

# Software Project Management

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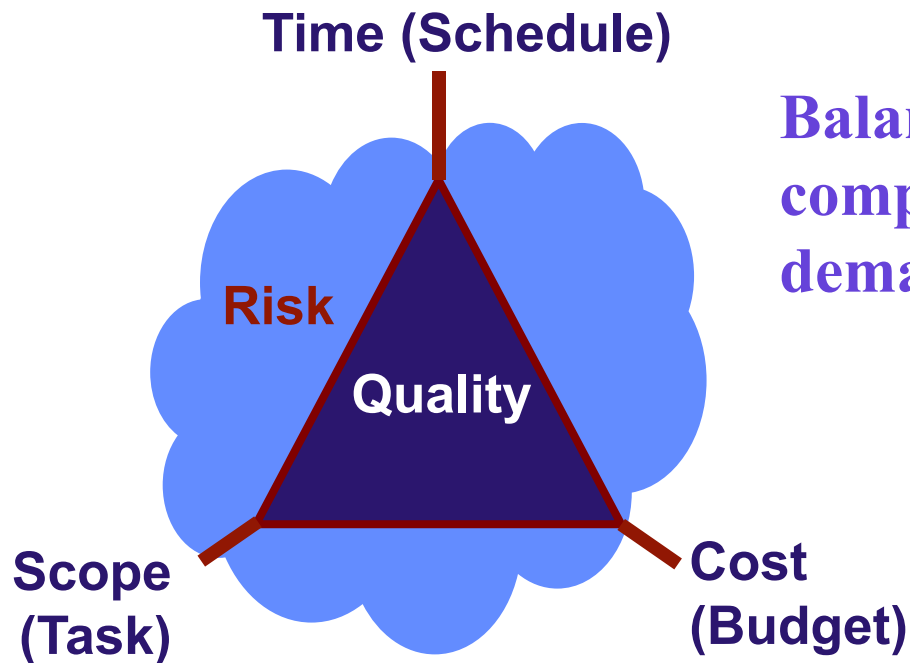
## Chapter2: Integration Management

# Review

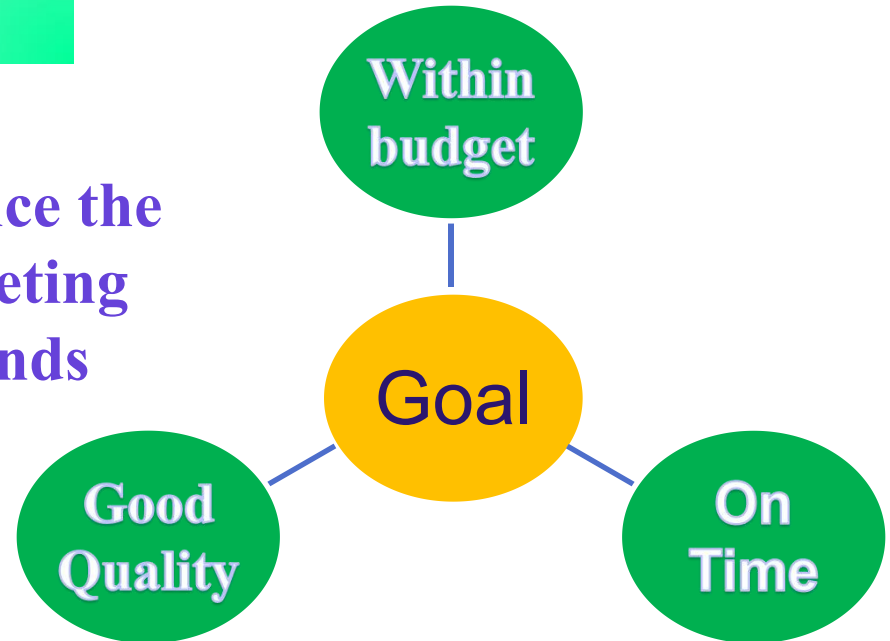
- **Five progress groups**
- **Ten knowledge areas**
- **Project Manager**
- **Stakeholder**
- **Organizational Structure**
- **Software Project**
- **Software Project Management**
- **Software Development Life Cycle**
- **Software Development Life Cycle Models**
- **Process**

# Review

## □ Project Manager

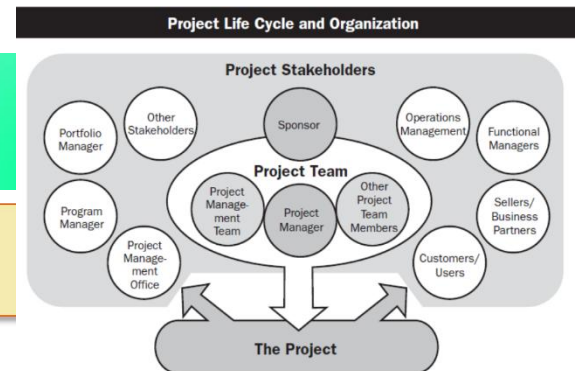


Balance the competing demands



## □ Stakeholders

Sponsor, project champion, steer group etc.



# Review

## Organizational Structure

<b>Organization Structure</b> <b>Project Characteristics</b>	<b>Functional</b>	<b>Matrix</b>			<b>Projectized</b>
		<b>Weak Matrix</b>	<b>Balanced Matrix</b>	<b>Strong Matrix</b>	
Project Manager's Authority	Little or None	Low	Low to Moderate	Moderate to High	High to Almost Total
Resource Availability	Little or None	Low	Low to Moderate	Moderate to High	High to Almost Total
Who manages the project budget	Functional Manager	Functional Manager	Mixed	Project Manager	Project Manager
Project Manager's Role	Part-time	Part-time	Full-time	Full-time	Full-time
Project Management Administrative Staff	Part-time	Part-time	Part-time	Full-time	Full-time

# Review

## ❑ Software Project VS Other types of Projects

### ❑ Invisible

SPM: making the invisible visible

### ❑ Complexity

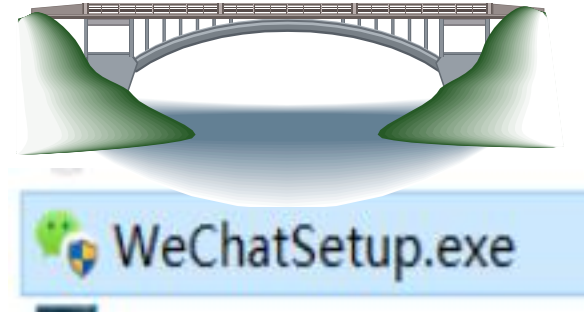
Per dollar spent, More complexity

### ❑ Conformity

Conform to the requirements of human clients

### ❑ Flexibility

Software is easy to change



# Review

## □ What is Software Project Management?

Software Project Management is a **system management method** based on **software project**, which uses the relevant **knowledge, techniques and tools** for **planning, organizing, advising and controlling** each stage of **software project cycle** to achieve the project objectives.

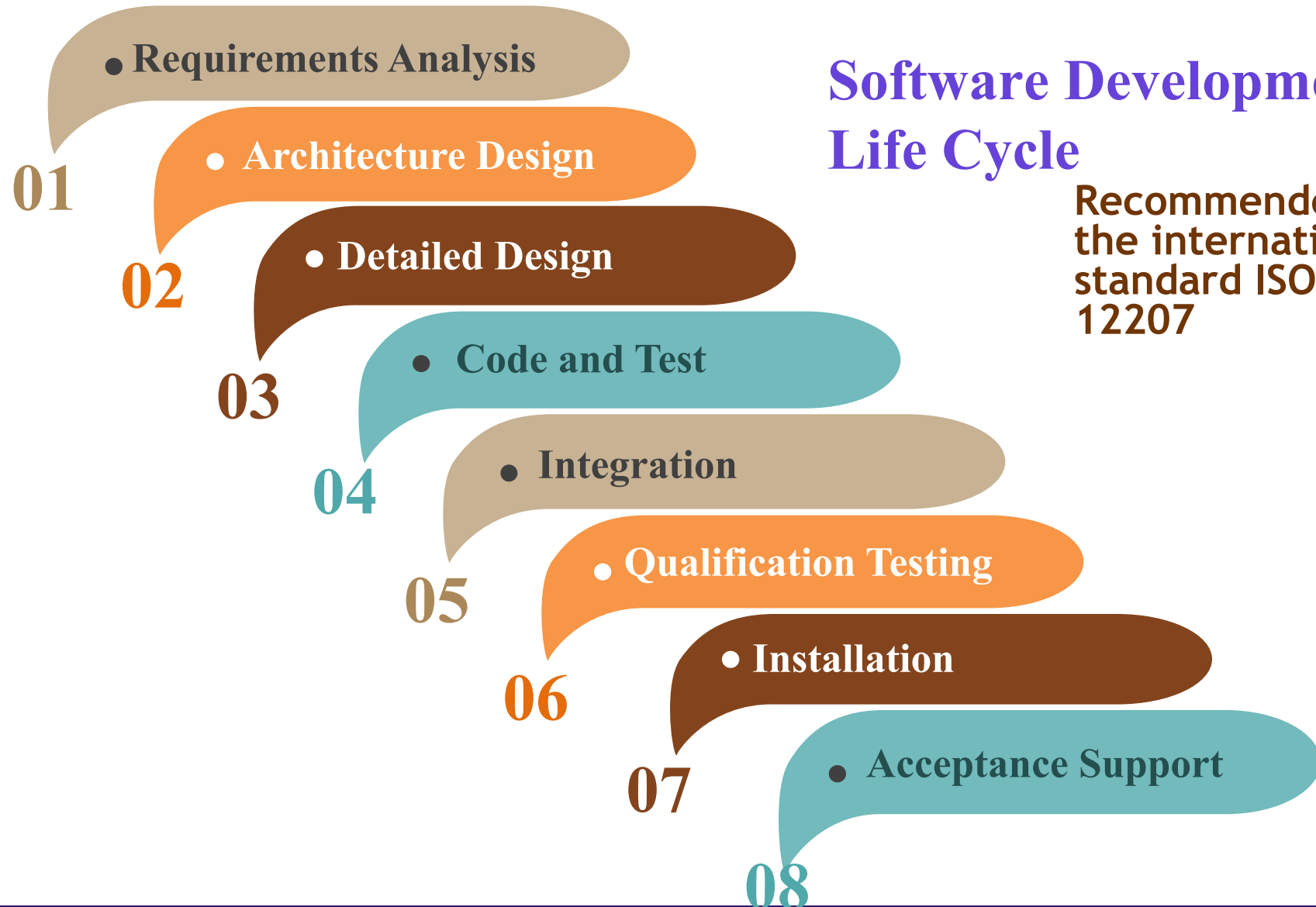
The **application of knowledge, skills, tools, and techniques** to project activities to **meet** the project requirements

Project Management

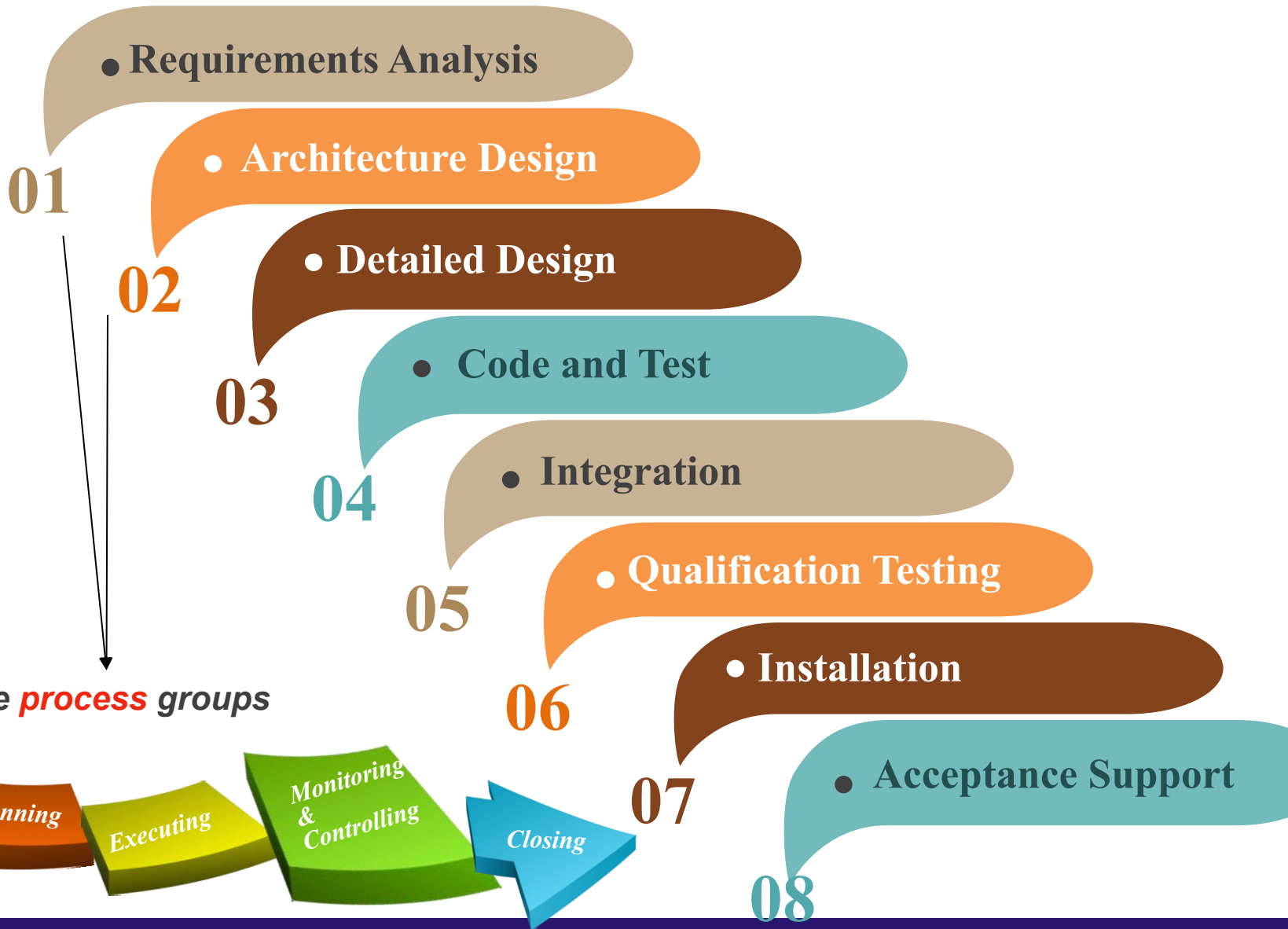
# Review

## Software Development Life Cycle

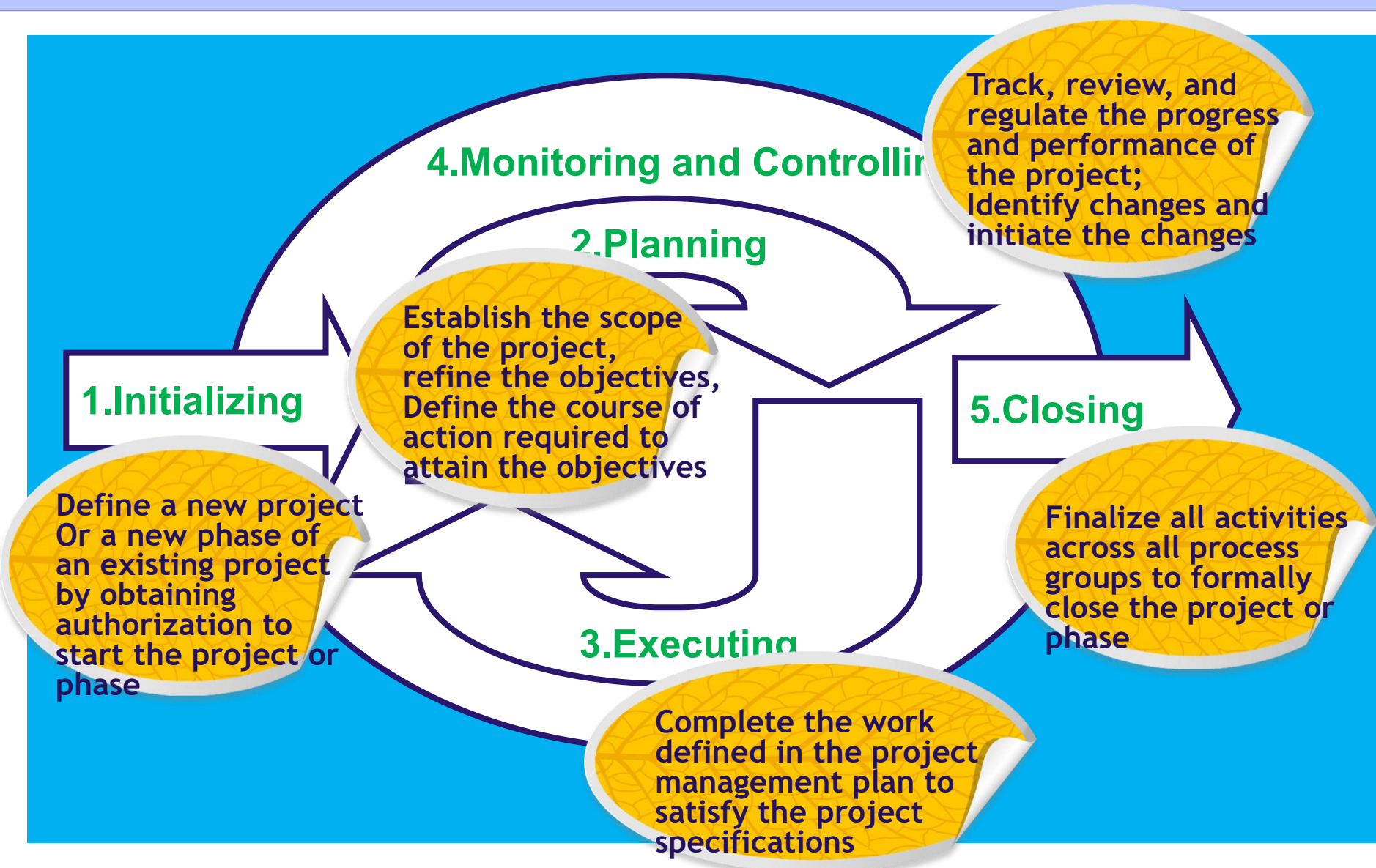
Recommended in  
the international  
standard ISO  
12207



# Review









# Review Software Development Life Cycle models

## 1. Predictive Life Cycles

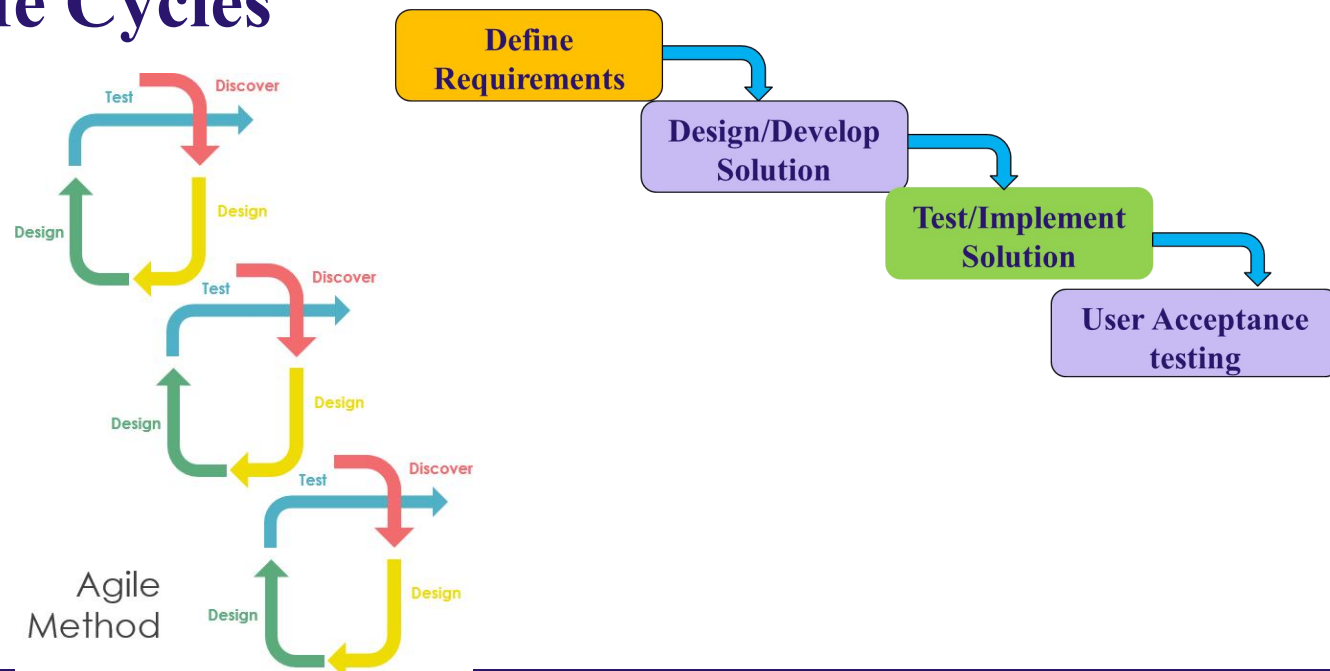
### ■ Waterfall model

## 2. Incremental Life Cycles

## 3. Iterative Life Cycles

## 4. Adaptive Life Cycles

### ■ Agile model



# Tests-week 2: true or false

1. Software project management is important for improving professional qualities.
2. A software project is always visible.
3. In the functional organizational structure, the project manager manages the project budget.
4. In the projectized organizational structure, the project manager has high authority.
5. Agile model provides an opportunity for quick and frequent feedback to keep the project on the right track.
6. Waterfall model belongs to the Adaptive Life Cycle.
7. Process is able to transform the structured management to unstructured management.



# Tests-Week 2

- 8. What are Five Process Groups?
  - Initiating, planning, executing, monitoring & controlling, closing
- 9. What is Software Project Management?
  - Software Project Management is a system management method based on software project, which uses the relevant knowledge, techniques and tools for planning, organizing, advising and controlling each stage of software project cycle to achieve the project objectives.
- 10. Please list the 8 activities of Software Development Life Cycle?
  - Requirements Analysis, Architecture Design, Detailed Design, Code and Test, Integration, Qualification Testing, Installation, Acceptance Support

# Software Project Management

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## Chapter2: Integration Management

# Project Management Process Group and Knowledge Area Mapping

**5 process groups**

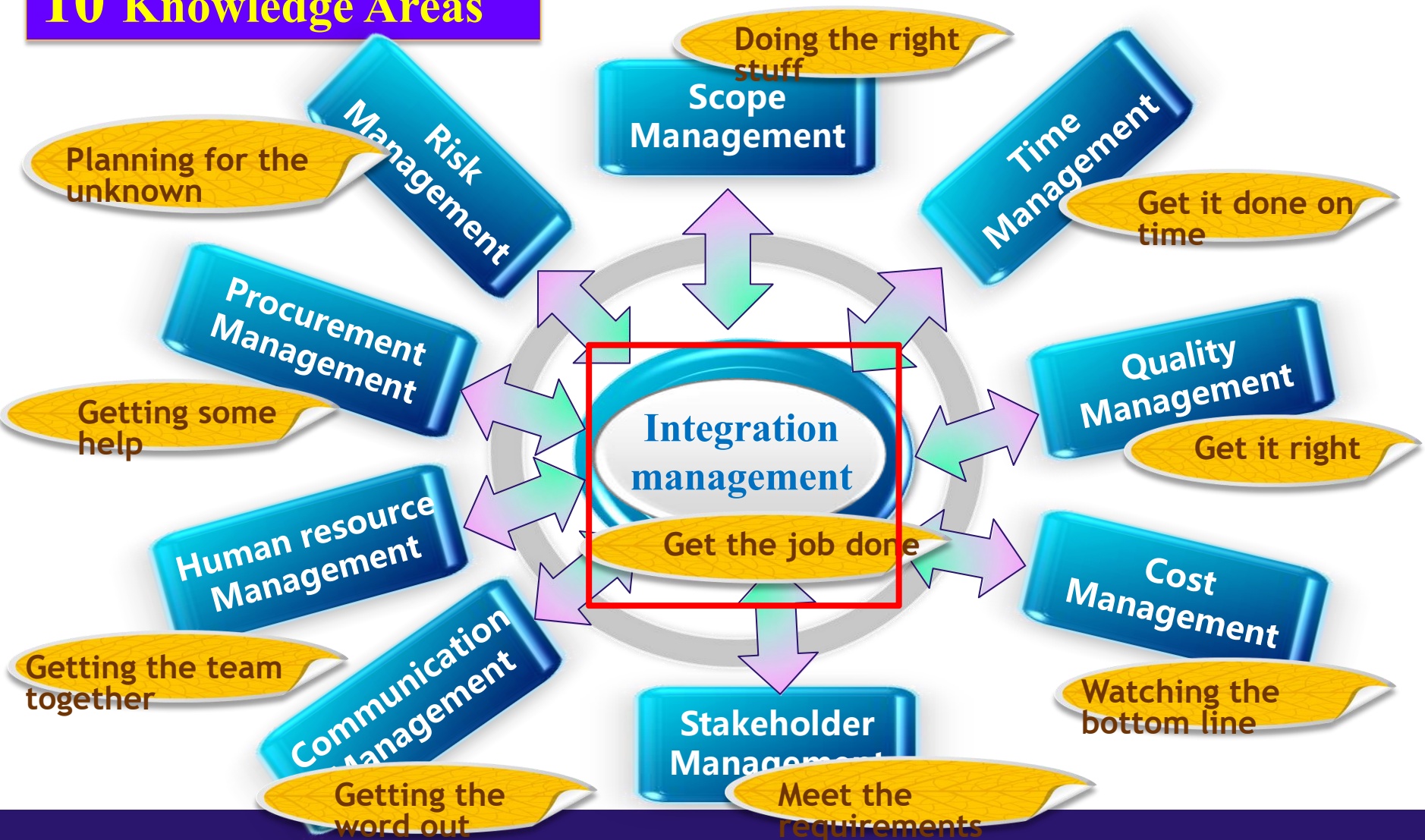
## 1. Integration Management

**10 knowledge areas**

Knowledge Areas	Project Management Process Groups				
	Initiating Process Group	Planning Process Group	Executing Process Group	Monitoring and Controlling Process Group	Closing Process Group
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# Project Management

## 10 Knowledge Areas

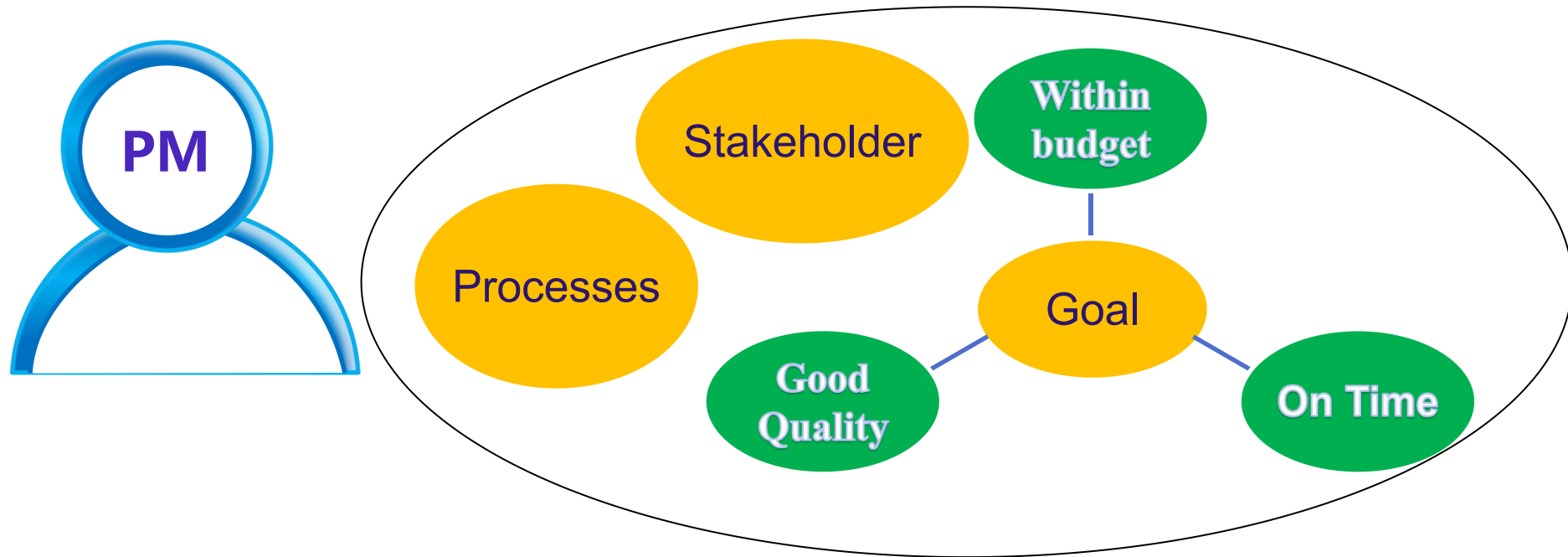




# Integration Management overview

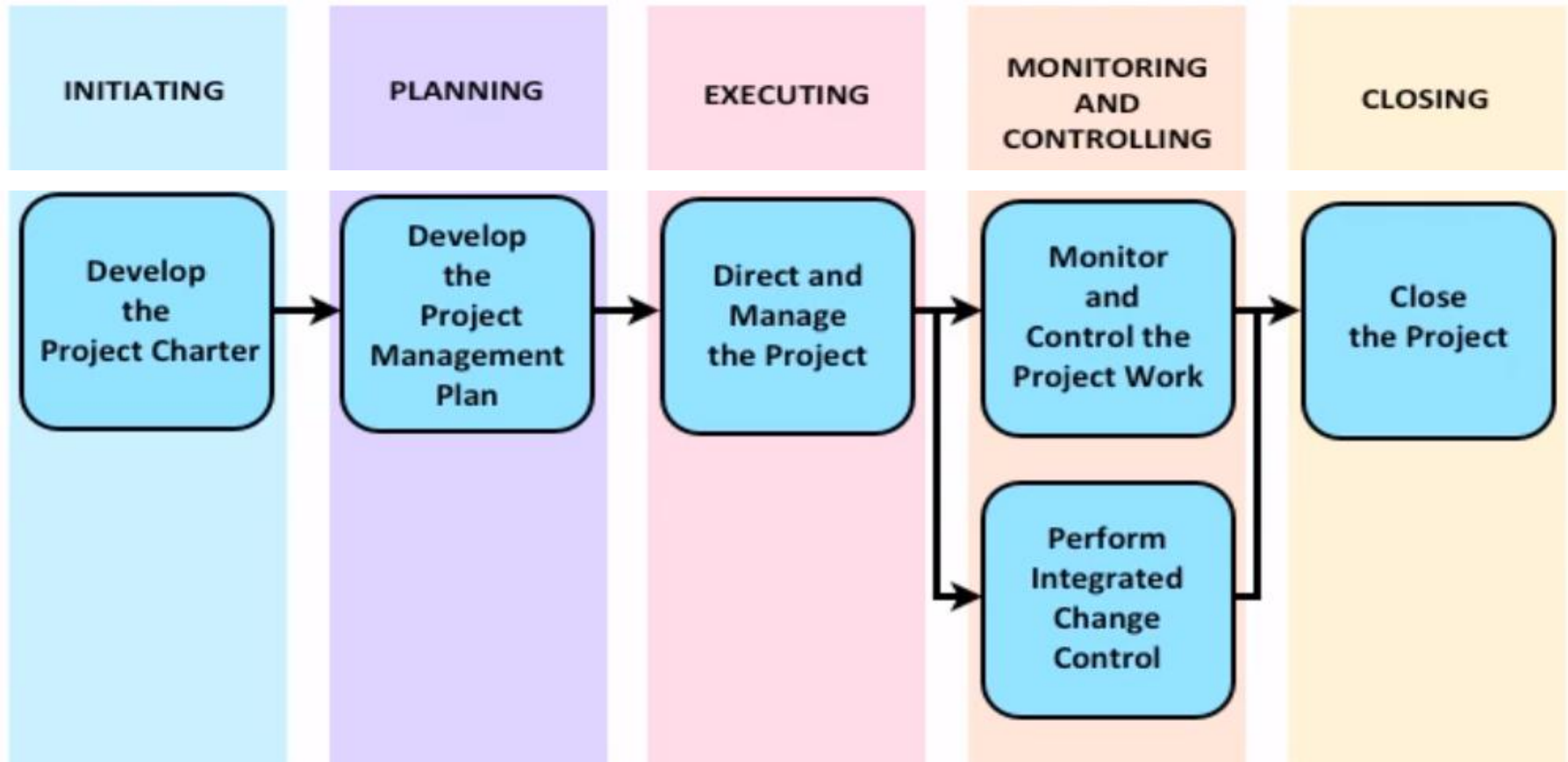
## □ What is Integration Management ?

Project Integration Management includes the processes and activities to **identify, define, combine, unify, and coordinate** the various processes and project management activities within the Project Management Process Groups.



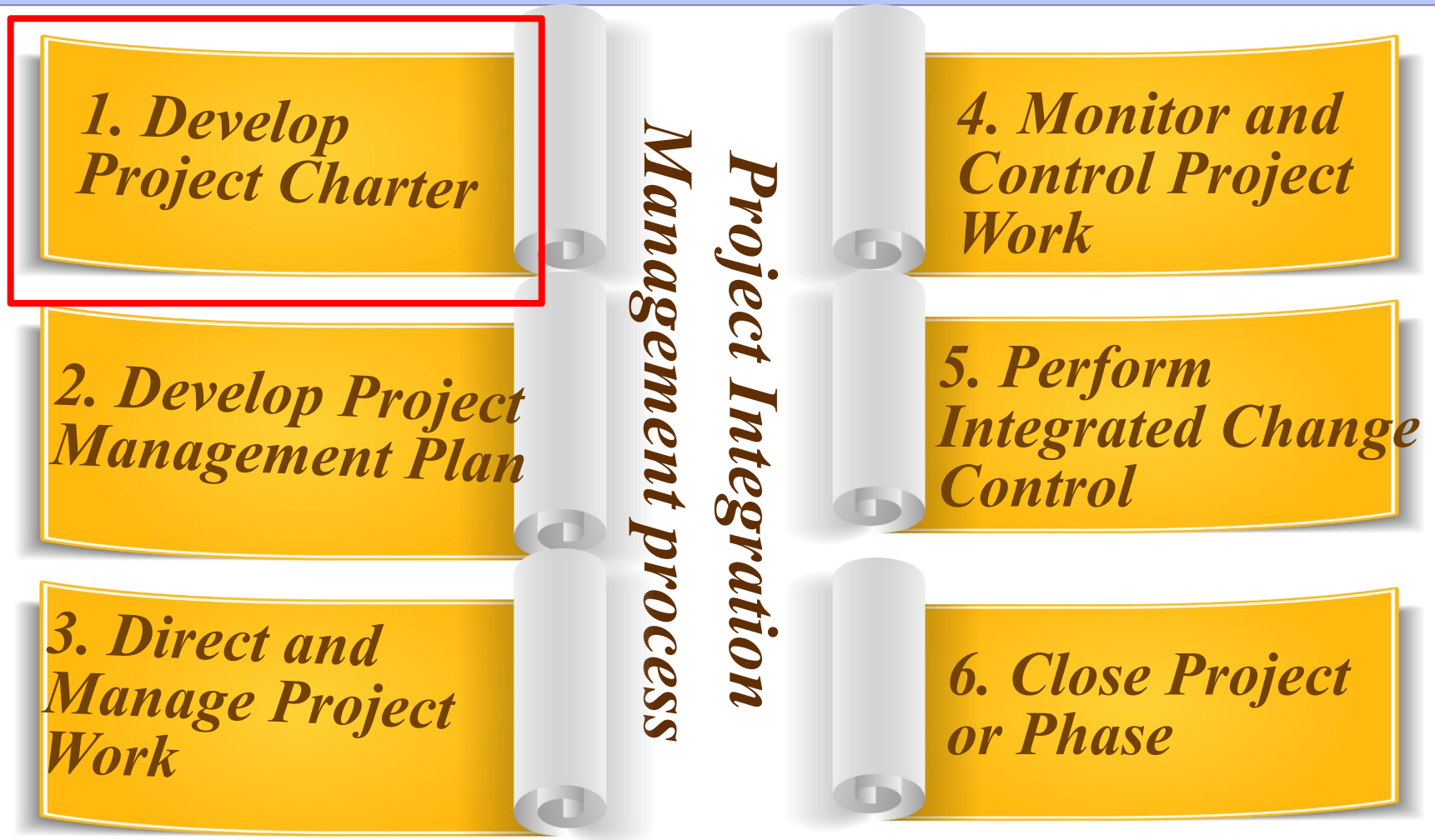
# Integration Management processes

## 5 Process Groups

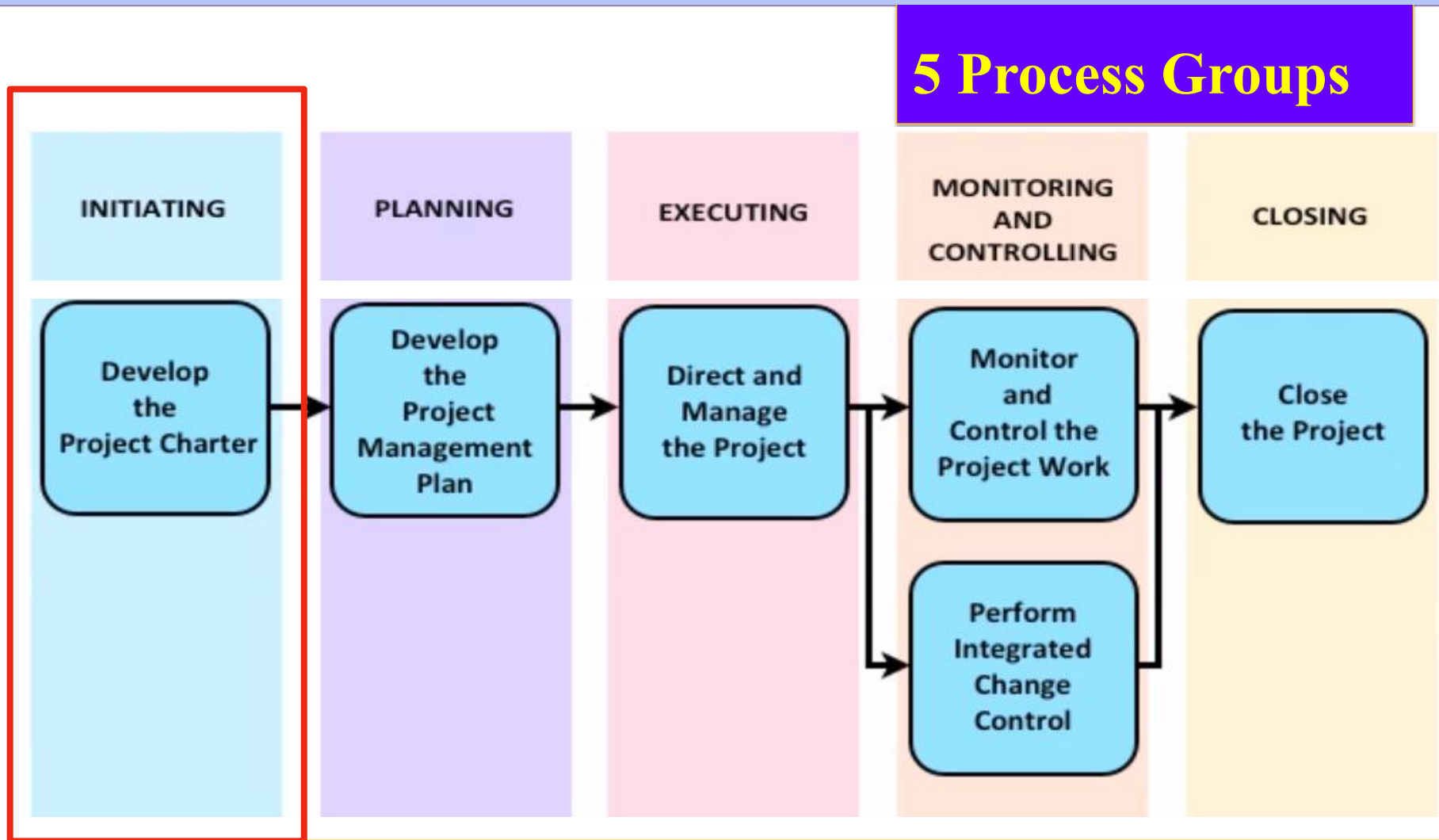


6 Project Integration Management processes

# Integration Management overview



# Section 2.1 Develop Project Charter



6 Project Integration Management processes

# Section 2.1 Develop Project Charter

## □ What is Project Charter

The project charter is the **document** issued by the project initiator or sponsor that formally authorizes the existence of a project and provides the project manager with the authority to apply organizational resources to project activities.

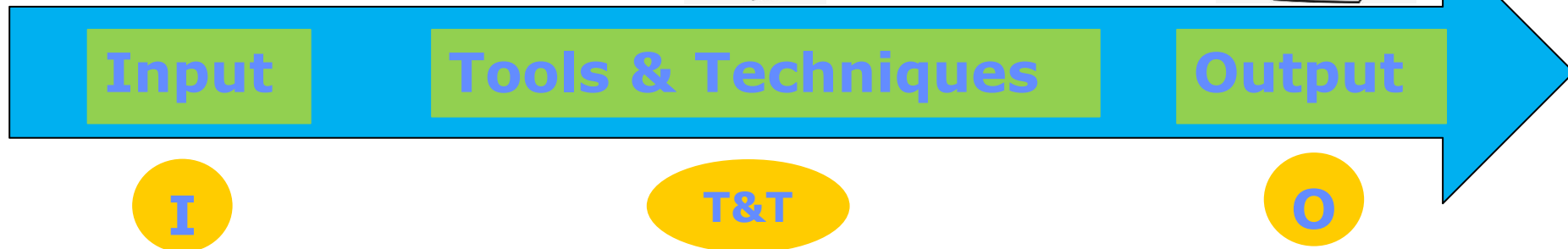
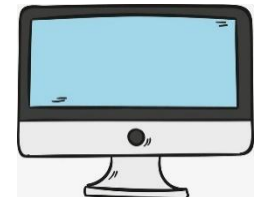
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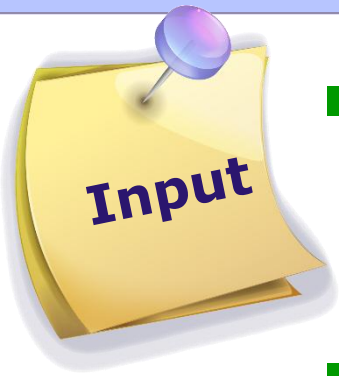
# Section 2.1 Develop Project Charter



**process**



# Section 2.1 Develop Project Charter: Input



## ■ Project Statement of Work (SOW)

- narrative description of products, services, or results
- provided by sponsor or customer.

## ■ Business Case

- business standpoint, worth the required investment?
- market demand, customer request, legal requirement

## ■ Agreements

- define initial intentions, contracts, email,...

## ■ Enterprise Environmental Factors

- Governmental standards, Marketplace conditions,...

## ■ Organizational Process Assets

- Historical information, project charter template

# Develop Project Charter: Tools and Techniques

T&T

## *Expert Judgment*

- ◆ *group or individual with specialized knowledge:*
  - ◆ *consultants*
  - ◆ *stakeholder*
  - ◆ *professional associations*
  - ◆ ...

## *Facilitation Techniques*

- ◆ *brainstorming*
- ◆ *conflict resolution*
- ◆ *problem solving*
- ◆ *meeting management*
- ◆ ...



# Section 2.1 Develop Project Charter: Output



- **Project Charter:** It documents the business needs, assumptions, constraints, the understanding of the customer's needs and high-level requirements, and the new product, service, or result that it is intended to satisfy, such as:

- Project purpose or justification,
- Measurable project objectives
- High-level requirements,
- Assumptions and constraints,
- High-level risks,
- Summary milestone schedule,
- Summary budget,
- Stakeholder list,
- Project approval requirements,
- **Assigned project manager,**
- Name and authority of the sponsor or other person(s) authorizing the project charter.

# Example Project Charter

## Project Charter

Project Description:

Assigned Project Manager:

Key Milestones:

Business Justification:

Sponsor:

Signed:  
Date:

### Background ↓

[Why is the project being undertaken? Describe an opportunity or problem that the project is to address.] ↓

↓

### Goals ↓

- → [specific & measurable goal-1] ↓
- → [specific & measurable goal-2] ↓
- → [specific & measurable goal-3] ↓

### Scope ↓

[What will be the end result of the project? Describe what phases of work will be undertaken. It's also important to mention what activities will not be included in this project.] ↓

↓

### Key Stakeholders ↓

Client..... ↓	[name] ↓	↓
Sponsor ↓	[name] ↓	↓
Project manager ↓	[name] ↓	↓
Project team members ↓	[name], [name], [name], [name]. ↓	↓

↓

### Project Milestones ↓

[Identify the significant project milestones: start date, end date and invoicing dates to the client.] ↓

↓

### Project Budget ↓

[Describe the main project expenses: non-recurring & monthly recurring.] ↓

↓

### Constraints, Assumptions, Risks and Dependencies ↓

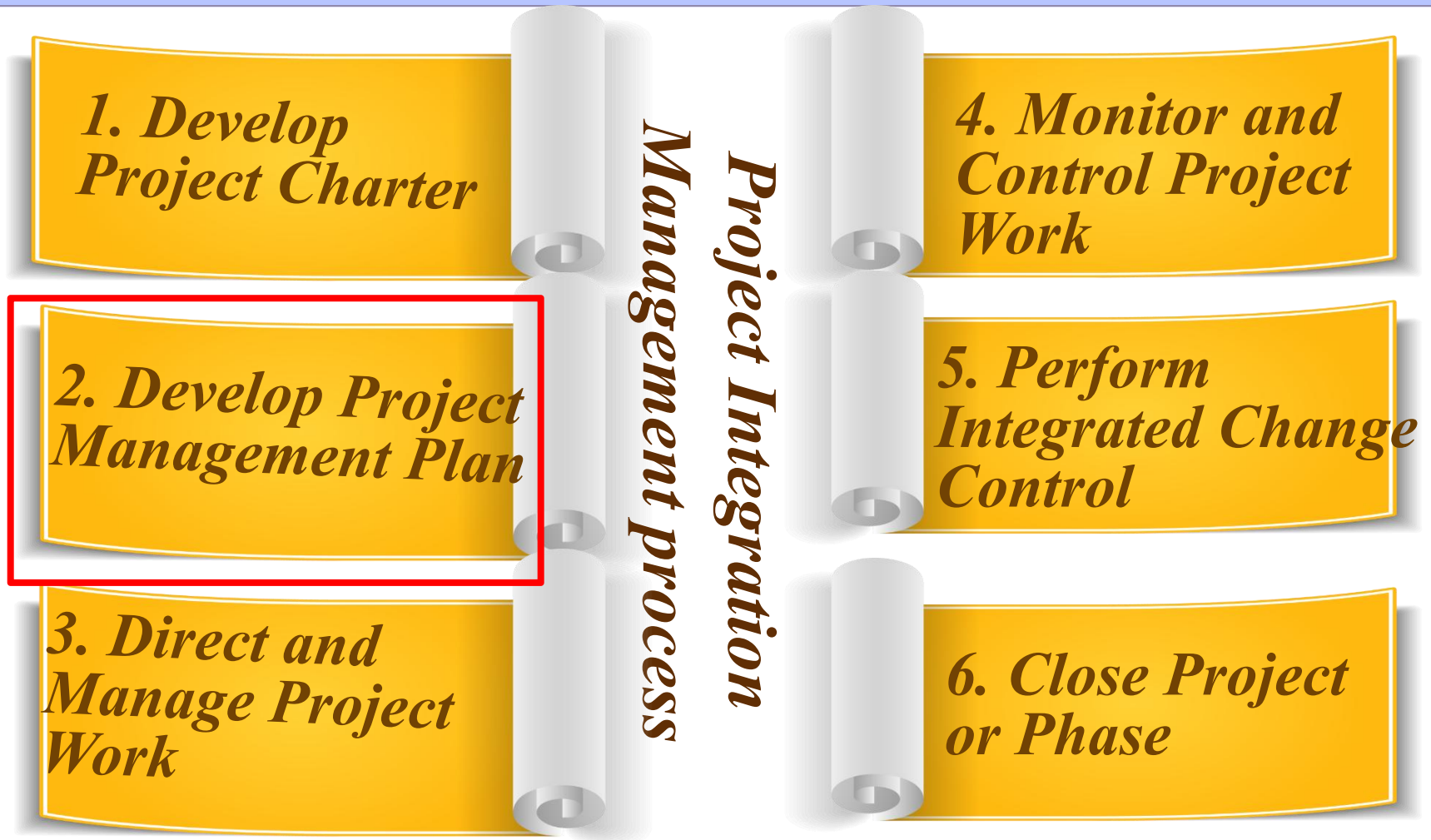
Constraints..... ↓	[Describe here potential factors that will impact the delivery of the project] ↓	↓
Assumptions ↓	[Describe here conditions or situations that you are relying on in order to achieve project goals] ↓	↓
Risks and Dependencies ↓	[What are the most significant risks? What things must happen before the project is delivered?] ↓	↓

↓

### Approval Signatures ↓

↓

# Integration Management overview



# Project Management Process Group and Knowledge Area Mapping

**5 process groups**

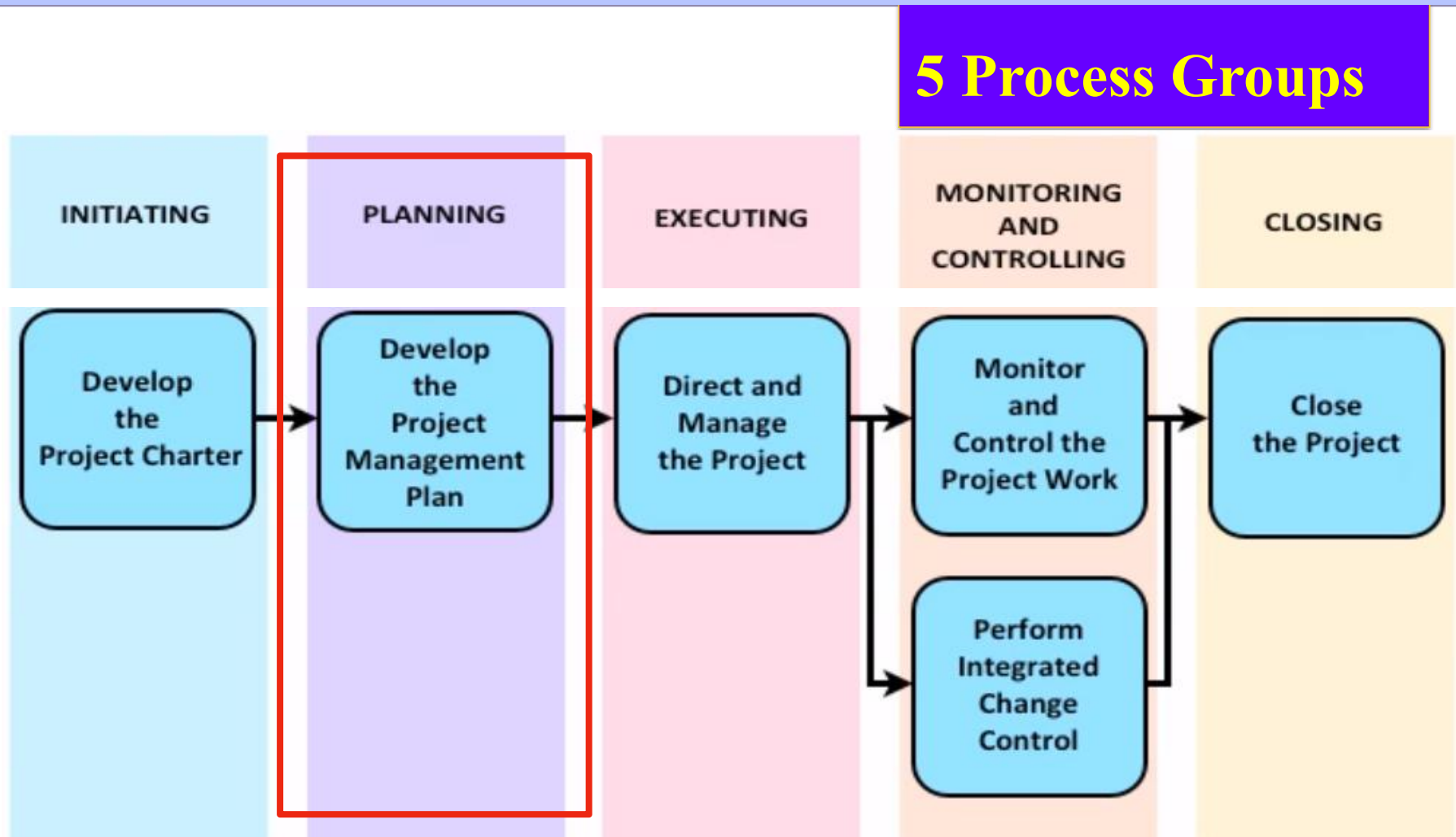
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***Develop Project Management Plan***

# Section 2.2 Develop Project Management Plan



6 Project Integration Management processes

# Section 2.2 Develop Project Management Plan

## □ Project Management Plan

The project management plan is the **document** that describes how the project will be executed, monitored, and controlled.

## □ Develop Project Management Plan

Develop Project Management Plan is the process of defining, preparing, and coordinating all **subsidiary plans** and **integrating** them into a comprehensive project management plan.

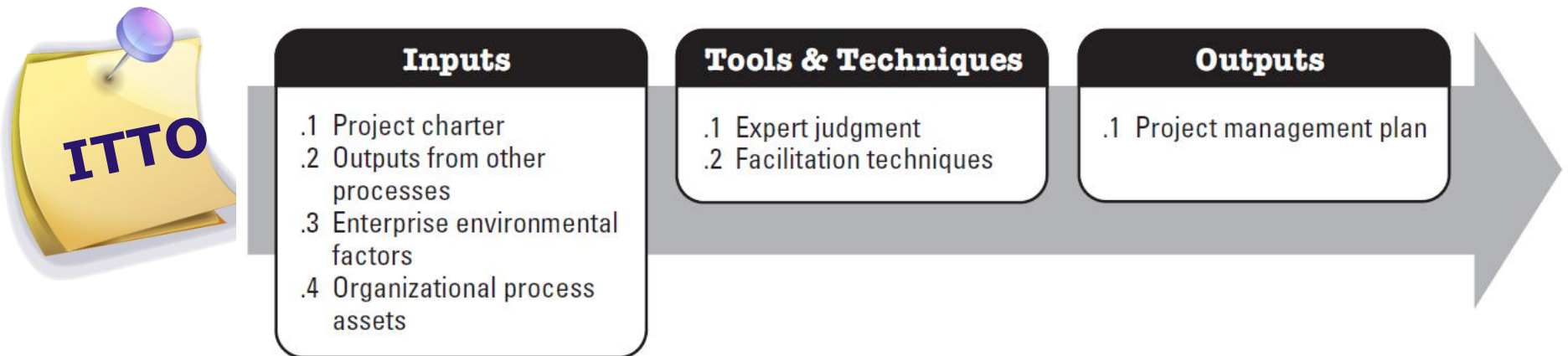
The key benefit of this process is a central document that defines the basis of all project work.

# Section 2.2 Develop Project Management Plan

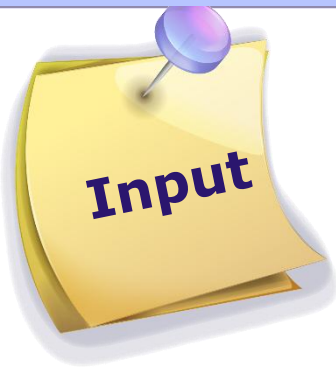
## □ Develop Project Management Plan

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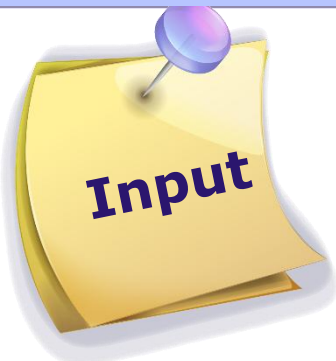
# Section 2.2 Develop Project Management Plan



1. **Project Charter**
  - Output of the process of “develop project charter”
2. **Outputs from Other Processes**
  - Any baselines and subsidiary plans that are an output from other planning processes
3. **Enterprise Environmental Factors**
4. **Organizational Process Assets**



# Section 2.2 Develop Project Management Plan



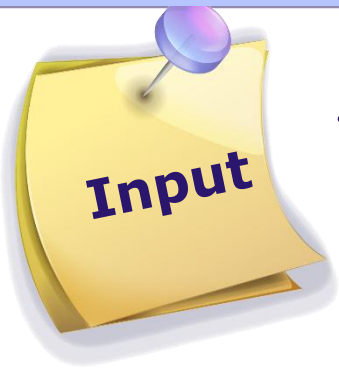
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***Develop Project Management Plan***

# Section 2.2 Develop Project Management Plan

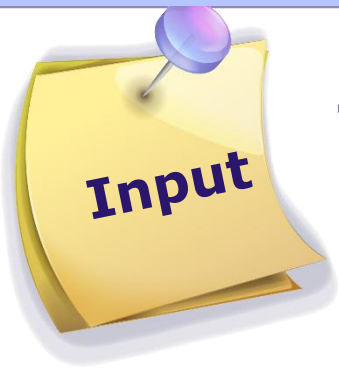


## 3. Enterprise Environmental Factors

- refer to conditions, **not under the control** of the project team, that influence, constrain, or direct the project.
- are considered **inputs** to most planning processes
- may enhance or constrain project management options, and may have a positive or negative influence on the outcome.
- include, but are not limited to:
  - Government or industry standards
  - Infrastructure
  - Existing human resources
  - Political climate



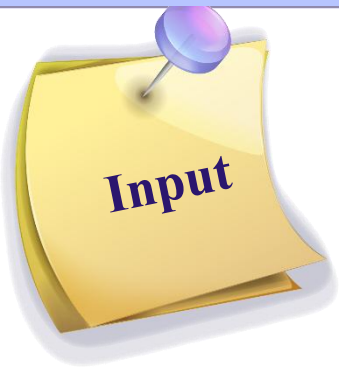
# Section 2.2 Develop Project Management Plan



## 4. Organizational Process Assets

- the plans, processes, policies, procedures, and knowledge bases specific to and used by the performing organization.
- are **inputs** to most planning processes.
- may be grouped into two categories:
  - (1) processes and procedures,
  - (2) corporate knowledge base.

# Section 2.2 Develop Project Management Plan



**Enterprise  
Environmental Factors**

**V.S. Organizational Process  
Assets**

- Affect the project
  - Can not be affected
  - Systems
- plans, processes, policies, procedures, and knowledge bases

**Test: True or false?**

1. Enterprise Environmental Factors are under the control of the project team.
2. Project management plan is a kind of Organizational Process Assets.

# Section 2.2 Develop Project Management Plan



## *Expert Judgment*

- ◆ *group or individual with specialized knowledge:*
  - ◆ *consultants*
  - ◆ *stakeholder*
  - ◆ *professional associations*
  - ◆ *...*

## *Facilitation Techniques*

- ◆ *brainstorming*
- ◆ *conflict resolution*
- ◆ *problem solving*
- ◆ *meeting management*
- ◆ *...*

# Section 2.2 Develop Project Management Plan



- **Project Management Plan:** It is the document that describes how the project will be executed, monitored, and controlled.
  - It integrates and consolidates all of the subsidiary plans and baselines from the planning processes.:

## Baseline

- Scope baselines
- Schedule baselines
- Cost baselines

## Subsidiary plans

- Scope management plan
- Requirements management plan
- Schedule management plan
- Cost management plan
- Quality management plan
- Process improvement plan
- Human resource management plan
- Communication management plan
- Risk management plan
- Procurement management plan
- Stakeholder management plan

# Section 2.2 Develop Project Management Plan



- **Project Management Plan:** It is the document that describes how the project will be executed, monitored, and controlled.

- **Subsidiary plans**
- **Baselines**

**Project charter**

**Project management plan**

**Subsidiary plans**

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# Section 2.2 Develop Project Management Plan



## ■ Project Management Plan

■ Contains but not limited to these baselines and subsidiary plans

■ Who develop:

■ PM? No

■ Who authorize:

■ sponsor,

■ Steering group

■ Key stakeholders

■ ...

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# Section 2.2 Develop Project Management Plan



## ■ Project Management Plan-template



<Project Name> Project Management Plan

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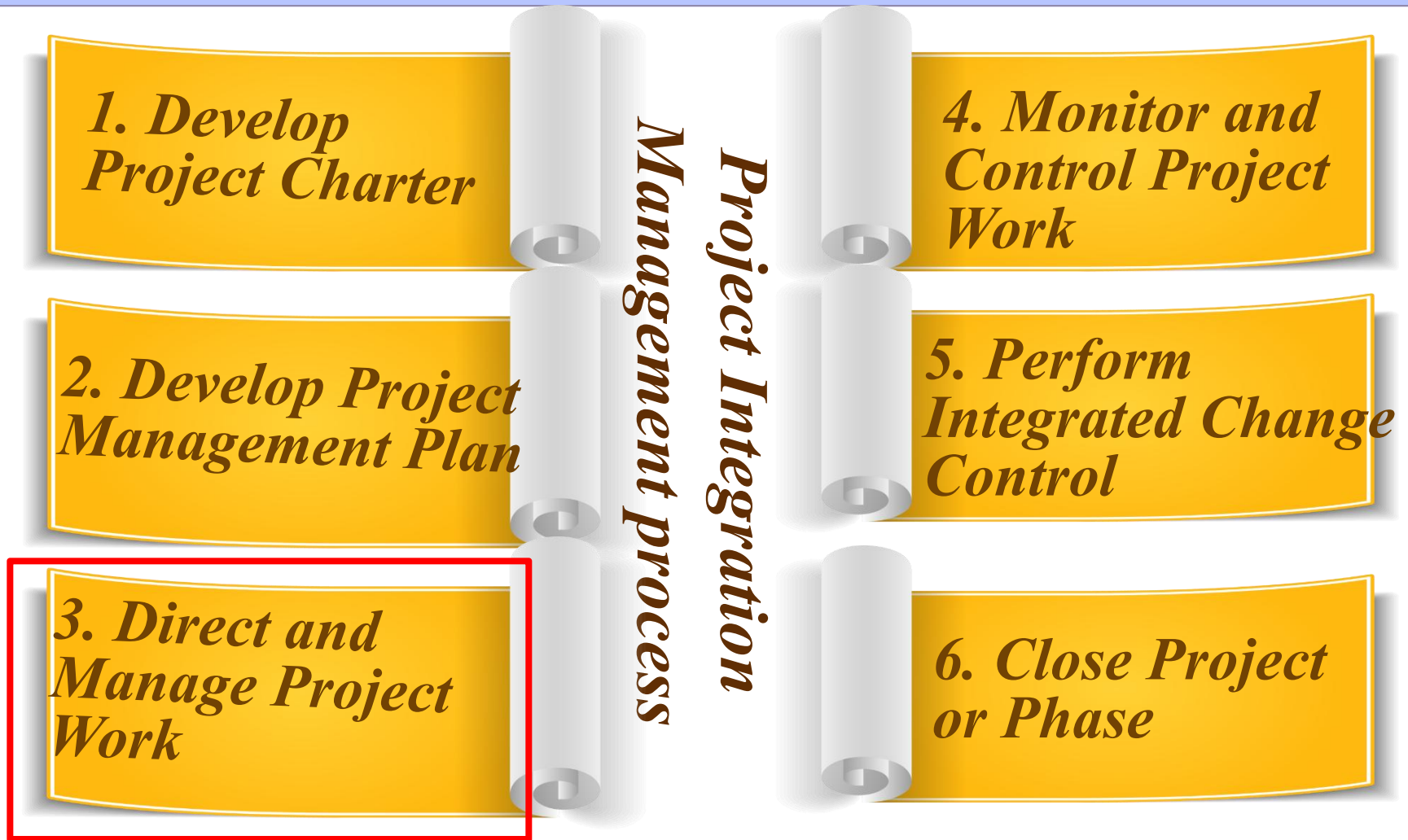
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• 6	Quality Management .....	9
6.1	Quality Assurance.....	9
6.2	Quality Control.....	10
• 7	Human Resource Management.....	10
7.1	Human Resources Acquisition .....	10
7.2	Human Resources Development.....	10
• 8	Communications Management .....	10
8.1	Stakeholder Analysis.....	10
8.2	Project Reporting and Communication.....	10
• 9	Risk Management .....	11
• 10	References .....	11

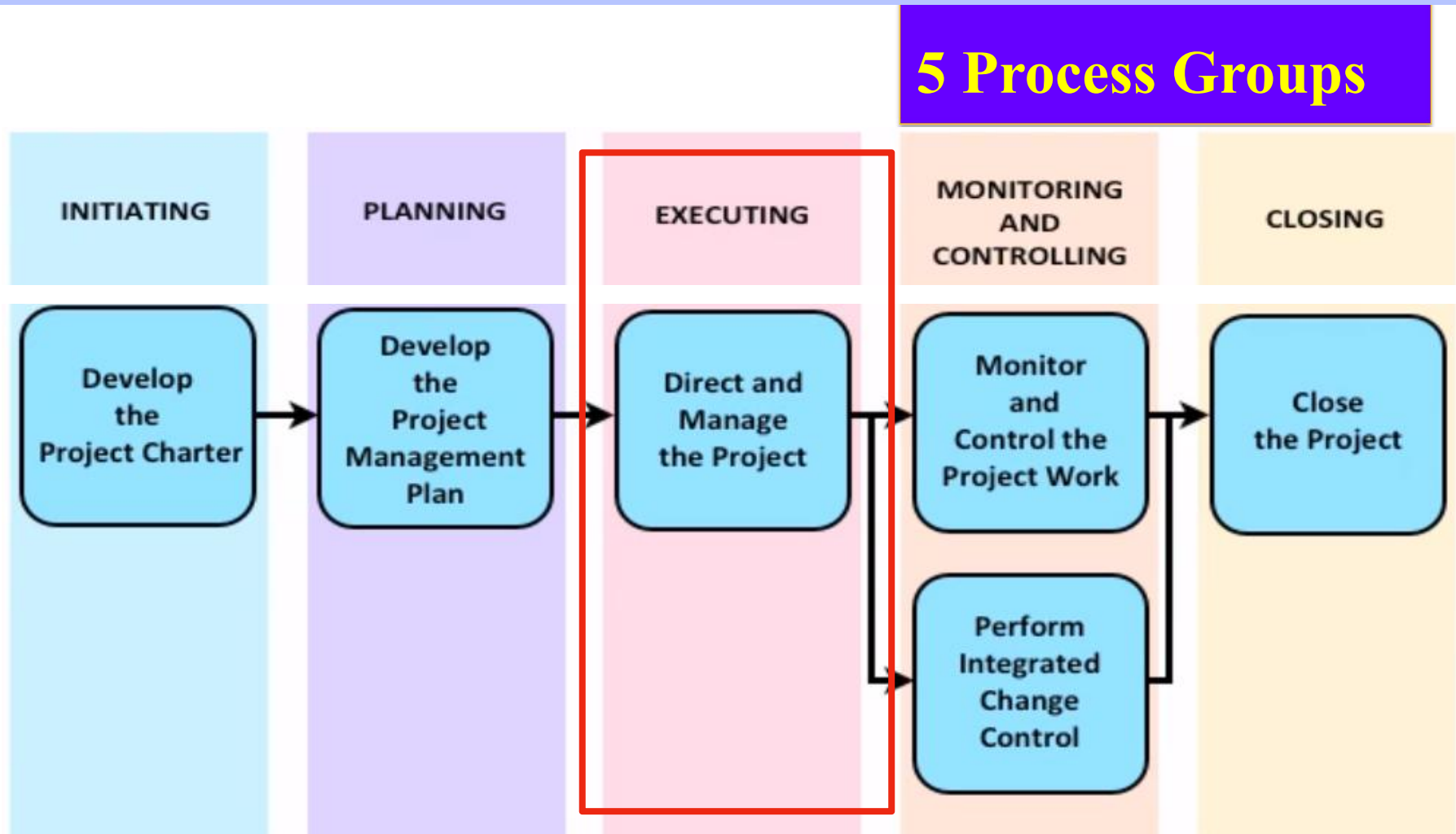
# Test- true or false?

1.  The project charter is produced during the planning stage of the project.
2.  The Project Management Plan is approved by the sponsor.

# Integration Management overview



# Section 2.3 Direct and Manage Project Work

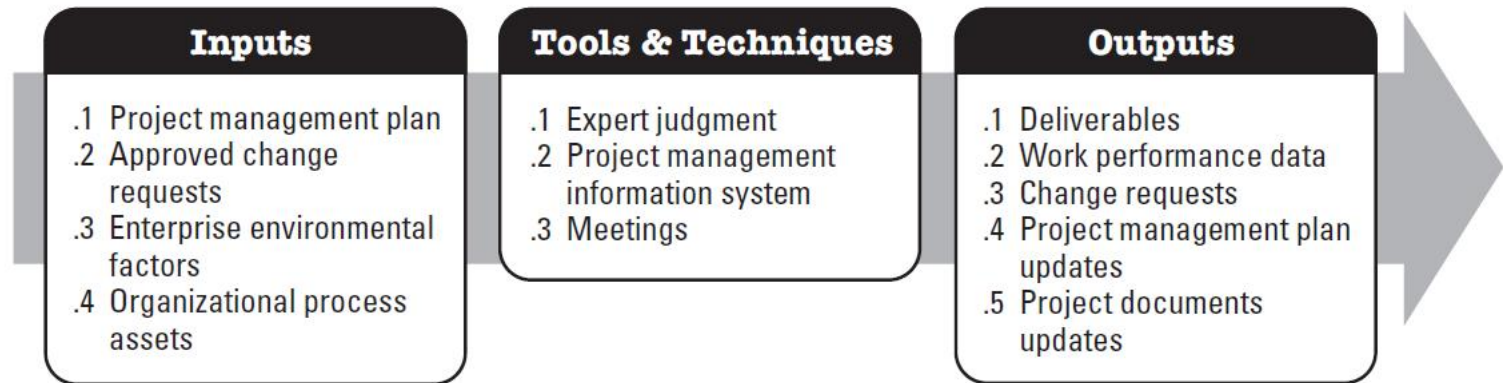


6 Project Integration Management processes

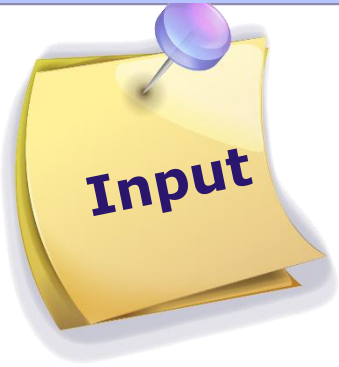
# Section 2.3 Direct and Manage Project Work

## □ Direct and Manage Project Work

- Direct and Manage Project Work is the process of leading and performing the work defined in the project management plan and implementing approved changes to achieve the project's objectives.
- The key benefit of this process is that it provides overall management of the project work.



# Section 2.3 Direct and Manage Project Work



1. **Project Management Plan**
  - Output of the process of “develop project management plan”
2. **Approved Change Requests**
3. **Enterprise Environmental Factors**
4. **Organizational Process Assets**

# Section 2.3 Direct and Manage Project Work

T&T

## *Expert Judgment*

## *Meetings*

- ◆ *Information exchange*
- ◆ *Brainstorming*
- ◆ *Decision making*
- ◆ .....

## *Project Management Information System*

### ◆ *provides access to tools:*

- ◆ *scheduling tool*
- ◆ *work authorization system*
- ◆ *configuration management system*

## **Enterprise Environmental Factors**



# Section 2.3 Direct and Manage Project Work



## ■ Deliverables

- any unique and verifiable product, result or capability to perform a service that is required to be produced to complete a process, phase, or project.

## ■ Work Performance Data

- work completed
- key performance indicators
- technical performance measures
- start and finish dates of schedule activities
- number of change requests, number of defects
- ...

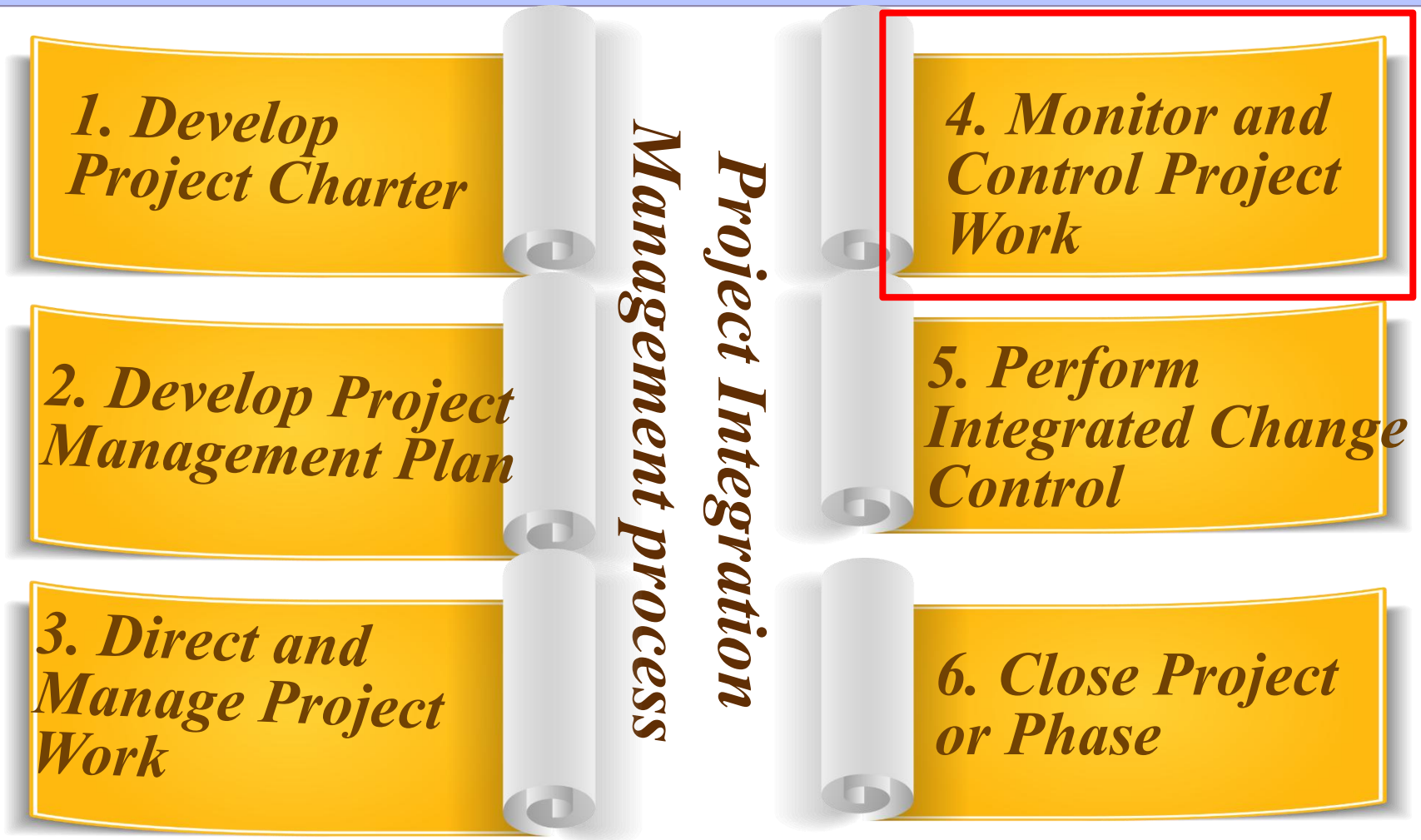
## ■ Change Requests

## ■ Project Management Plan Updates

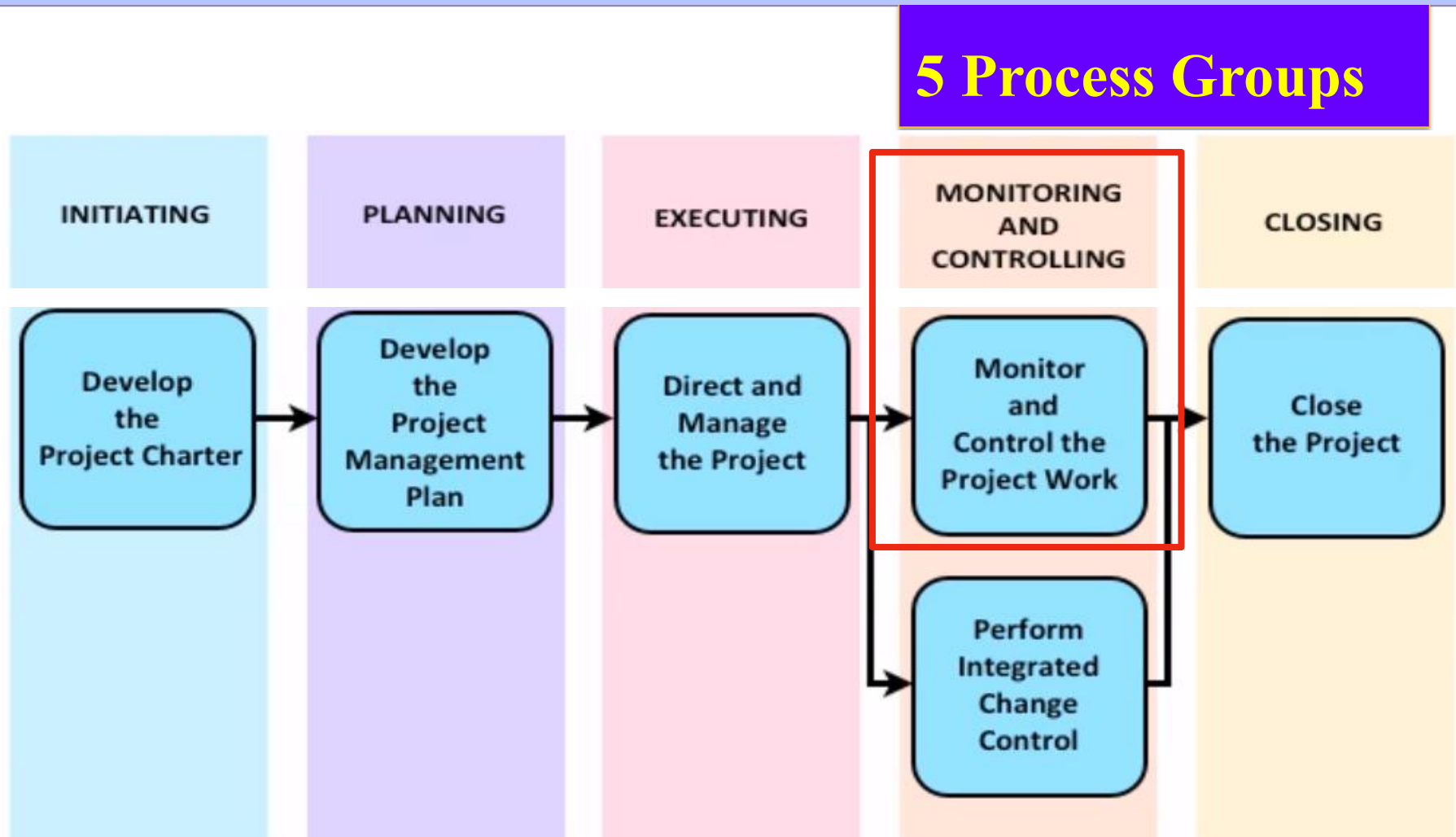
## ■ Project Documents Updates



# Integration Management overview



# Section 2.4 Monitor and Control Project Work



6 Project Integration Management processes

# Section 2.4 Monitor and Control Project Work

## □ Monitor and Control Project

Work

- Monitor and Control Project Work is the process of tracking, reviewing, and reporting the progress to meet the performance objectives defined in the project management plan.
- The key benefit of this process is that it allows stakeholders to understand the current state of the project, the steps taken, and budget, schedule, and scope forecasts.

**Monitor**

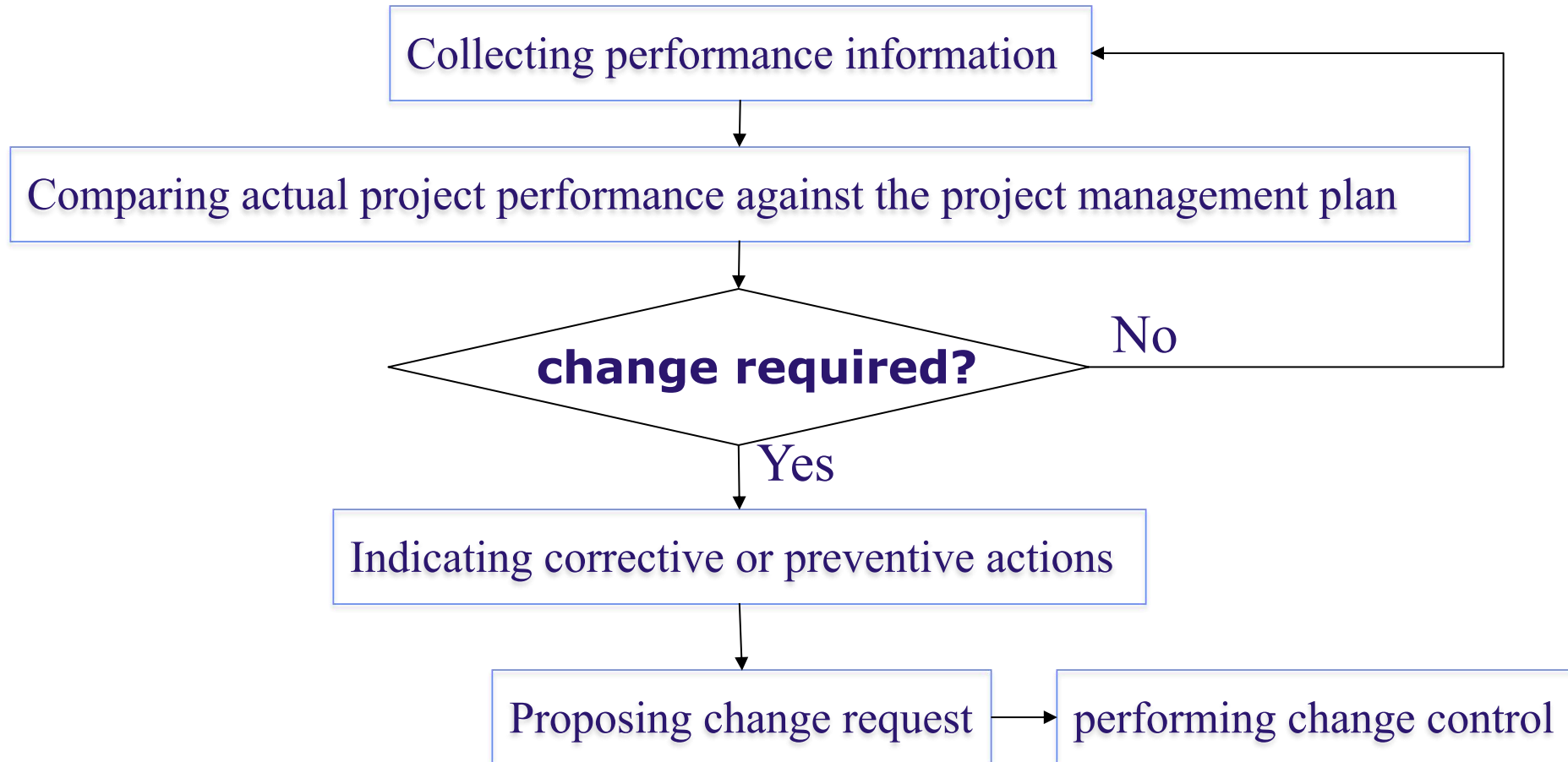
**collecting**, measuring, and distributing performance information, and assessing measurements and trends.

**Control**

determining **corrective**, preventive actions, replanning and following up on action plans

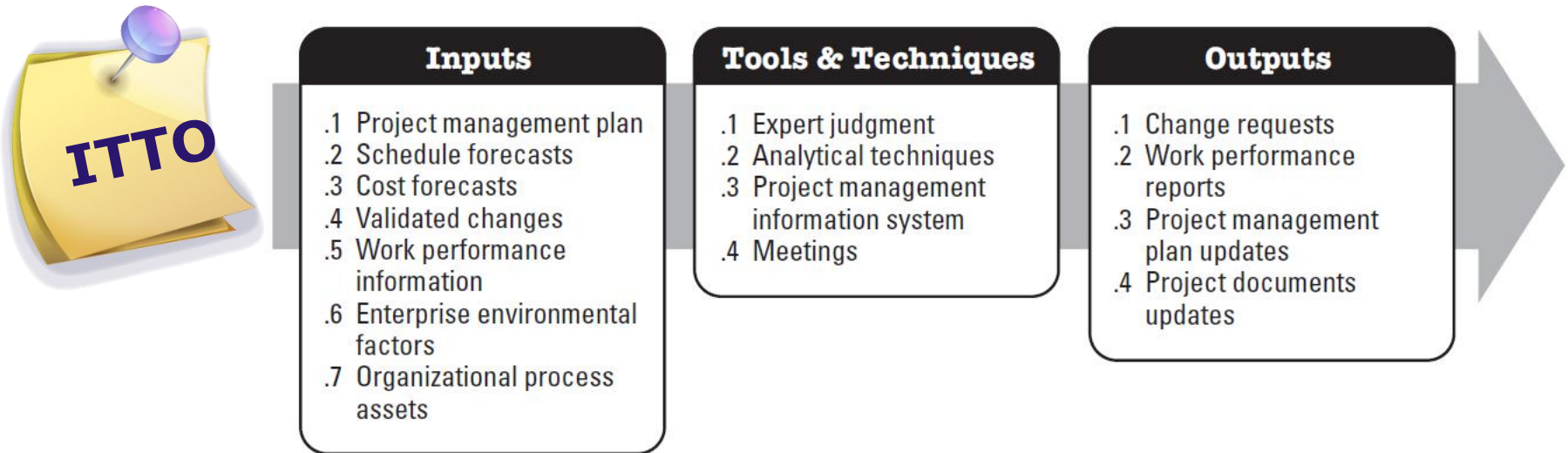
# Section 2.4 Monitor and Control Project Work

## □ Flow chart

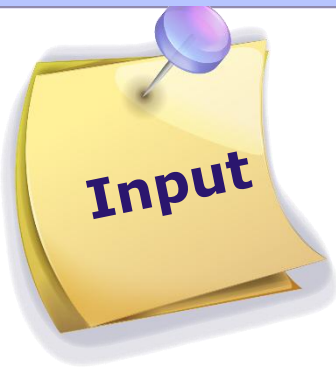


# Section 2.4 Monitor and Control Project Work

## □ Monitor and Control Project Work



# Section 2.4 Monitor and Control Project Work



1. **Project Management Plan**
2. **Schedule Forecasts---time management**
3. **Cost Forecasts----cost management**
4. **Validated Changes**
5. **Work Performance Information**
  - **Work Performance Data?**
6. **Enterprise Environmental Factors**
7. **Organizational Process Assets**

# Section 2.4 Monitor and Control Project Work



*Expert Judgment*

*Meetings*

*Project Management Information System*

*Analytical Techniques*

- ◆ *Regression analysis,*
- ◆ *Grouping methods,*
- ◆ *Causal analysis,*
- ◆ *Root cause analysis,*
- ◆ *Forecasting methods*
- ◆ *Failure mode and effect analysis*
- ◆ *Fault tree analysis (FTA),*

.....



# Section 2.4 Monitor and Control Project Work



## ■ Change Requests

- Corrective action
- Preventive action
- Defect repair

2023.01.01 100W

2023.03.01 -50W

Work performance data? (raw)  
Work performance information?

## ■ Work Performance Reports

- status reports, memos, justifications, information notes, recommendations, and updates.

## ■ Project Management Plan Updates

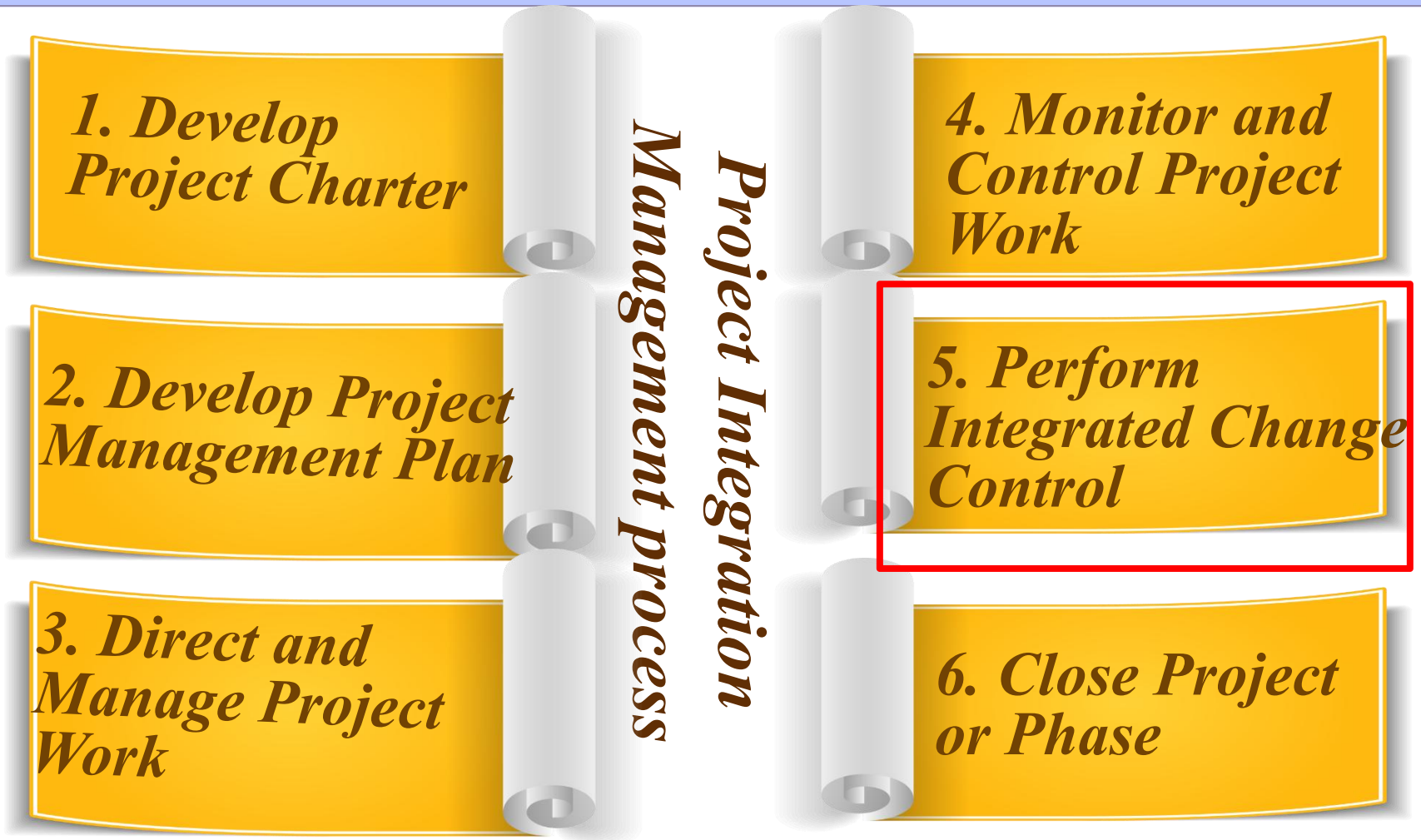
## ■ Project Documents Updates



executing

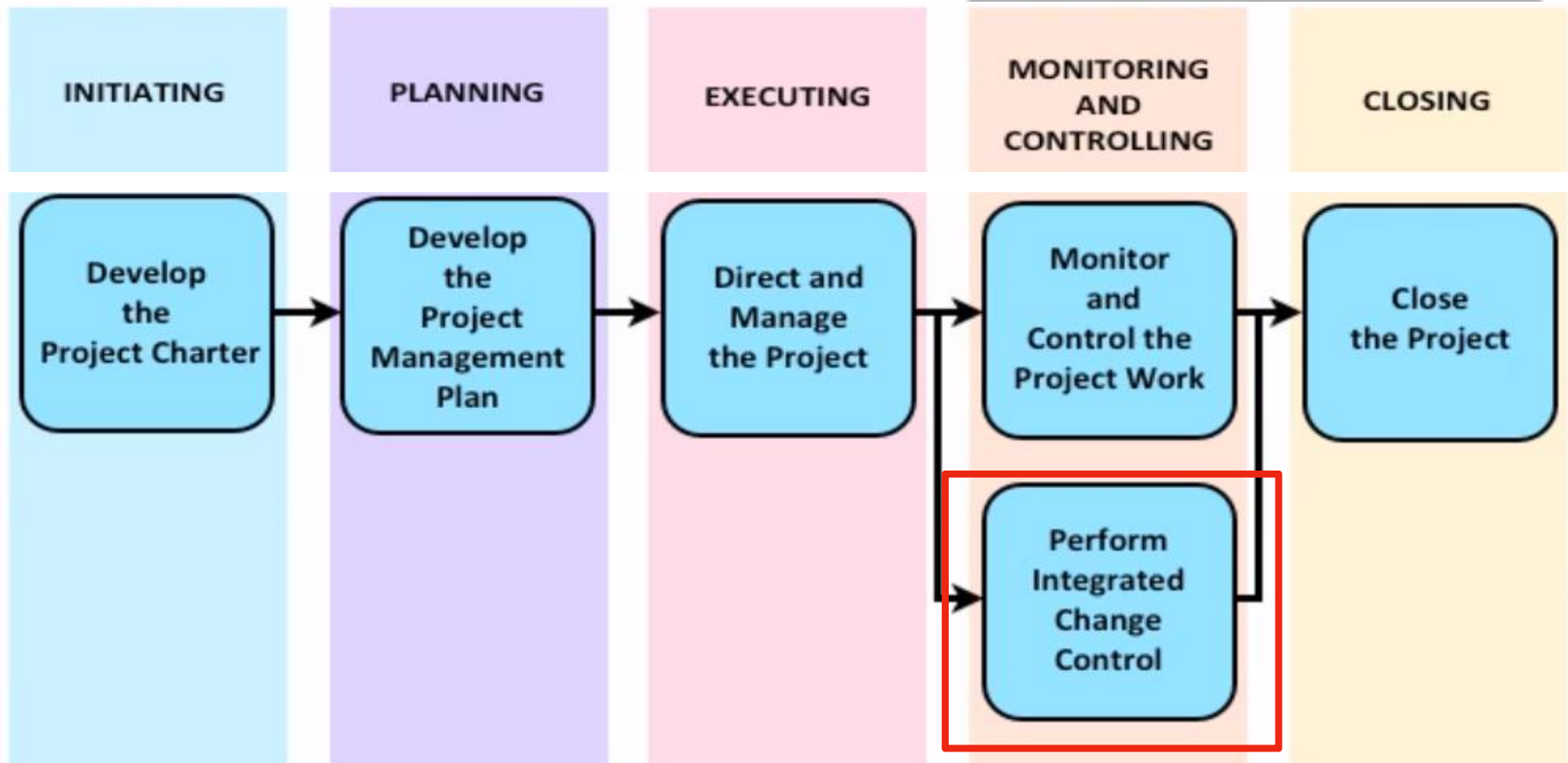
monitoring and controlling

# Integration Management overview



# Section 2.4 Monitor and Control Project Work

## 5 Process Groups



6 Project Integration Management processes

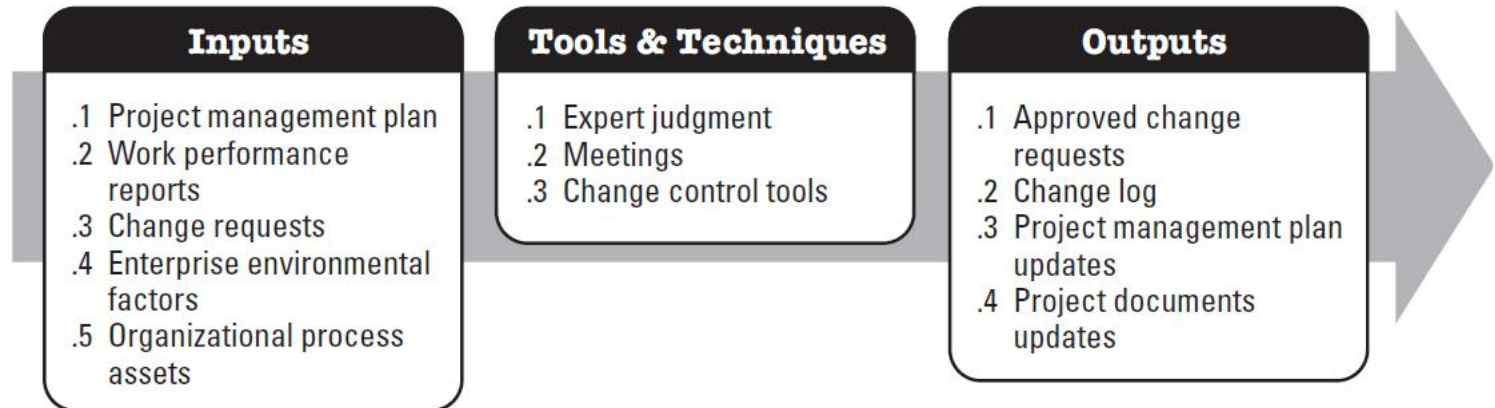
# Section 2.5 Perform Integrated Change Control

## □ Perform Integrated Change Control

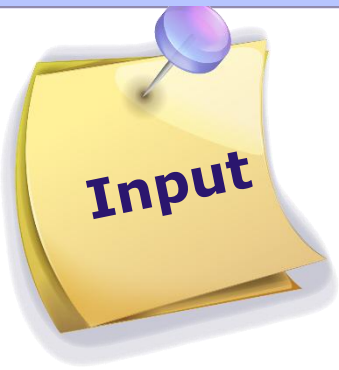
- Perform Integrated Change Control is the process of **reviewing** all change requests; **approving** changes and **managing** changes to deliverables, organizational process assets, project documents, and the project management plan; and communicating their disposition.
- The key benefit of this process is that it allows for documented changes within the project to be considered in an integrated fashion while reducing project risk, which often arises from changes made without consideration to the overall project objectives or plans.
  - This process is conducted **from project inception through completion** and is the ultimate responsibility of the project manager.
  - Changes may be requested by any stakeholder involved, verbally or in written, but they should be **recorded in written** form.
  - Every documented change request needs to be either approved or rejected by a responsible individual, usually the **project sponsor** or **project manager**. When required, includes a change control board (CCB).

# Section 2.5 Perform Integrated Change Control

## □ Perform Integrated Change Control



# Section 2.5 Perform Integrated Change Control



- Project Management Plan
- Work Performance Reports
  - ?
- Change Requests
  - ?
- Enterprise Environmental Factors
- Organizational Process Assets

# Section 2.5 Perform Integrated Change Control



## *Expert Judgment*

## *Meetings*

- ◆ *Information exchange*
- ◆ *Brainstorming*
- ◆ *Decision making*
- ◆ *.....*

## *Change Control Tools*

- ◆ *manual or automated tools*
- ◆ *Tool selection should be based on the needs of the project stakeholders*



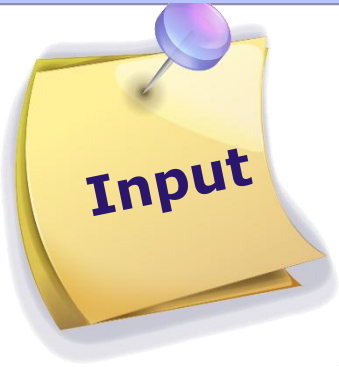
# Section 2.5 Perform Integrated Change Control



- **Approved Change Requests**
- **Change log**
- **Project Management Plan Updates**
- **Project Documents Updates**

**To where?**

# Section 2.3 Direct and Manage Project Work

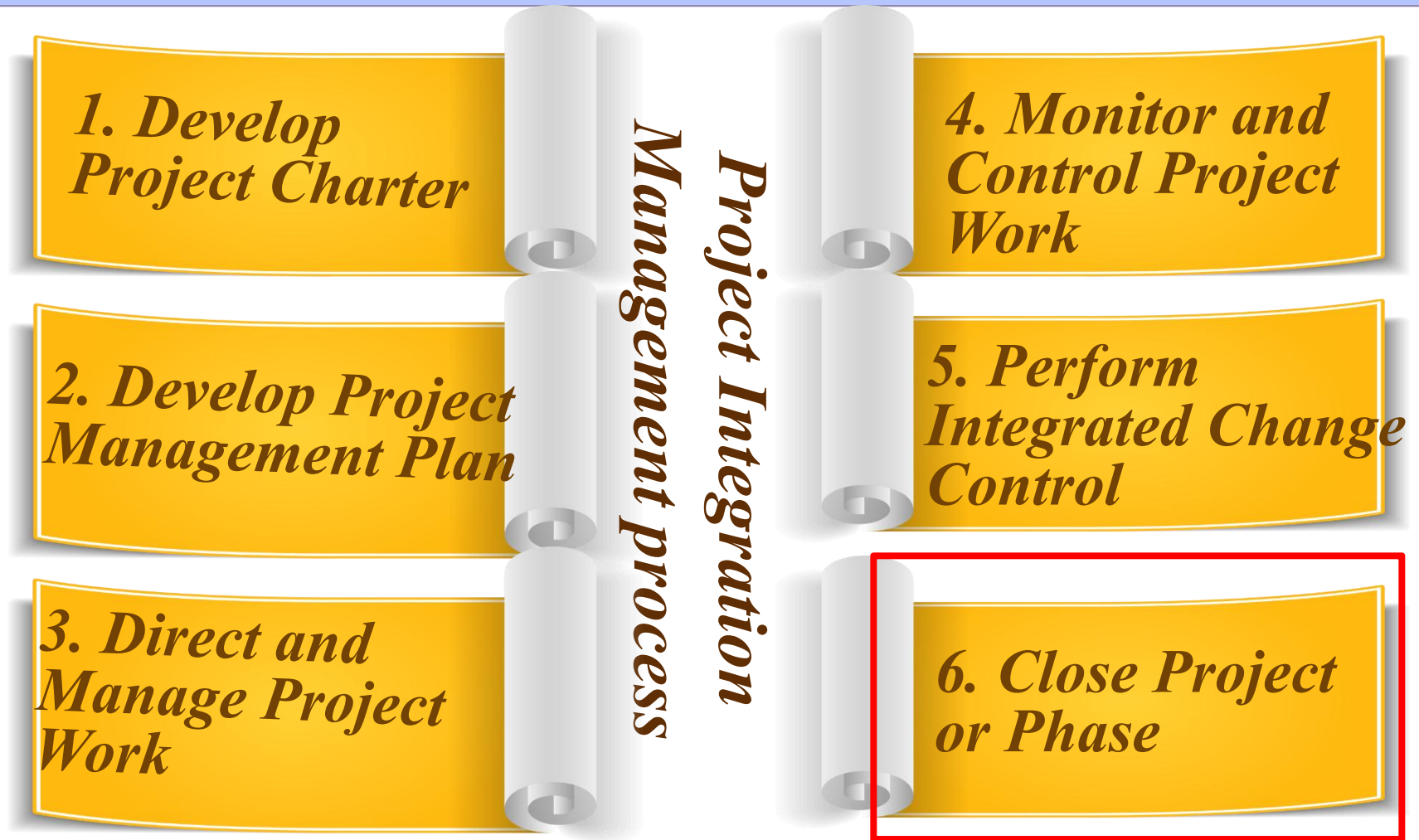


1. **Project Management Plan**
  - Output of the process of “develop project management plan”
2. **Approved Change Requests**
3. **Enterprise Environmental Factors**
4. **Organizational Process Assets**

# Test- true or false?

- 1. In the process of Perform Integrated Change Control, Changes can only be requested by project manager.**
- 2. In the process of Perform Integrated Change Control, Change Requests should be recorded in written form.**
- 3. The Approved Change Requests will be taken as an input of Perform Integrated Change Control process.**

# Integration Management overview



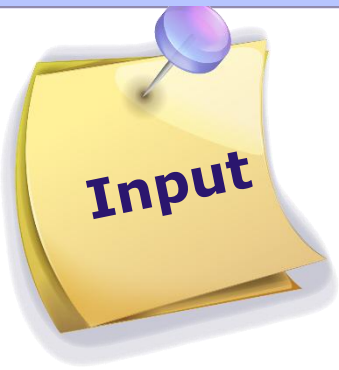
# Section 2.6 Close Project or Phase

## □ Close Project or Phase

- Close Project or Phase is the process of finalizing all activities across all of the Project Management Process Groups to formally complete the project or phase.
- The key benefit of this process is that it **provides lessons learned**, the formal **ending** of project work, and the **release of organization resources** to pursue new endeavors.



# Section 2.6 Close Project or Phase



## ■ Project Management Plan

- the agreement between the project manager and project sponsor,
- defining what constitutes project completion.

## ■ Accepted Deliverables

- approved product specifications, delivery receipts, and work performance documents.
- formal acceptance

## ■ Organizational Process Assets

- closure guidelines or requirements
- historical information and lessons learned knowledge base

# Section 2.6 Close Project or Phase



*Expert  
Judgment*

*Analytical  
Techniques*

- ◆ *Regression analysis, and*
- ◆ *Trend analysis*

*Meetings*

- ◆ *face-to-face*
- ◆ *virtual*
- ◆ *formal, or informal.*




# Section 2.6 Close Project or Phase



- **Final Product, Service, or Result Transition**
- **Organizational Process Assets Updates**
  - **Project files**
  - **Project or phase closure documents**
  - **Historical information**
  - **...**

**Close!**

# Test- true or false?

1.  The release of organization resources is needed in the Close Project process.
2. Work Performance Reports are produced based on Work Performance Information.

# Project Management Process Group and Knowledge Area Mapping

**5 process groups**

## 1. Integration Management

**10 knowledge areas**

Knowledge Areas	Project Management Process Groups				
	Initiating Process Group	Planning Process Group	Executing Process Group	Monitoring and Controlling Process Group	Closing Process Group
4. Project Integration Management	4.1 Develop Project Charter	4.2 Develop Project Management Plan	4.3 Direct and Manage Project Work	4.4 Monitor and Control Project Work 4.5 Perform Integrated Change Control	4.6 Close Project or Phase
5. Project Scope Management		5.1 Plan Scope Management 5.2 Collect Requirements 5.3 Define Scope 5.4 Create WBS		5.5 Validate Scope 5.6 Control Scope	
6. Project Time Management		6.1 Plan Schedule Management 6.2 Define Activities 6.3 Sequence Activities 6.4 Estimate Activity Resources 6.5 Estimate Activity Durations 6.6 Develop Schedule		6.7 Control Schedule	
7. Project Cost Management		7.1 Plan Cost Management 7.2 Estimate Costs 7.3 Determine Budget		7.4 Control Costs	
8. Project Quality Management		8.1 Plan Quality Management	8.2 Perform Quality Assurance	8.3 Control Quality	
9. Project Human Resource Management		9.1 Plan Human Resource Management	9.2 Acquire Project Team 9.3 Develop Project Team 9.4 Manage Project Team		
10. Project Communications Management		10.1 Plan Communications Management	10.2 Manage Communications	10.3 Control Communications	
11. Project Risk Management		11.1 Plan Risk Management 11.2 Identify Risks 11.3 Perform Qualitative Risk Analysis 11.4 Perform Quantitative Risk Analysis 11.5 Plan Risk Responses		11.6 Control Risks	
12. Project Procurement Management		12.1 Plan Procurement Management	12.2 Conduct Procurements	12.3 Control Procurements	12.4 Close Procurements
13. Project Stakeholder Management	13.1 Identify Stakeholders	13.2 Plan Stakeholder Management	13.3 Manage Stakeholder Engagement	13.4 Control Stakeholder Engagement	

# Chapter 2: Summary

**A**

**Master the concept of Integration Management**

**B**

**Mastering the process of develop project charter**

**C**

**Mastering the process of develop project management plan**

**D**

**Understanding the ITTO/output of each process**

# Assignment-1 Develop project charter

## 1. Project Charter Template

### Background ↓

[Why is the project being undertaken? Describe an opportunity or problem that the project is to address.] ↓

↓

### Goals ↓

- → [specific & measurable goal-1] ↓
- → [specific & measurable goal-2] ↓
- → [specific & measurable goal-3] ↓

### Scope ↓

[What will be the end result of the project? Describe what phases of work will be undertaken. It's also important to mention what activities will not be included in this project.] ↓

↓

### Key Stakeholders ↓

Client: ....	[name] ↓
Sponsor ↓	[name] ↓
Project manager ↓	[name] ↓
Project team members ↓	[name], [name], [name], [name] ↓

### Project Milestones ↓

[Identify the significant project milestones: start date, end date and invoicing dates to the client.] ↓

↓

### Project Budget ↓

[Describe the main project expenses: non-recurring & monthly recurring.] ↓

↓

### Constraints, Assumptions, Risks and Dependencies ↓

Constraints: ....	[Describe here potential factors that will impact the delivery of the project] ↓
Assumptions ↓	[Describe here conditions or situations that you are relying on in order to achieve project goals] ↓
Risks and Dependencies ↓	[What are the most significant risks? What things must happen before the project is delivered?] ↓

↓

### Approval Signatures ↓

↓

# Assignment-1 Develop project charter

## 1. Project Charter

1. Background

2. Goals

3. Scope (requirement)

4. Key Stakeholders

5. Project Milestones

6. Project Budget

7. Constraints, Assumptions, Risks and Dependencies

8. Approval Signatures

### Background:

[Why is the project being undertaken? Describe an opportunity or problem that the project is to address.]

↓

### Goals:

- → [specific & measurable goal-1]
- → [specific & measurable goal-2]
- → [specific & measurable goal-3]

### Scope:

[What will be the end result of the project? Describe what phases of work will be undertaken. It's also important to mention what activities will not be included in this project.]

↓

### Key Stakeholders:

Client	[name]
Sponsor	[name]
Project manager	[name]
Project team members	[name], [name], [name], [name]

↓

### Project Milestones:

[Identify the significant project milestones: start date, end date and invoicing dates to the client.]

↓

### Project Budget:

[Describe the main project expenses: non-recurring & monthly recurring.]

↓

### Constraints, Assumptions, Risks and Dependencies:

Constraints	[Describe here potential factors that will impact the delivery of the project]
Assumptions	[Describe here conditions or situations that you are relying on in order to achieve project goals]
Risks and Dependencies	[What are the most significant risks? What things must happen before the project is delivered?]

↓

### Approval Signatures:

↓

# Assignment-1 Develop project charter

## *Assumptions*

- Elements to **assume will be true**, and so simplify planning
- E.g. team members have all the skills required; enough office space; or the previous project will finish in time..

If there is concern they might turn out not to be true, review and consider whether to include them in the **risk planning**

## *Constraints*

- Are **known to be true** for sure, and so must be built into planning
- Any budget or schedule constraints are typically included in this section.
- Can include project level policies, standards, etc.

# Assignment-1 Develop project charter

## *Risks*

- Risk is an **uncertain** event or condition that, if it occurs, has a positive or negative effect on one or more project objectives such as scope, schedule, cost, and quality.

## *Dependencies*

- Dependency is the **relationship** between different tasks in the project, or the relationship between tasks in the project and external tasks.