan
Requirements management plan
Process improvement plan

Project Management Plan



Change Management Plan

- Change control **procedures** (how and who)
- The **approval** levels for authorizing changes
- The creation of a **change control board (CCB)** to approve changes
- A plan outlining **how changes will be managed and controlled**
- Who should **attend meetings** regarding changes
- **Tools** to use to track and control changes

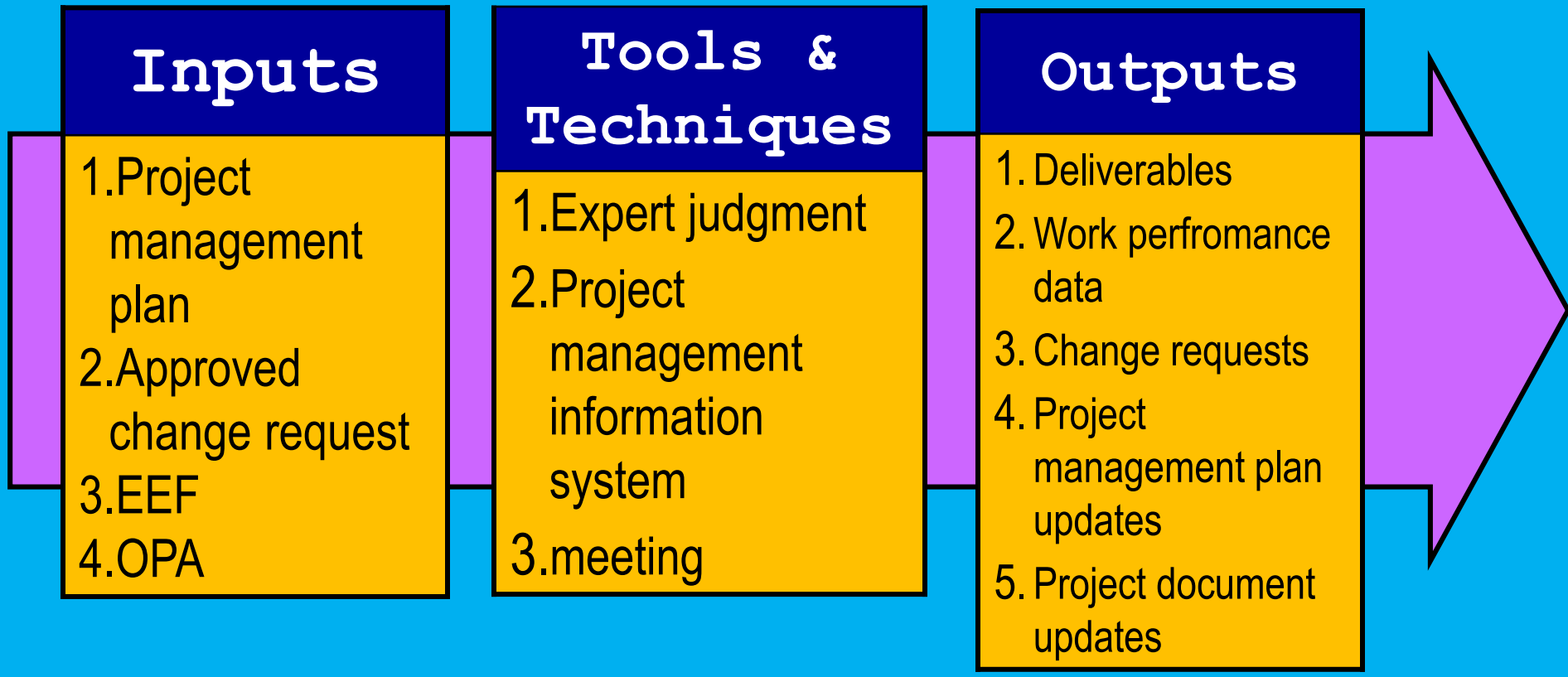


Configuration Management Plan

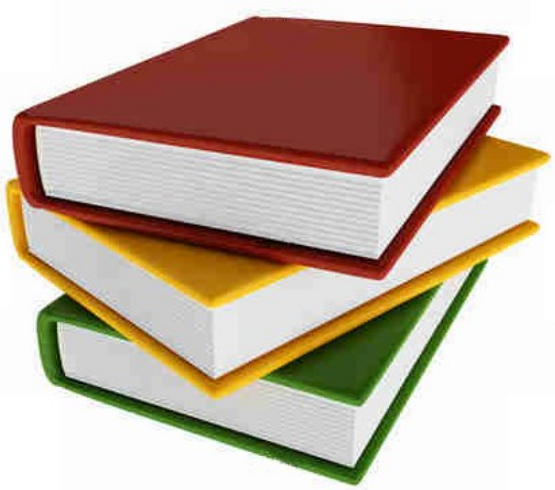
- Manage **changes** **to the deliverables** and the **resulting documentation**, including which organizational tools you will use

4.3 Direct & Manage Project Execution

Performing the work defined in the project management plan to achieve the project's objectives


Inputs
1.Project management plan
2.Approved change request
3.EEF
4.OPA
Tools & Techniques
1.Expert judgment
2.Project management information system
3.meeting
Outputs
1. Deliverables
2. Work perfromance data
3. Change requests
4. Project management plan updates
5. Project document updates

PROJECT MANAGEMENT PLANS



Baseline + susbsidiary plan

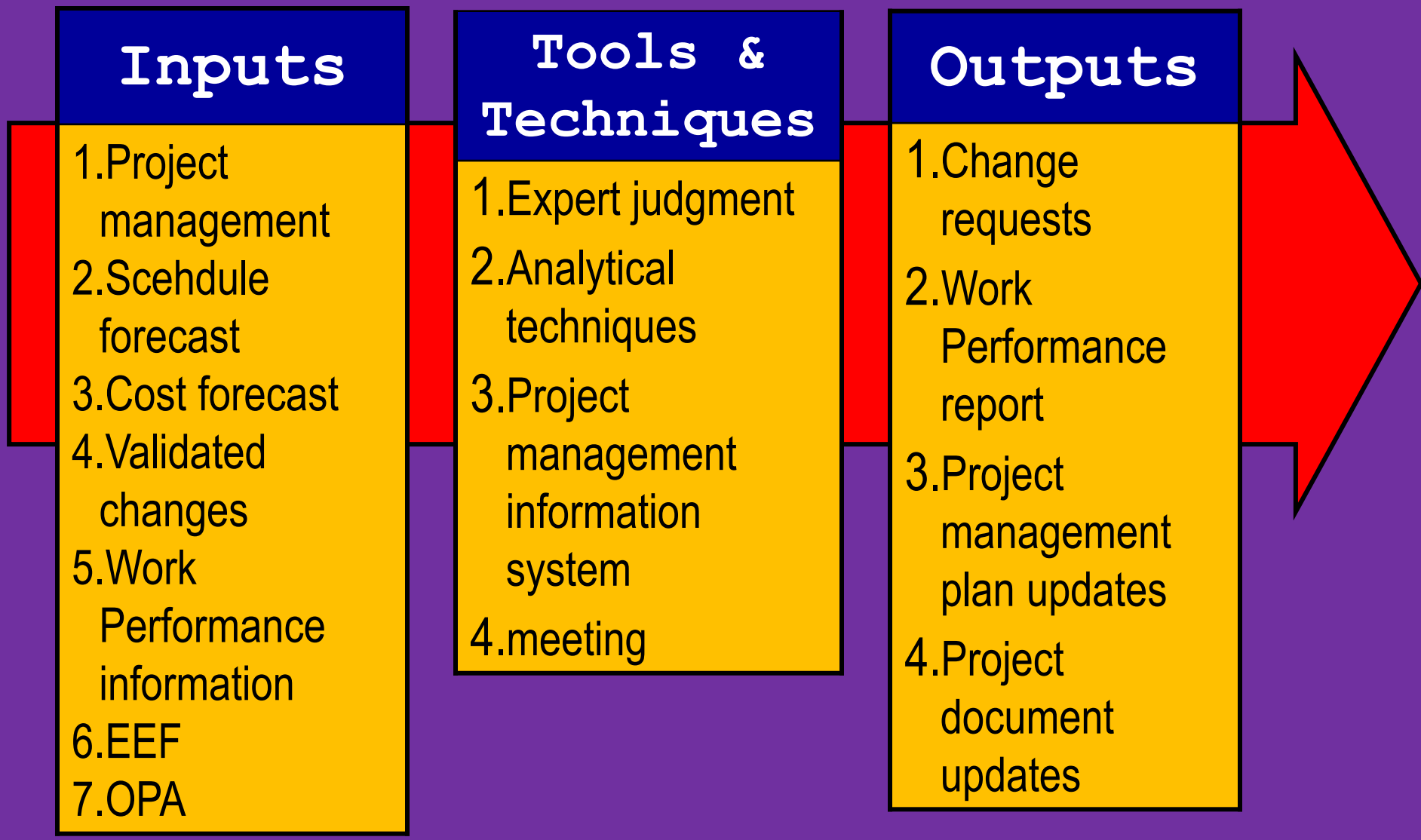
VERSUS

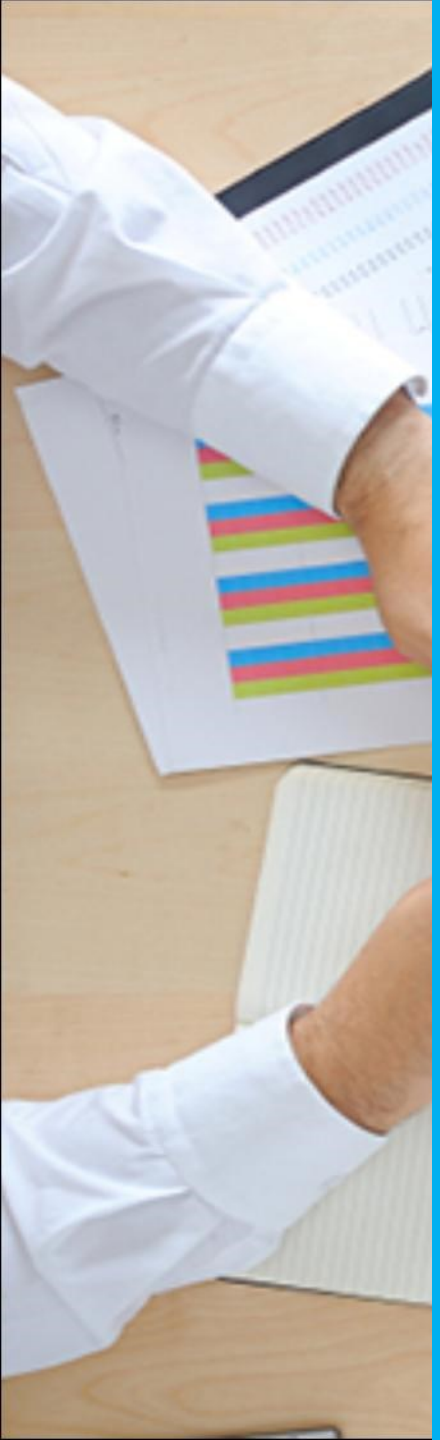
PROJECT **DOCUMENTS**

Memo, project logs, risk register, stakeholder resgiter

4.4 Monitor & Control Project Work

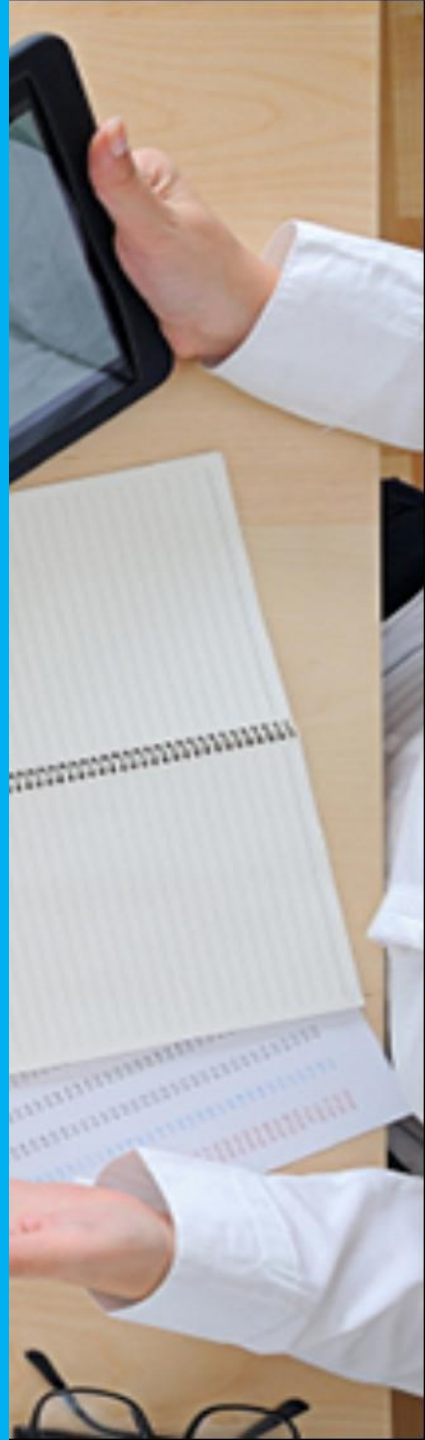
Tracking, reviewing, and regulating the progress to meet the performance objectives defined in the project management plan.

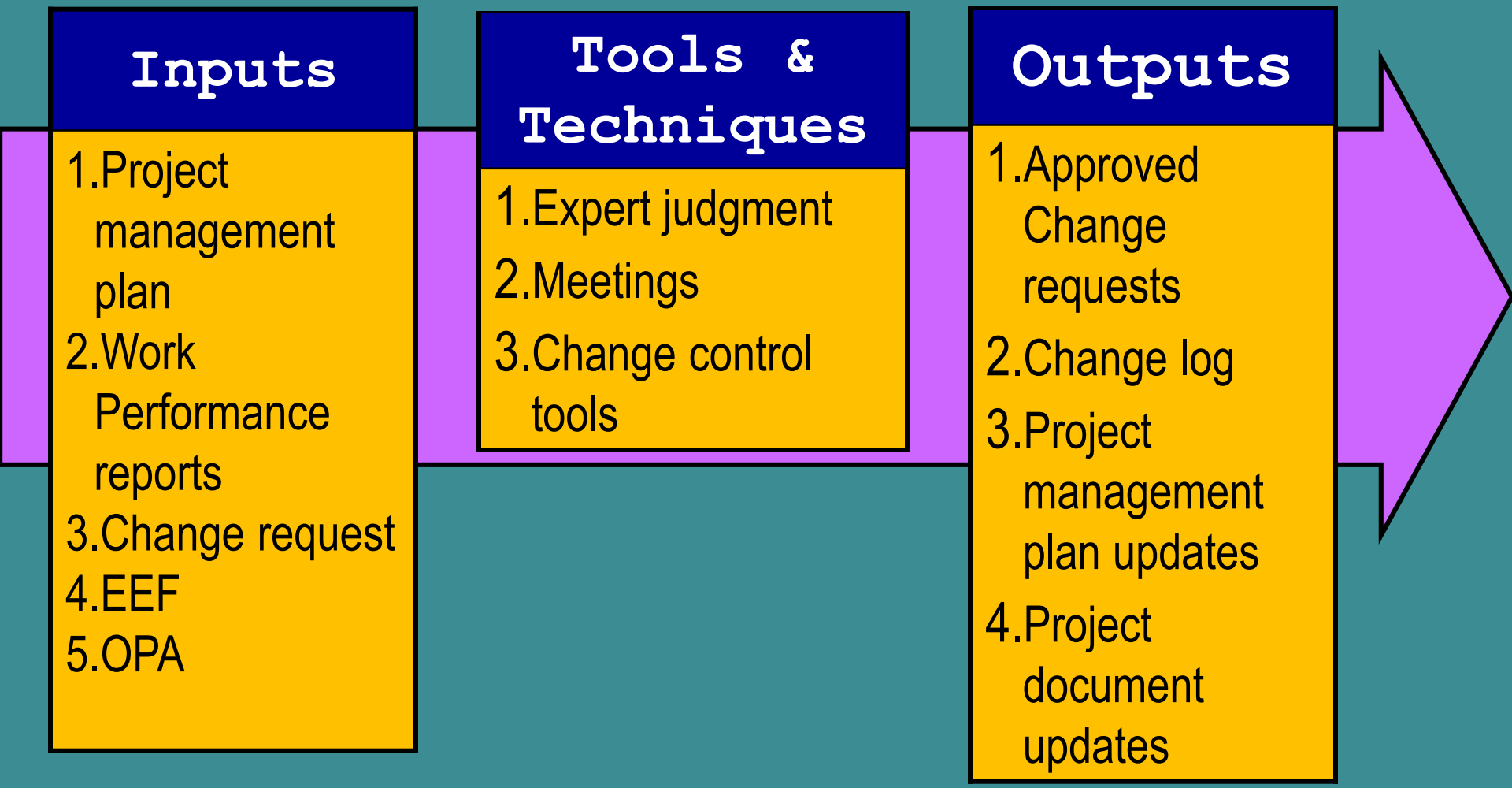

Inputs
1.Project management
2.Scehdule forecast
3.Cost forecast
4.Validated changes
5.Work Performance information
6.EEF
7.OPA
Tools & Techniques
1.Expert judgment
2.Analytical techniques
3.Project management information system
4.meeting
Outputs
1.Change requests
2.Work Performance report
3.Project management plan updates
4.Project document updates



4.5 Perform Integrated change control

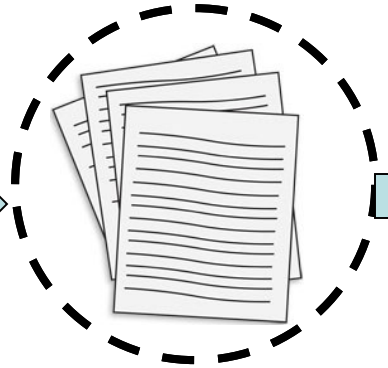
Reviewing, approving and managing changes to deliverables, OPA, project documents and the project management plan.




Inputs
1.Project management plan
2.Work Performance reports
3.Change request
4.EEF
5.OPA
Tools & Techniques
1.Expert judgment
2.Meetings
3.Change control tools
Outputs
1.Approved Change requests
2.Change log
3.Project management plan updates
4.Project document updates

Configuration control

Change request



Documented

Change control

Change Control Board

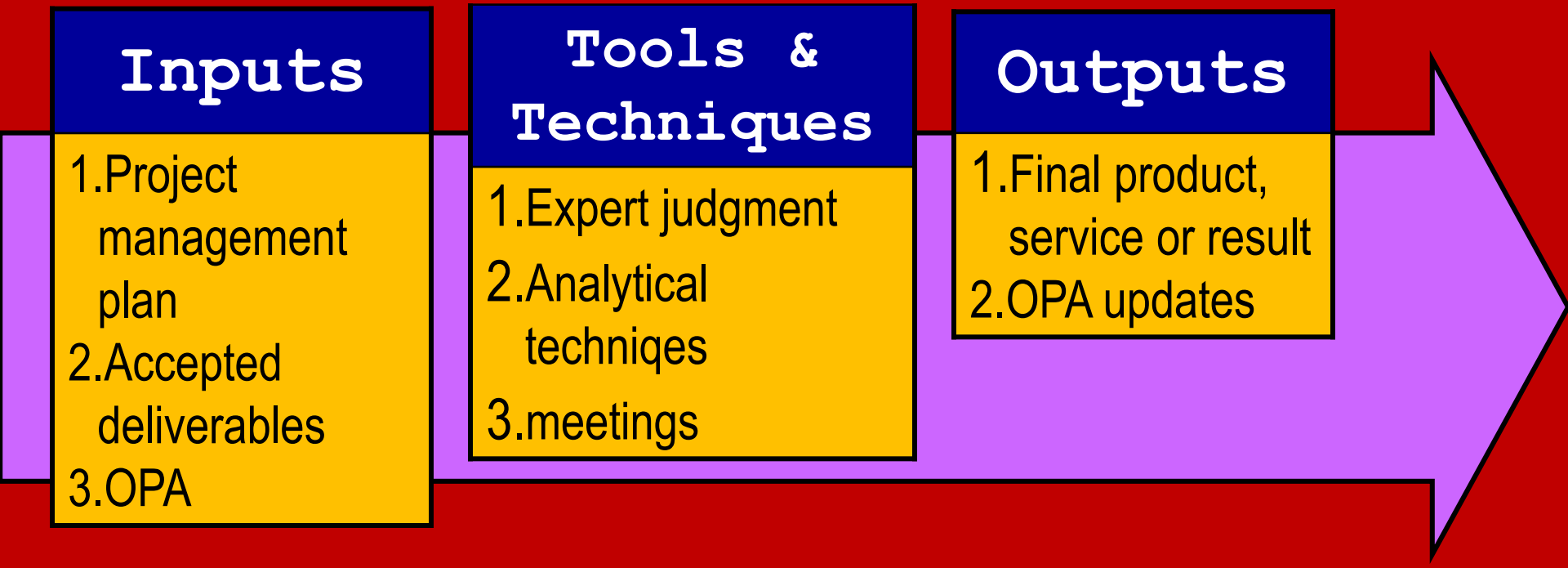
PM Plan Update

Project Document Plan Update

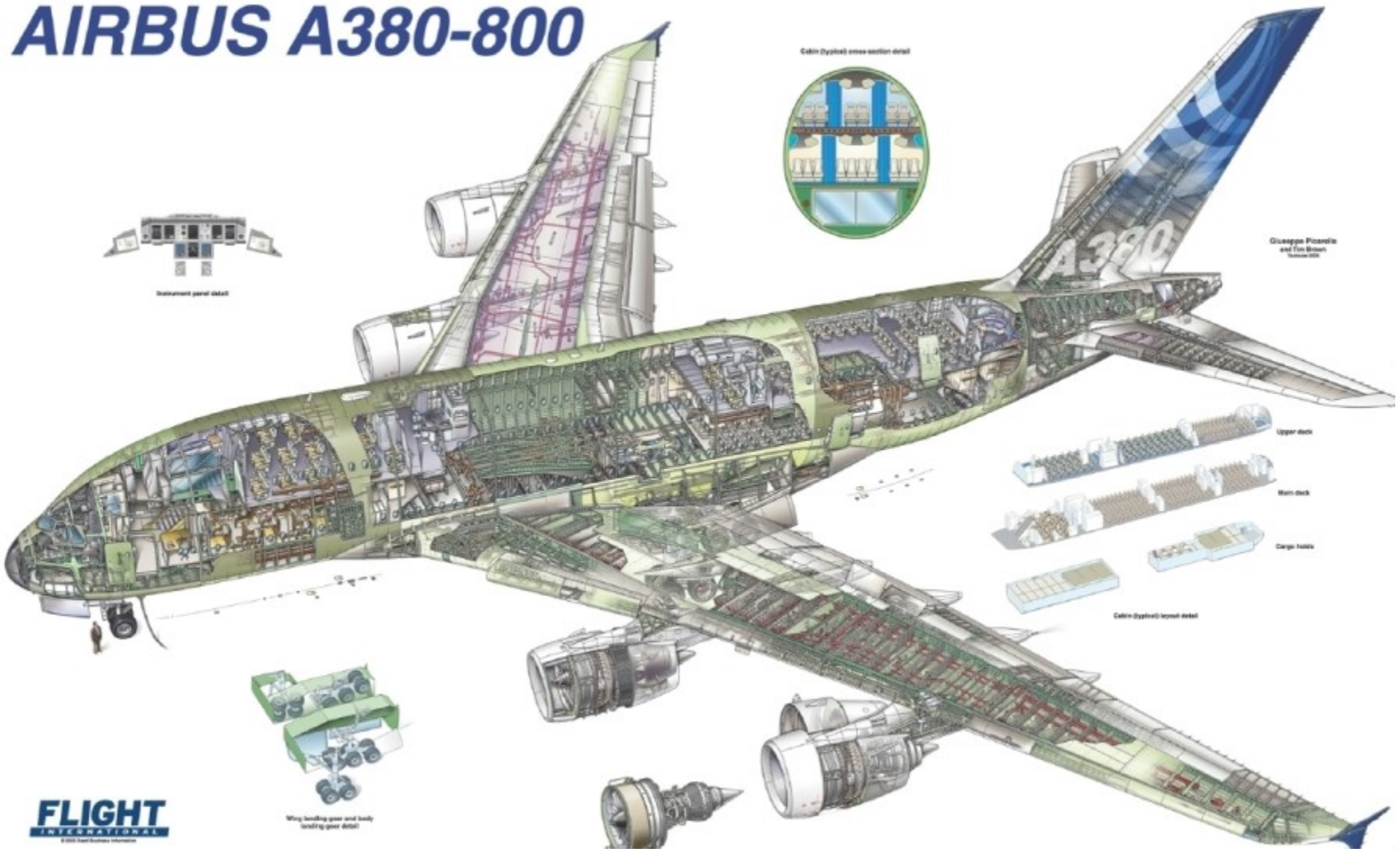
Perform Integrated change control

4.6 Closing Project

"Finalizing all activities across all of the Project Management Process Groups to formally complete the project or phase"


Inputs
1.Project management plan
2.Accepted deliverables
3.OPA
Tools & Techniques
1.Expert judgment
2.Analytical techniqes
3.meetings
Outputs
1.Final product, service or result
2.OPA updates

CASE STUDY



What went wrong?

- 2 years behind schedule→loss $6,1 billion
- Cause? Integration-disentgration (no clear project integration)
- Pre-assmebly (German) to assembly Line (France) dismatch-CATIA Problem
- Trouble in wiring (harsness)

Try this game

- http://pmp.aamirafridi.com/_rpg/index-3.html

Next topic:
Project Scope Management

Thank You