



# **SEN319 Software Project Management (Fall 2023)**

**Project Management Process Groups**

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# Agenda

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- **PM Process Groups**
- **Process Categories**
- **Process Groups vs Phases**
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- **PM Process Group and Knowledge Area Mapping**
- **Initiating Process Group**
- **Planning Process Group**
- **Executing Process Group**
- **Monitoring and Controlling Process Group**
- **Closing Process Group**

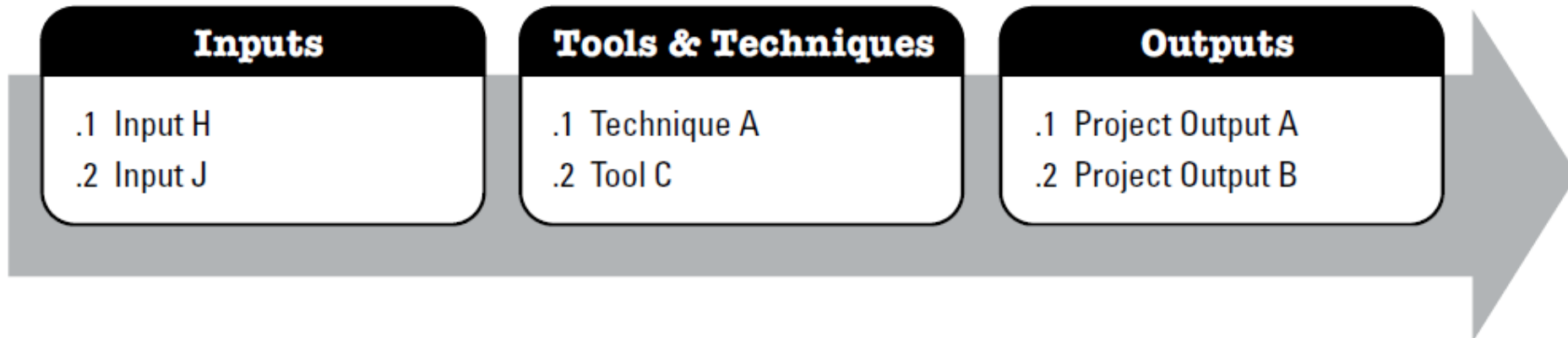
# Project Management Processes

- The project life cycle is managed by executing a series of project management activities known as project management processes.
- Every project management process produces one or more outputs from one or more inputs by using appropriate project management tools and techniques.
- The output can be a deliverable or an outcome.
- Outcomes are an end result of a process.
- Project management processes apply globally across industries.



# PM Processes

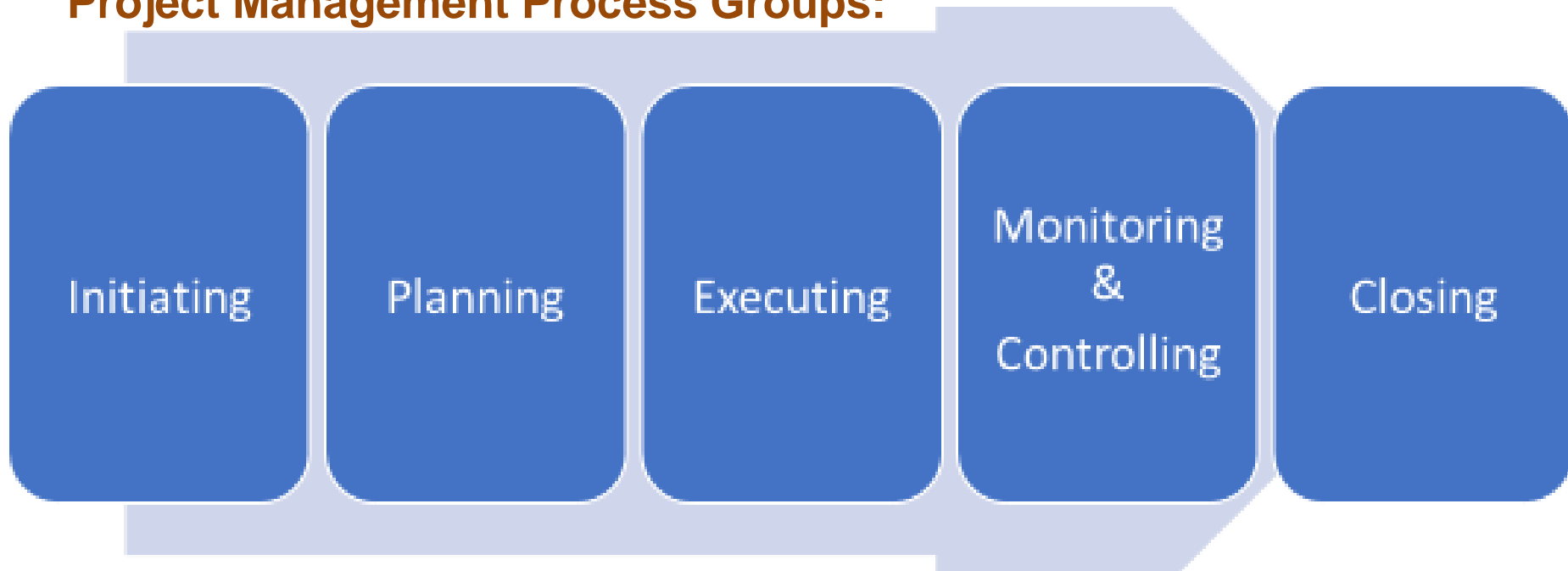
- Project management processes are logically linked by the outputs they produce.
- Processes may contain overlapping activities that occur throughout the project.
- The output of one process generally results in either:
  - An input to another process, or
  - A deliverable of the project or project phase.





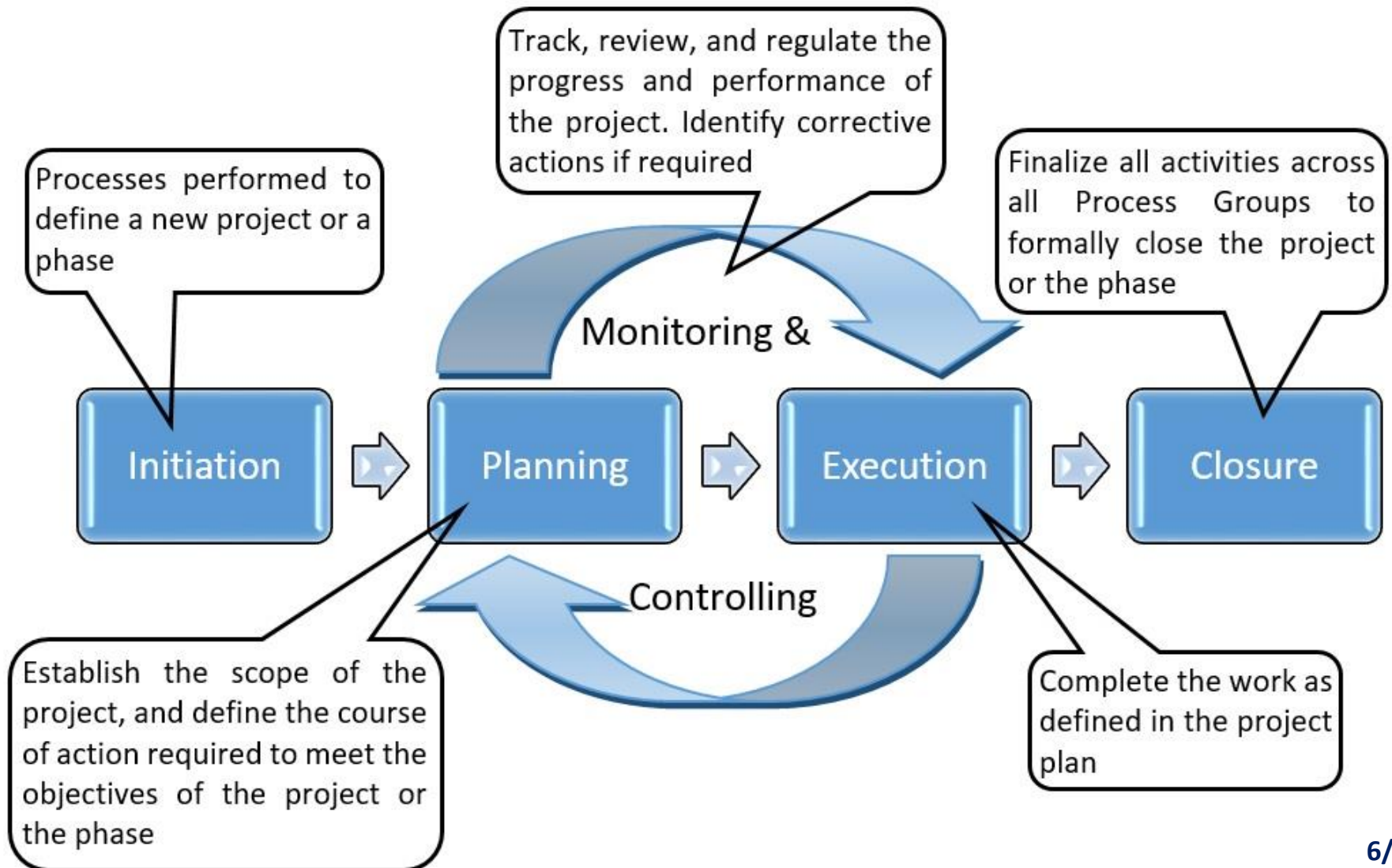
# PM Process Groups

- A Project Management Process Group is a logical grouping of project management processes to achieve specific project objectives.
- Process Groups are independent of project phases.
- Project management processes are grouped into the following five Project Management Process Groups:



**In Physical Exam Mary Cries Constantly**

# PM Process Groups



# PM Process Groups

- These five Process Groups are independent of the application areas, (such as marketing, information services, or accounting) or industry focus (such as construction, aerospace, telecommunications).



- Individual processes in the Process Groups are often iterated prior to completing a phase or a project.
- The number of process iterations and interactions between processes varies based on the needs of the project.



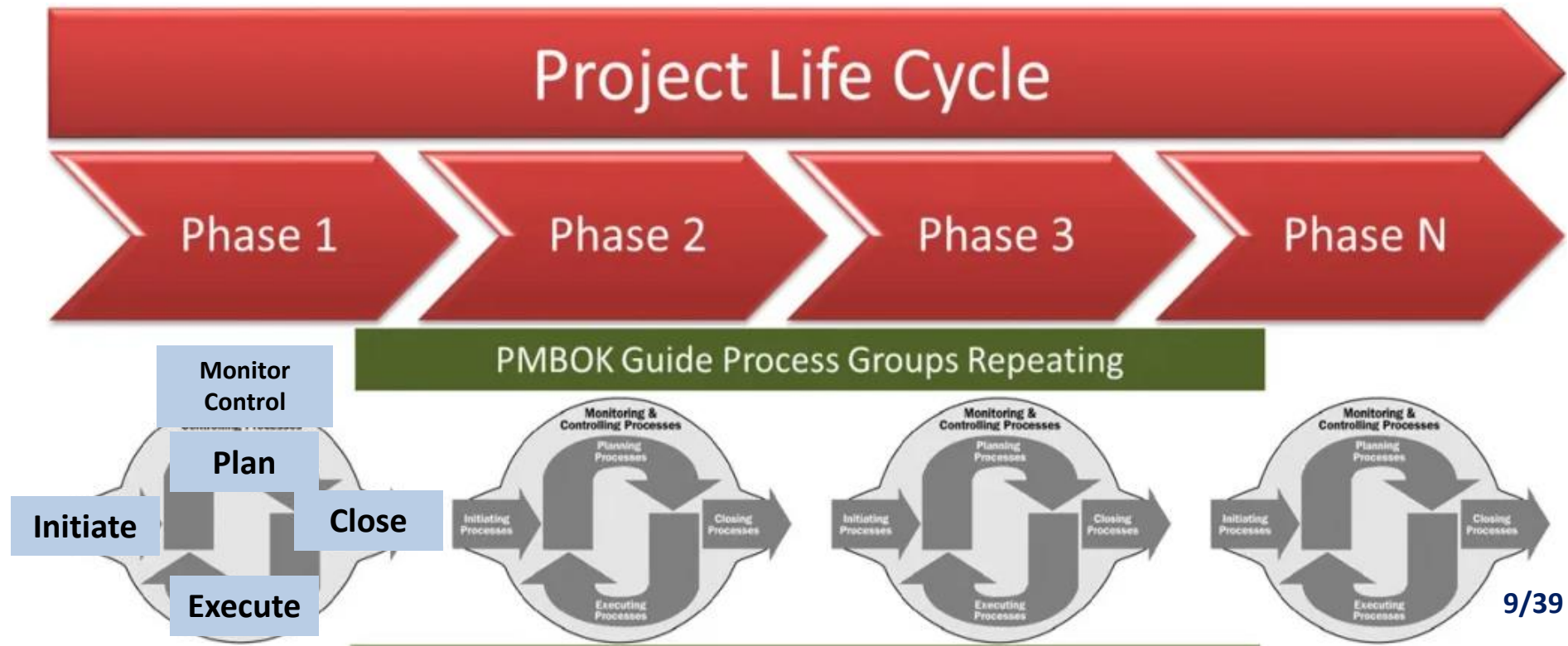
# Process Categories

- Processes generally fall into one of three categories:
  - Processes used once or at predefined points in the project. The processes **Develop Project Charter** and **Close Project** are examples.
  - Processes that are performed periodically as needed. The process **Acquire Resources** is performed as resources are needed. The process **Conduct Procurements** is performed prior to needing the procured item.
  - Processes that are performed continuously throughout the project. The process **Define Activities** may occur throughout the project life cycle. Many of the monitoring and control processes are ongoing from the start of the project, until it is closed out.



# Process Groups vs Phases

- **Process Groups are not project phases. If a project is divided into phases, the processes in the Process Groups interact in each phase.**
- **As projects are separated into distinct phases, processes in each of the Process Groups are repeated as necessary in each phase until the completion criteria for that phase have been satisfied.**



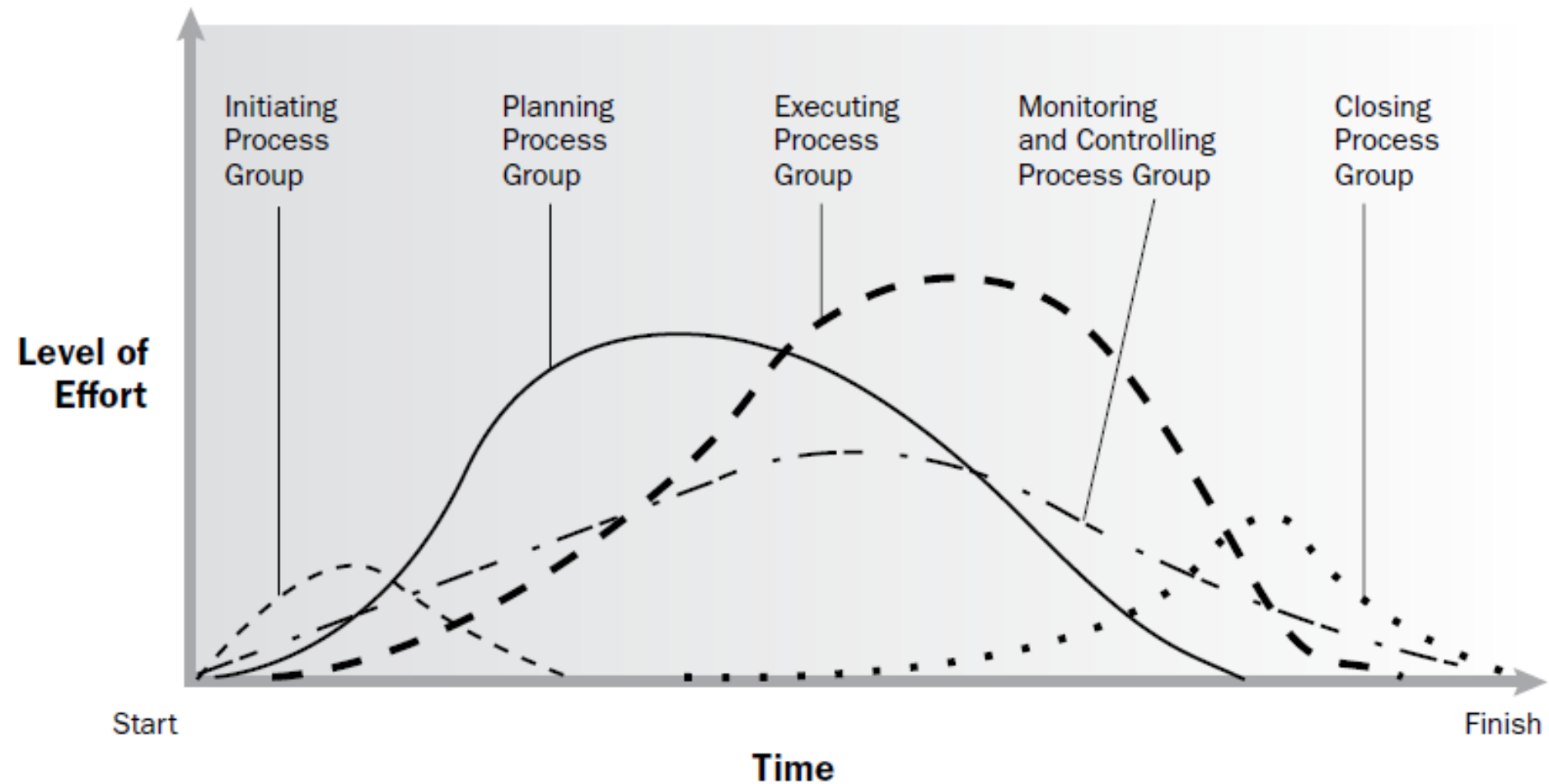


# Process Group Interaction in Project or Phase

- **The process groups are not mutually exclusive.**
- **For example, project managers must perform monitoring and controlling processes throughout the project's life span. That is, monitoring and controlling processes occur concurrently throughout a project with initiating, planning, executing, and closing processes.**
- **Initiating and planning processes can occur concurrently with executing processes, and so on for each process group.**

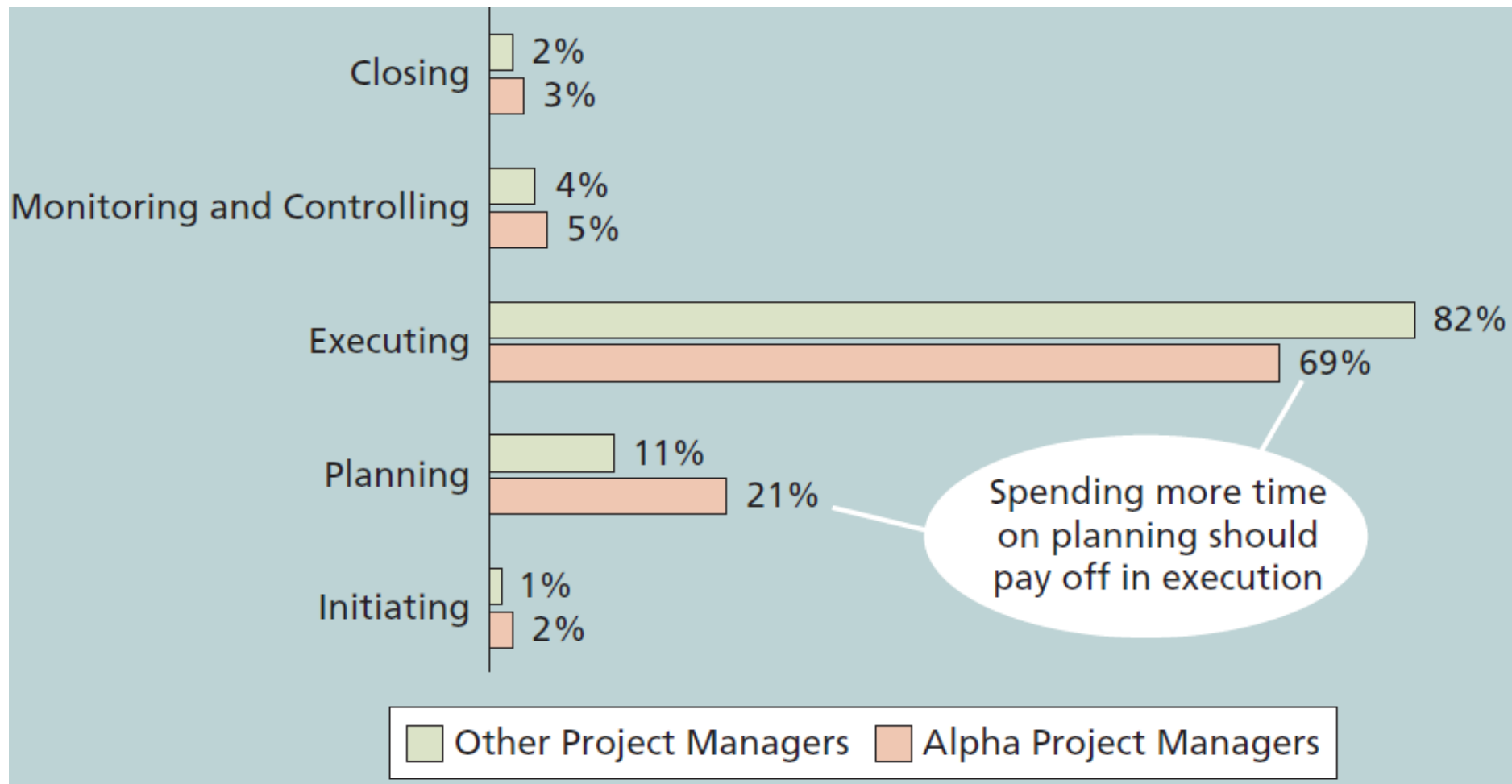


# Process Group Interaction in Project or Phase





# Percentage of Time Spent on Each Process Group

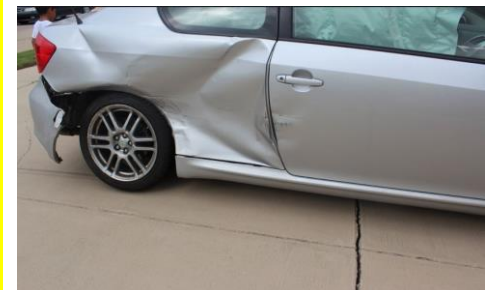


**Note: Alpha PMs: The best PMs**

Ref: Andy Crowe

# PM Knowledge Areas

- |                                     |                  |
|-------------------------------------|------------------|
| <b>1. Integration Management</b>    | <b>I</b>         |
| <b>2. Scope Management</b>          | <b>Saw</b>       |
| <b>3. Schedule Management</b>       | <b>Six</b>       |
| <b>4. Cost Management</b>           | <b>Cars</b>      |
| <b>5. Quality Management</b>        | <b>Quickly</b>   |
| <b>6. Resource Management</b>       | <b>Rip</b>       |
| <b>7. Communications Management</b> | <b>Carol's</b>   |
| <b>8. Risk Management</b>           | <b>Rear</b>      |
| <b>9. Procurement Management</b>    | <b>Passenger</b> |
| <b>10.Stakeholders Management</b>   | <b>Side</b>      |





# PM Process Group and Knowledge Area Mapping

PROCESS GROUPS	INITIATING	PLANNING	EXECUTING	MONITOR & CONTROL	CLOSING
Project Integration Management	• Develop Project Charter	• Develop Project Management Plan	• Direct & Manage Project Work	• Monitor & Control Project Work • Perform Integrated Change Control	
Project Scope Management		• Plan Scope Management • Collect Requirement • Define Scopes • Create WBS		• Validate Scope • Control Scope	
Project Time Management		• Plan Schedule Management • Define Activities • Sequence Activities • Estimate Activity Resources • Estimate Activity Duration • Develop Schedule		• Control Schedule	
Project Cost Management		• Plan Cost Management • Estimate Costs • Determine Budget		• Control Costs	
Project Quality Management		• Plan Quality Management	• Perform Quality Assurance	• Control Quality	
Project HR Management		• Plan HR Management	• Acquire Project Team • Develop Project Team • Manage Project Team		
Project Communication Management		• Plan Communication Management	• Manage Communications	• Control Communications	
Project Risk Management		• Plan Risk Management • Identify Risks • Plan Qualitative Risk Analysis • Plan Quantitative Risk Analysis • Plan Risk Responses		• Control Risks	
Project Procurement Management		• Plan Procurement Management	• Conduct Procurement	• Control Procurement	• Close Procurement
Project Stakeholder Management	• Identify Stakeholders	• Plan Stakeholders Management	• Manage Stakeholders Engagement	• Manage Stakeholders Engagement	



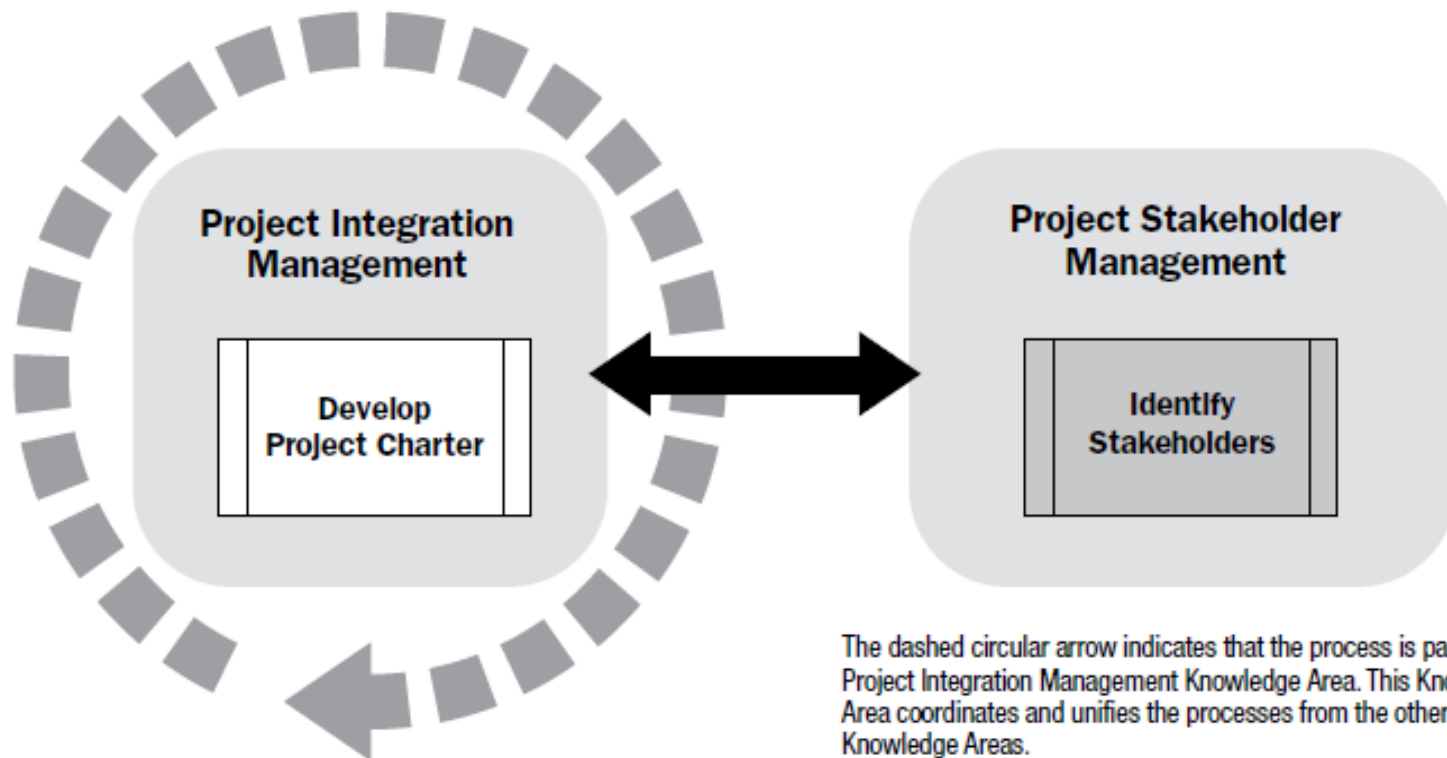
# Initiating Process Group

- There are 2 processes in this process group.
- These processes are performed to start a new project or a new phase of an existing project by obtaining the needed authorization.

No	Knowledge Area	Process
1	Integration Management	Develop Project Charter
2	Stakeholder Management	Identify Stakeholders

- **Purpose:** To align the stakeholders' expectations and the project purpose, inform stakeholders of the scope and objectives, and discuss how their participation in the project and its associated phases can help to ensure their expectations are met.

# Initiating Process Group



The dashed circular arrow indicates that the process is part of the Project Integration Management Knowledge Area. This Knowledge Area coordinates and unifies the processes from the other Knowledge Areas.



# Initiating Process Group

## Key Outputs

- Project Charter
- Stakeholder Register



## Project Charter

A Project Charter is a living document for an improvement team that outlines the presenting problem, the target and the boundaries of a process improvement effort.



### Problem Statement

The problem captured in the form of a measurement



### Business Case

The business reasons for doing the project



### Goal Statement

The target of the process measurement



### Timeline

When each project phase will be completed



### Scope

What's in and what's out of the project



### Team Members

The people who will participate in the project

# Planning Process Group

- Includes devising and maintaining a workable scheme to ensure that the project addresses the organization's needs.
- Projects include several plans (scope management plan, schedule management plan, cost management plan etc.). These plans define each knowledge area as it relates to the project at a particular point in time.
- To account for changing conditions on the project and in the organization, project teams often revise plans during each phase of the project life cycle.





# Planning Process Group

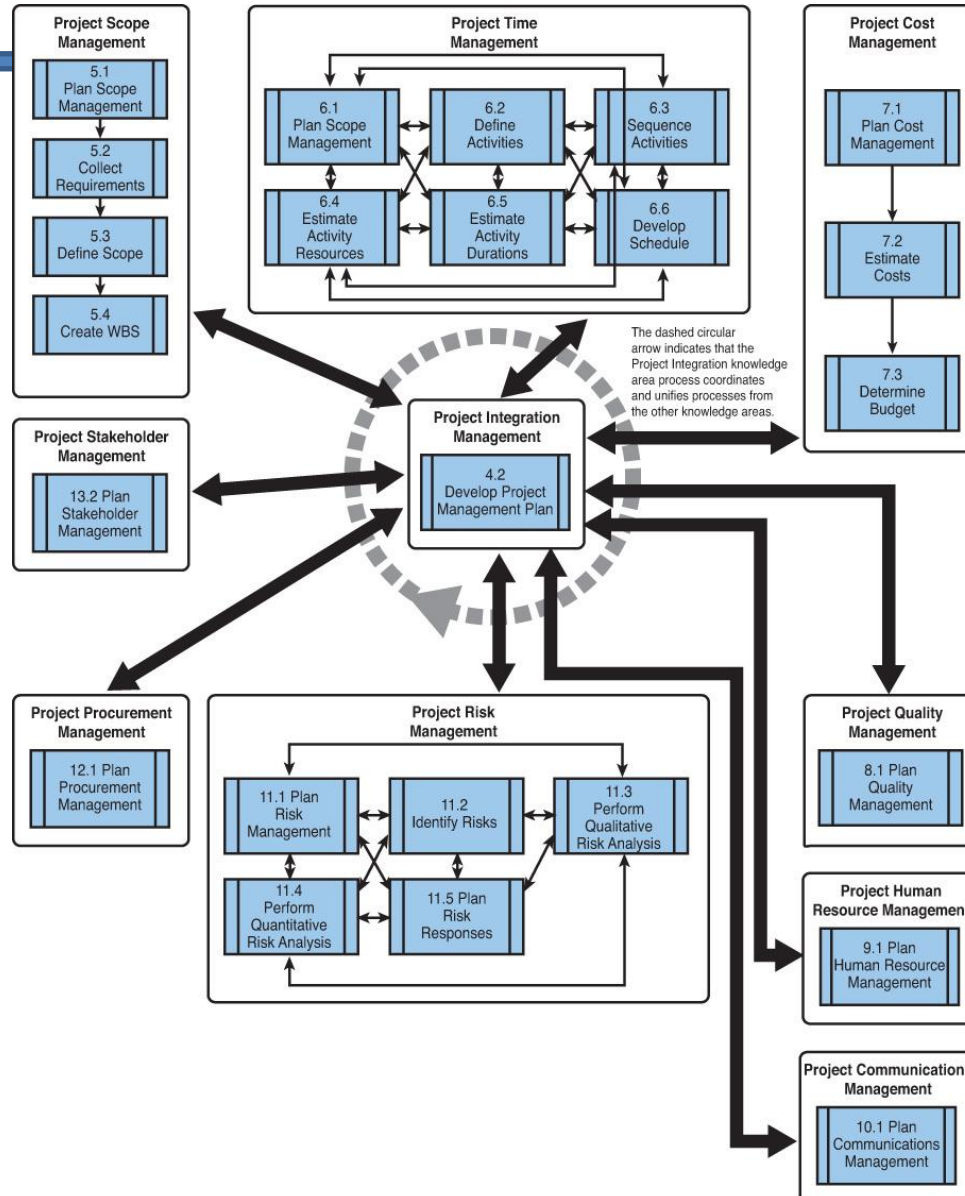
- **The Planning Process Group consists of those processes that establish the total scope of the effort, define and refine the objectives, and develop the course of action required to attain those objectives.**
- **The processes in the Planning Process Group develop the components of the project management plan and the project documents used to carry out the project.**
- **There are 24 processes in this process group.**
- **The key benefit of this Process Group is to define the course of action to successfully complete the project or phase.**



# Planning Process Group

No	Knowledge Area	Process
1	Integration Management	Develop Project Management Plan
2	Scope Management	Plan Scope Management
3		Collect Requirements
4		Define Scope
5		Create WBS
6	Schedule Management	Plan Schedule Management
7		Define Activities
8		Sequence Activities
9		Estimate Activity Duration
10		Develop Schedule
11	Cost Management	Plan Cost Management
12		Estimate Costs
13		Determine Budget
14	Quality Management	Plan Quality management
15	Resource Management	Plan Resource management
16		Estimate Activity Resources
17	Communication Management	Plan Communication management
18	Risk Management	Plan Risk management
19		Identify Risks
20		Perform Qualitative Risk Analysis
21		Perform Quantitative Risk Analysis
22		Plan Risk Responses
23	Procurement Management	Plan Procurement management
24	Stakeholder Management	Plan Stakeholder management

# Planning Process Group





# Planning Process Group

- **The main purpose of planning is to provide a framework to gather information to produce a project management plan.**
- **In fact, the plan itself is really a collection of other plans.**
- **The majority of activities in the planning group center around developing the supporting documents that comprise the final project management plan.**
- **As more detailed information is learned about the project, the overall plan becomes more complete, and the stakeholders' confidence in the project increases.**

# Planning Process Group

- **Planning is an iterative group of processes.**
- **As a project progresses, it often becomes necessary to modify the plan for a number of reasons.**
- **Unexpected results, delays, outside factors, and internal factors can all require additional planning.**
- **Any scope changes are likely to require one or more planning processes to be revisited.**
- **Don't assume that planning is accomplished only once.**





# Planning Process Group

## Key Outputs

- **Project Management Plan**
- **Subsidiary Plans**
- **Baselines (scope, cost, schedule)**
- **Requirement Traceability Matrix**
- **WBS**
- **Project Schedule**
- **Budget**
- **Scope Statement**





# Interviews with Elon Musk

- Musk looks for “**evidence of exceptional ability**” when it comes to hiring. “*If there’s a track record of exceptional achievement, then it’s likely that that will continue into the future,*” he said.
- He asks each candidate he interviews the same question:  
“**Tell me about some of the most difficult problems you worked on and how you solved them.**”



- Because “*the people who really solved the problem know exactly how they solved it,*” he said. “*They know and can describe the little details.*”

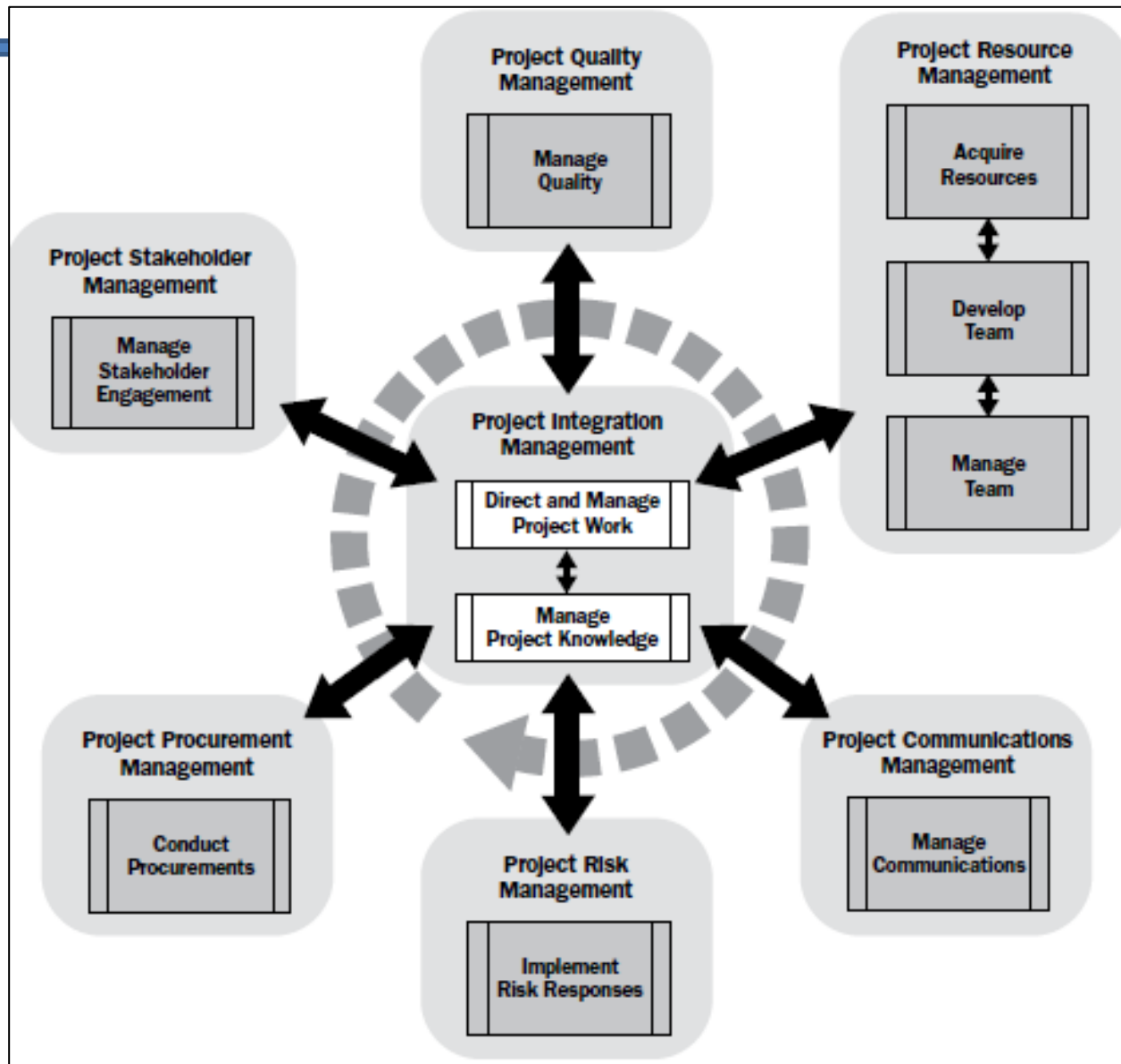


# Executing Process Group

- Project activities are executed based on the project management plan.
- There are 10 processes in this process group.

No	Knowledge Area	Process
1	Integration Management	Direct and Manage Project Work
2		Manage Project Knowledge
3	Quality Management	Manage Quality
4	Resource Management	Acquire Resources
5		Develop Team
6		Manage Team
7	Communications Management	Manage Communications
8	Risk Management	Implement Risk Responses
9	Procurement Management	Conduct Procurements
10	Stakeholder Management	Manage Stakeholder Engagements

# Executing Process Group





# Executing Process Group

- The key benefit of this Process Group is that the work needed to meet the project requirements and objectives is performed according to plan.
- A large portion of the project budget, resources, and time is expended in performing the Executing Process Group processes.
- The processes in the Executing Process Group may generate change requests.
- If approved, the change requests may trigger one or more planning processes that result in a modified management plan, project documents, and possibly new baselines.

# Executing Process Group

## Key Outputs

- **Changes and Updates of Documents**
- **Work Performance Data**
- **Lessons Learned**
- **Test and Evaluation Documents**
- **Quality Reports**
- **Resource Documents (Assignments, Calendars)**
- **Team Performance Assessments**
- **Project Communications**
- **Risk Reports**
- **Procurements Management Plan**



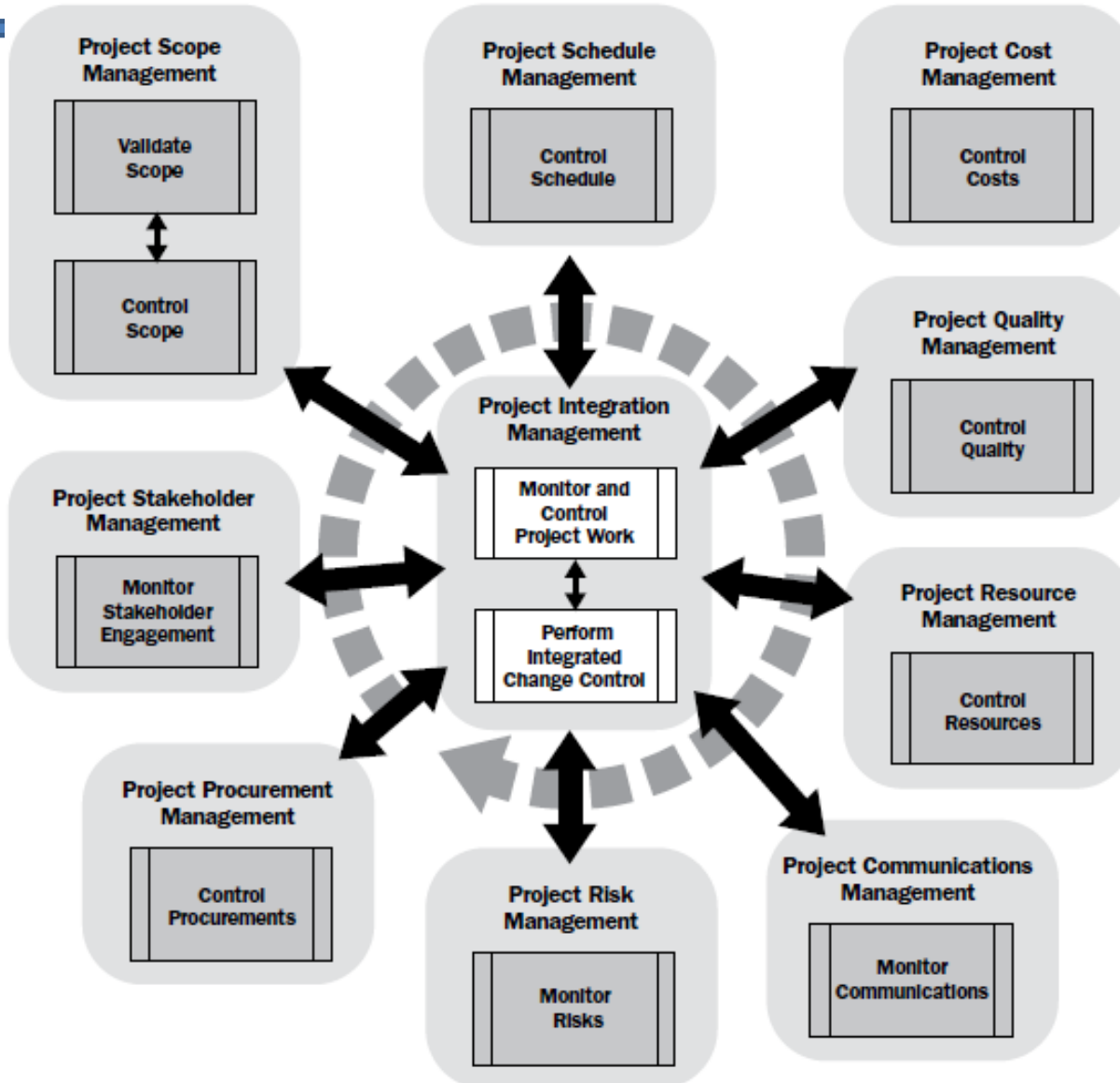


# Monitoring and Controlling Process Group

- There are 12 processes in this process group.
- The processes in this process group check whether the other 4 process group processes are done correctly.

No	Knowledge Area	Process
1	Integration management	Monitor & Control Project Work
2		Perform Integrated Change Control
3	Scope management	Control Scope
4		Validate Scope
5	Schedule management	Control Schedule
6	Cost management	Control Costs
7	Quality Management	Control Quality
8	Resource Management	Control Resources
9	Communication Management	Monitor Communications
10	Risk Management	Monitor Risks
11	Procurement Management	Control Procurement
12	Stakeholder Management	Monitor Stakeholder Engagement

# Monitoring and Controlling Process Group



# Monitoring and Controlling Process Group

- **Monitoring** is collecting project performance data, producing performance measures, and reporting and disseminating performance information.
- **Controlling** is comparing actual performance with planned performance, analyzing variances, assessing trends to effect process improvements, evaluating possible alternatives, and recommending appropriate corrective action as needed.





# Monitoring and Controlling Process Group

- The key benefit of this Process Group is that project performance is measured and analyzed at regular intervals, appropriate events, or when exception conditions occur in order to identify and correct variances from the project management plan.
- Continuous monitoring provides the project team and other stakeholders with insight into the status of the project and identifies any areas that require additional attention.





# Monitoring and Controlling Process Group

- **The Monitoring and Controlling Process Group also involves:**
  - **Evaluating change requests and deciding on the appropriate response;**
  - **Recommending corrective or preventive action in anticipation of possible problems;**
  - **Monitoring the ongoing project activities against the project management plan and project baselines; and**
  - **Influencing the factors that could circumvent the change control process so only approved changes are implemented.**

# Monitoring and Controlling Process Group

## Key Outputs

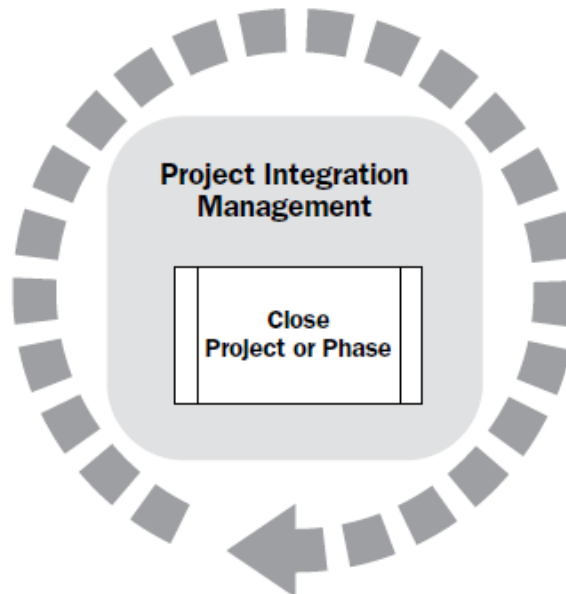
- Changes and Updates of Documents
- Work Performance Reports
- Accepted Deliverables
- Schedule Forecasts
- Cost Forecasts
- Quality Control Measurements
- Closed Procurements



# Closing Process Group

- The project is closed in this process group.
- There is 1 process in this process group. This process is performed to formally close a project or phase of a project.

No	Knowledge Area	Process
1	Integration Management	Close Project or Phase





# Closing Process Group

- This Process Group verifies that the defined processes are completed within all of the Process Groups to close the project or phase, as appropriate, and formally establishes that the project or project phase is complete.
- The key benefit of this Process Group is that phases, projects, and contracts are closed out appropriately.
- While there is only one process in this Process Group, organizations may have their own processes associated with project, phase, or contract closure.

# Closing Process Group

## Key Outputs

- **Project Document Updates**
- **Final Product, Service or Result Transition**
- **Final Report**
- **Organizational Process Assets Updates**
- **Lessons Learned**





**Thank you...**

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