

# PROJECT MANAGEMENT FRAMEWORK

**Introduction to Project Management**

**CIVL694**

# What is the PMBOK Guide

- **The Project Management Book of Knowledge (pmbok) is a recognised standard for the project management profession.**
- **A standard is a formal document, it describes norms, methods, processes and practices.**

# What is a project

**According to PMBOK a project "is a temporary endeavor undertaken to create a unique product, service or result."**

# Project Characteristics

You've just learned that a project has several characteristics:

- Projects are **unique**.
- Projects are **temporary** in nature and have a definite beginning and ending date.
- Projects are **completed when the project goals are achieved** or it's determined the project is no longer viable.

# Operational Work

- *Operational Works* are quite opposite in nature to **Projects**.
- Operations are **ongoing and repetitive**.
- They involve work that is continuous without an ending date, and you often repeat the same processes and produce the same results.

# Project Management vs. Operations

- The purpose of **operations** is to keep the organization functioning, while the purpose of a **project** is to meet its goals and to conclude.
- At the completion of a project, the end product (or result) may get turned over to the organisation's operational areas for ongoing care and maintenance.

# What is Project Management

**Project Management is the application of knowledge, skills, tools and techniques to meet the project requirements.**

**It is the responsibility of the project manager to ensure that project management techniques are applied and followed.**

# What is a Portfolio

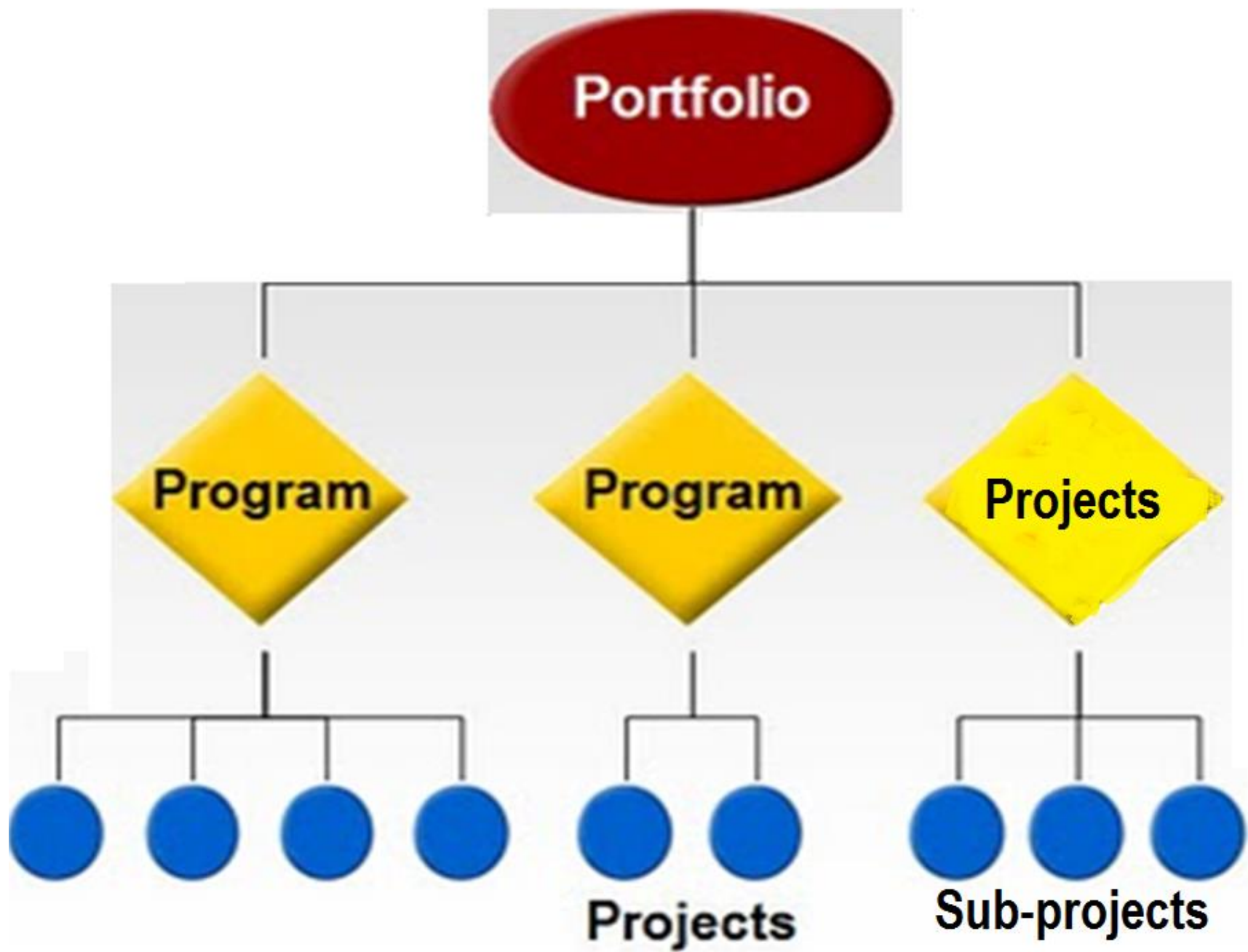
**Portfolios** are a collections of **programs** and **projects** grouped together to support a **strategic business goal**.

**The programs are related to help to achieve that common goal.**



# What is a Program

- *Programs* are groups of related projects that are managed using the same techniques in a coordinated fashion.
- When projects are managed collectively as programs, it is possible to capitalize on benefits that wouldn't be achievable if the projects were managed separately.
- A project may or may not be part of a program but a program will always have projects.



# SUBPROJECT

Projects are frequently divided into more **manageable components or subprojects.**

Subproject are often contracted to an external enterprise or to another functional unit in the performing organization.

Subprojects can be referred to as projects and managed as such.

# What is a Project Management Office

*The project management office (PMO) is an organizational body or entity assigned to oversee the management of projects and programs throughout the organization.*

# Primary Function of PMO

**A Primary function of PMO is to support project managers in a variety of ways which may include, but are not limited to:**

- Managing shared resources across all the projects administered by the PMO.**
- Identifying and developing project management methodology, practices & standards.**
- Coaching, mentoring, training and oversight.**
- Monitoring compliance with project management standard policies, procedures, and templates via project audits.**
- Developing and managing project policies, procedures, templates, and other shared documentation ( organizational process assets);**
- Coordinating communication across projects.**

# Role of a Project Manager

- The **Project Manager** is the person responsible for accomplishing the project objectives.
- Project managers strive to meet the triple constraints of project scope, time, and cost goals.
- Depending on the organisation structure, a project manager may report to a functional manager.
- In other cases project manager may be one of the several project managers who report to a portfolio or a program manager that is ultimately responsible for enterprise wide projects .
- In this type of structure, the project manager works closely with the portfolio or program manager to achieve the project objectives.

# **Project Manager Skills**

**Skills every good project manager should have:**

- **Integration Skills**
- **Communication skills**
- **Planning and Organizational skills**
- **Leadership Skills**
- **Team Building and Motivational Skills**
- **Budgeting Skills**
- **Conflict Management Skills**
- **Negotiation and Influencing Skills**
- **Political and Cultural Awareness.**

# PM Skills

- **Communication Skills**

- **Written and oral communication skills are the backbone of all successful projects.**
- **Takes on many forms of communication – project documents, meeting updates, status reports etc.**
- **Must be explicit, clear, and complete (so that the audience has no trouble understanding what has been communicated).**



# PM Skills

- **Planning and Organizational Skills**
  - Probably the second most important skill
  - Must be able to record, track and locate information at a moments notice - including memos, project reports, personnel records, vendor /supplier quotes contracts etc.
  - Organize events e.g. meetings, workshops
  - Put together and manage teams, media releases
  - Prioritize and manage problems, the day, time and interruptions.

# PM Skills

- **Leadership Skills**
  - Leadership & Management are not synonymous
  - Leaders impart vision, gain consensus for strategic goals, establish direction, inspire and motivate others.
  - Managers focus on results and are concerned with getting the job done according to requirements.
  - PMs need to exhibit both

# PM Skills

- **Team Building and Motivational Skills**
  - PMs rely heavily on their team
  - The team members may or may not have worked together
  - The PM must set the tone and help them through different team forming –stages
  - Help the team to become fully functional
  - Many times PMs are responsible for motivating persons who do not report to them directly

# PM Skills

- **Budgeting Skills**

- Establish and manage budgets and therefore need some knowledge of finance and accounting principles
- Need to perform cost estimates for budgeting
- To be able to read and understand vendor quotes, preparing or overseeing purchase orders, reconciling invoices
- Linking project costs back to project activities and expense items

# PM Skills

- **Conflict Management Skills (or Problem-solving Skills)**
  - This is a Two-fold process
  - Define the problem by separating the causes from the symptoms
  - Ask questions – is it external or internally based? A technical problem? Inter-personal? Managerial? What are potential impacts or consequences?
  - Examine and analyze the situation causing the problem and alternatives available
  - The PM must make a decision – determine the best course of action and implement the decision.

# PM Skills

- **Negotiation and Influencing Skills**
  - To be effective at problem solving – requires negotiating and influencing skills
  - Negotiating is working with others to come to an agreement i.e. One-on-one or in teams
  - Required in almost every area of the project – budgets, contacts, resource assignments, scope definition
  - Influencing is convincing the other party that one thing is better than another
  - Required that you understand the formal and informal structure of all organizations involved.

# PM Skills

- **Power and Politics**
  - **Power** –the ability to get people to do things that they wouldn't do otherwise. The ability to change minds and the course of events and to influence outcomes.
  - **Politics** –involves getting groups of people with different interest to cooperate creatively even in the midst of conflict and disorder.

# Organizational Structure

**Just as projects are unique, so are the organizations in which they are carried out. Organisations have their own styles and cultures that influence how project work is performed.**

**One of the keys to determining the type of organization you work in is measuring how much authority senior management is willing to delegate to project managers.**



# Types of Organizational Structure

**All organisations are structured in one of three ways:**

- **Functional**
- **Projectized**
- **Matrix**

# Functional Organization

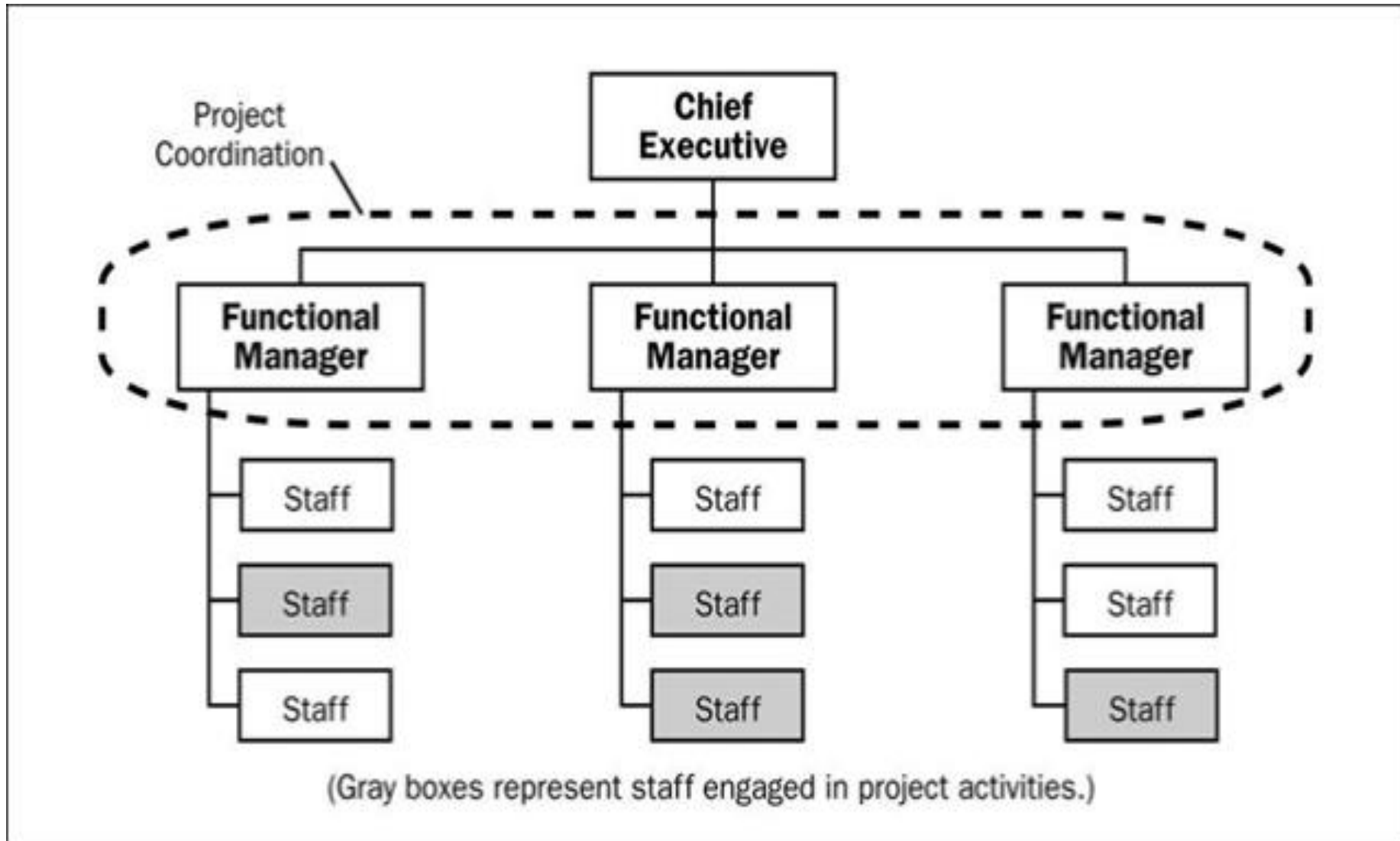
One common type of organisation is the functional organization.

This is probably the oldest style of organisation and is therefore known as the traditional approach to organising businesses.

Functional organisations are centered on **specialties** and **grouped by function**, which is why it's called functional organisation.

As an example, organization might have a human resources department, finance department, marketing department, and so on.

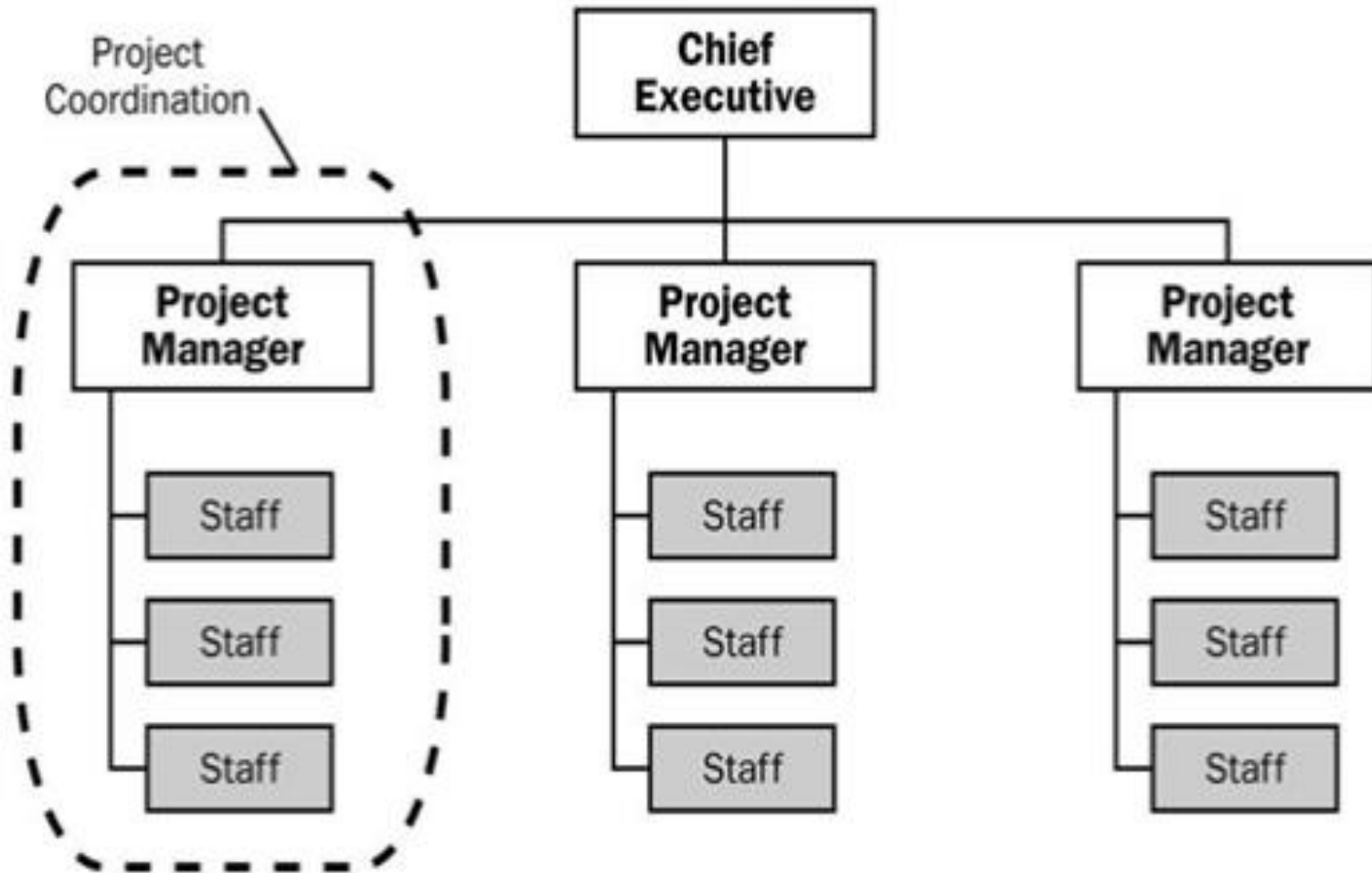
# Functional Organisation Structure



# Projectized Organisations

- In this type structure, organisational resources are dedicated to projects and project work in purely projectized organisations.
- Project managers almost always have ultimate authority over the project in this structure and report directly to the CEO.
- In a purely projectized organization, supporting functions such as human resources and accounting might report directly to the project manager as well.
- Project managers are responsible for making decisions regarding the project and acquiring and assigning resources.
- They have the authority to choose and assign resources from other areas in the organisation or to hire them from outside if needed.

# Projectized Organisational Structure

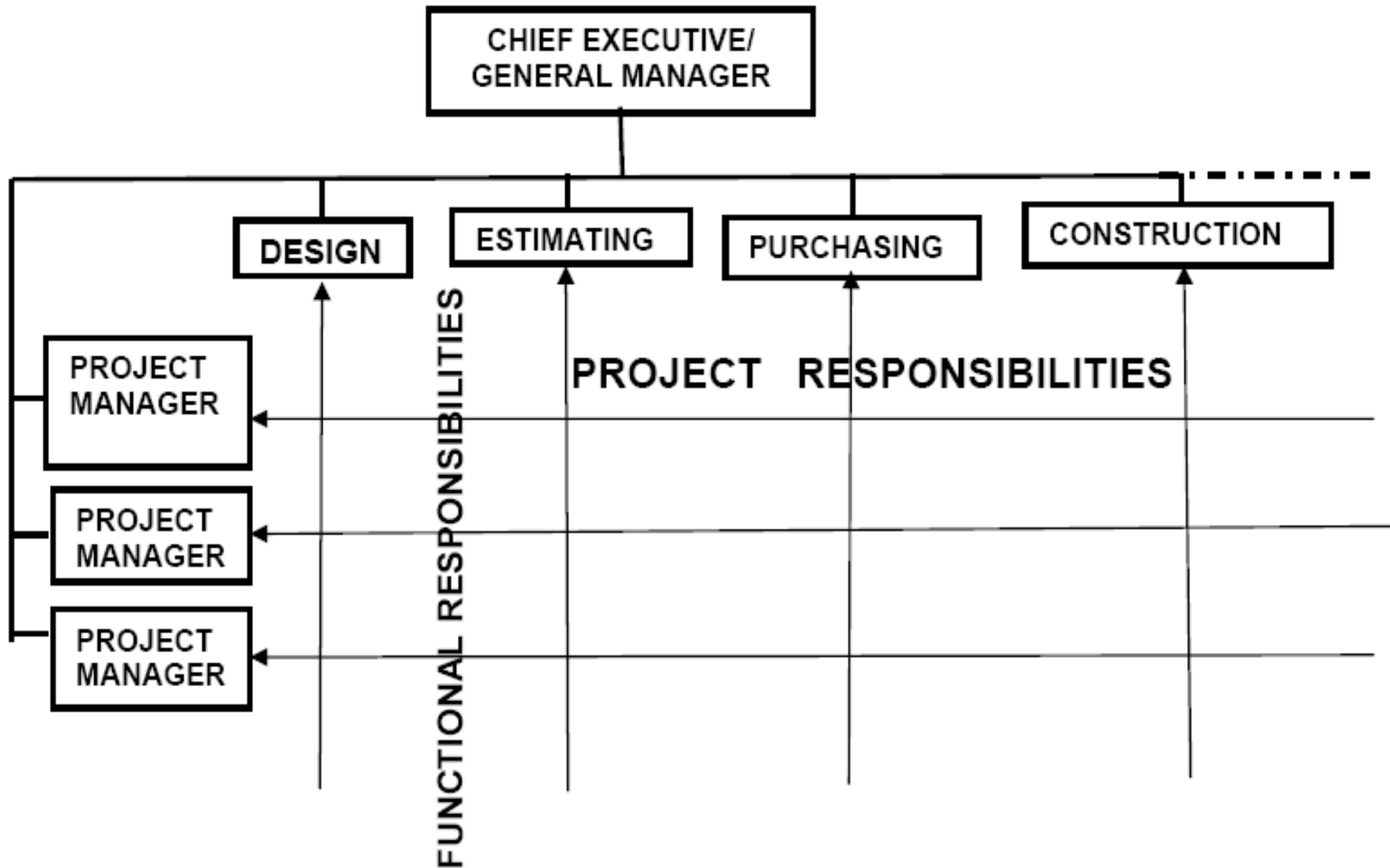


(Gray boxes represent staff engaged in project activities.)

# Matrix Organizations

- This form is an attempt to maximize the strengths of both the functional and projectized forms.
- Team members report to two bosses, the project manager and functional manager.
- Communication goes from team member to both bosses.
- Team member does project works in addition to normal departmental work.
- In a strong matrix, power rests with the project manager, in a weak matrix power rests with the functional manager and the power is comparable to that of a coordinator or expeditor.
- In a balanced matrix, the power is shared between the functional manager and the project manager.

# MATRIX ORGANISATIONS



# Matrix Organisations

	<b>Weak Matrix</b>	<b>Balanced Matrix</b>	<b>Strong Matrix</b>
<b>PM's Title</b>	Project Coordinator, leader or Expeditor	Project Manager	Project Manager
<b>PM's Focus</b>	Split focus between project and functional	Projects and Project work	Projects and Project work
<b>PM's Power</b>	Minimal authority or power	Balance of authority and power	Full authority and power
<b>PM's Time</b>	Part-time on projects	Full-time on projects	Full-time on projects
<b>Org. Style</b>	Most like a functional org	Blend of both weak and strong matrix	Most like a projectized org
<b>PM Reports to</b>	Functional Manager	A functional manager, but shares authority and power	Manager of project managers



# Project Expediter and Coordinator

- **Project Expediter-** The project expeditor acts primarily as a staff assistant and communications coordinator.
- The expeditor cannot personally make or enforce decisions.
- **Project Coordinator-** This position is similar to the project expeditor except the coordinator has some power to make decisions, have some amount of authority and reports to a higher- level manager.

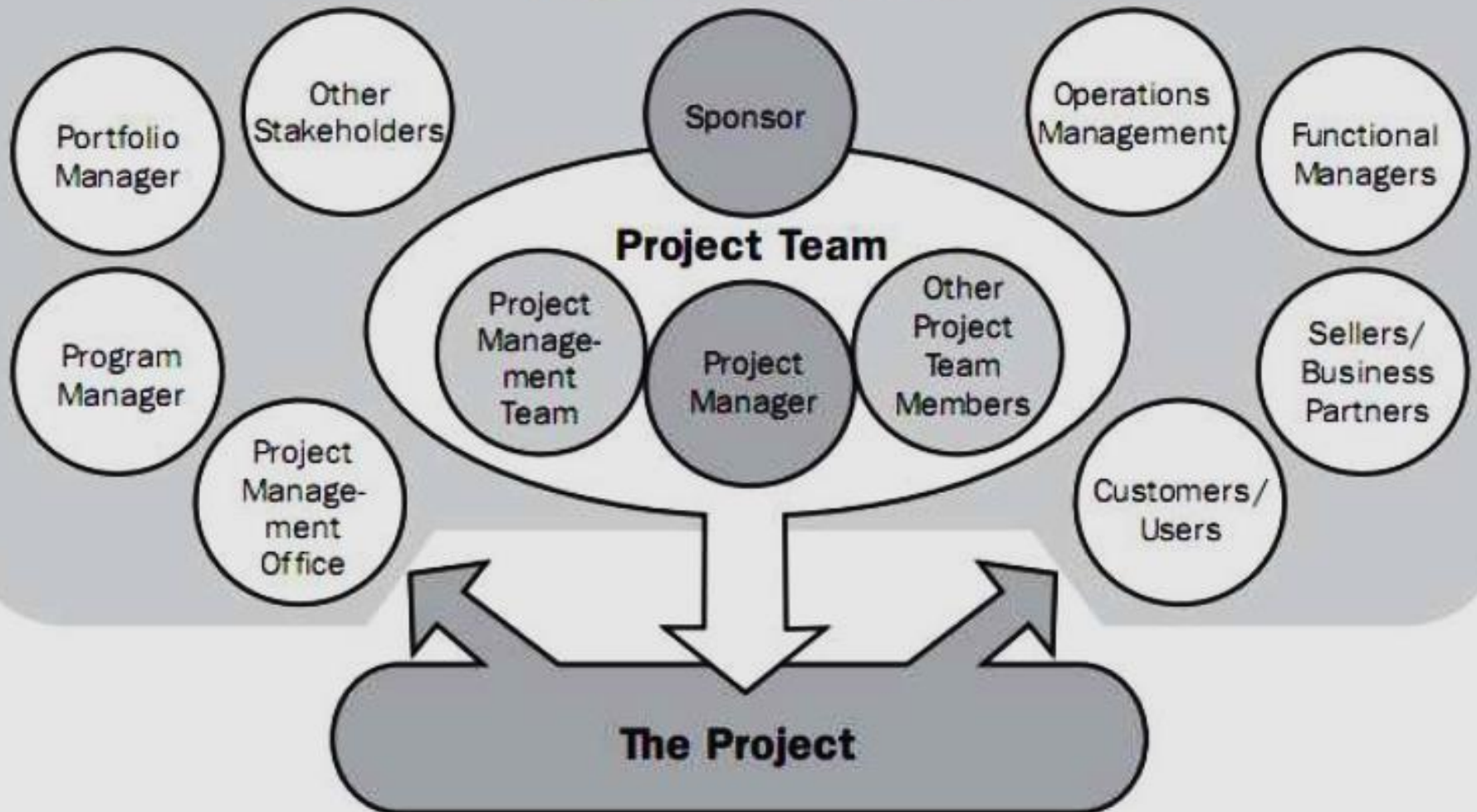
# Who are Project Stakeholders

- Stakeholders are persons or organisations who are actively involved in the project or whose interests may **positively or negatively** be affected by the performance or completion of the project.
- Stakeholders have varying levels of responsibility and authority and can change over the project life cycle.
- Project management team must continuously identify both external and internal stakeholders.
- Project manager must manage the influence of various stakeholders in relation to the requirements and balance stakeholders' interest.

# Stakeholders

- Some examples of project stakeholders

## Project Stakeholders



# Enterprise Environmental Factors

- Refer to both internal & external environmental factors that surround or influence a project's success.
- As an input in almost all project management process.
- May enhance or constrain project management options.
- May have positive or negative influence on the outcome.
- **Examples:**
  - *Organizational culture, structure, and processes*
  - *Government or industry standards*
  - *Infrastructure*
  - *Existing human resources*
  - *Personnel administration*
  - *Company work authorization systems*
  - *Marketplace conditions*
  - *Stakeholder risk tolerances*
  - *Political climate*
  - *Organization's established communications channels*
  - *Commercial databases*
  - *Project management information*

# Project Management Process Groups

- Project management processes organize and describe the work of the project.
- The *PMBOK®Guide* describes five process groups.
- These processes are performed by people and, much like project phases, are interrelated and dependent on one another. The process groups are:
  - ✓ Initiating
  - ✓ Planning
  - ✓ Executing
  - ✓ Monitoring and Controlling
  - ✓ Closing

# The five process groups are:

- **Initiating** –acknowledges the project or next phase will begin, grants approval to commit the organization's resources to working on the project
- **Planning** –the process of formulating and revising project goals & objectives and creating project plans; involves determining alternative courses of action; selecting the best of these; project requirements are fleshed out and stakeholders identified.
- Has more processes than any other project management process group.

# The five process groups are:

- **Executing** – Putting the project plans into action; the PM will coordinate and direct project resources at this stage to meet objectives; execution utilizes most time and resources and costs are usually the highest; Greatest conflicts are over schedules in this cycle.
- **Monitoring and Controlling** – where performance measurements are taken and analyzed to determine if the project is staying true to the project plan; determines if variances exist; corrective action is taken to get project activities aligned with the project plan.
- May require re-visiting the planning process to re-align to objectives.

# The five process groups are:

- **Closing** – the most often skipped process; brings formal, orderly end to a phase or to a project itself; all the project information is gathered and stored for future reference; documentation collected during this stage can be reviewed and utilized to avert potential problems on future projects.
- Contract close-out, formal acceptance and approval are obtained from project stakeholders.



# Knowledge Areas

**There are ten knowledge areas:**

- 1. Integration Management**
- 2. Scope Management**
- 3. Time Management**
- 4. Cost Management**
- 5. Quality Management**
- 6. Human Resource Management**
- 7. Communication Management**
- 8. Risk Management**
- 9. Procurement Management**
- 10. Stakeholder Management**

# Knowledge Areas

- **Each Knowledge area has further Processes.**
- **There are a total of 46 processes.**
- **Each process has inputs, outputs and "tools and techniques" (ITTO's).**
- **The PMBOK primarily covers each of these processes and it's ITTO's in detail.**
- **You need to understand the concepts related to each of the input, output and "tools and techniques".**

Knowledge Areas	Project Management Process Groups				
	Initiating Process Group	Planning Process Group	Executing Process Group	Monitoring and Controlling Process Group	Closing Process Group
<b>4. Project Integration Management</b>	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
<b>5. Project Scope Management</b>		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	
<b>6. Project Time Management</b>		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	
<b>7. Project Cost Management</b>		7.1 Plan Cost Management 7.2 Estimate Costs 7.3 Determine Budget		7.4 Control Costs	
<b>8. Project Quality Management</b>		8.1 Plan Quality Management	8.2 Perform Quality Assurance	8.3 Control Quality	
<b>9. Project Human Resource Management</b>		9.1 Plan Human Resource Management	9.2 Acquire Project Team 9.3 Develop Project Team 9.4 Manage Project Team		
<b>10. Project Communications Management</b>		10.1 Plan Communications Management	10.2 Manage Communications	10.3 Control Communications	
<b>11. Project Risk Management</b>		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	
<b>12. Project Procurement Management</b>		12.1 Plan Procurement Management	12.2 Conduct Procurements	12.3 Control Procurements	12.4 Close Procurements
<b>13. Project Stakeholder Management</b>	13.1 Identify Stakeholders	13.2 Plan Stakeholder Management	13.3 Manage Stakeholder Engagement	13.4 Control Stakeholder Engagement	

**Table 3-1.** Project Management Process Group and Knowledge Area Mapping

*A Guide to the Project Management Body of Knowledge (PMBOK® Guide) – Fifth Edition. ©2013 Project Management Institute, Inc. All rights reserved.*

# Project Life cycle

**The project life cycle is the agglomeration of all phases in the project.**

**All projects are divided into phases, and all projects, large or small, have a similar life cycle structure: These are:**

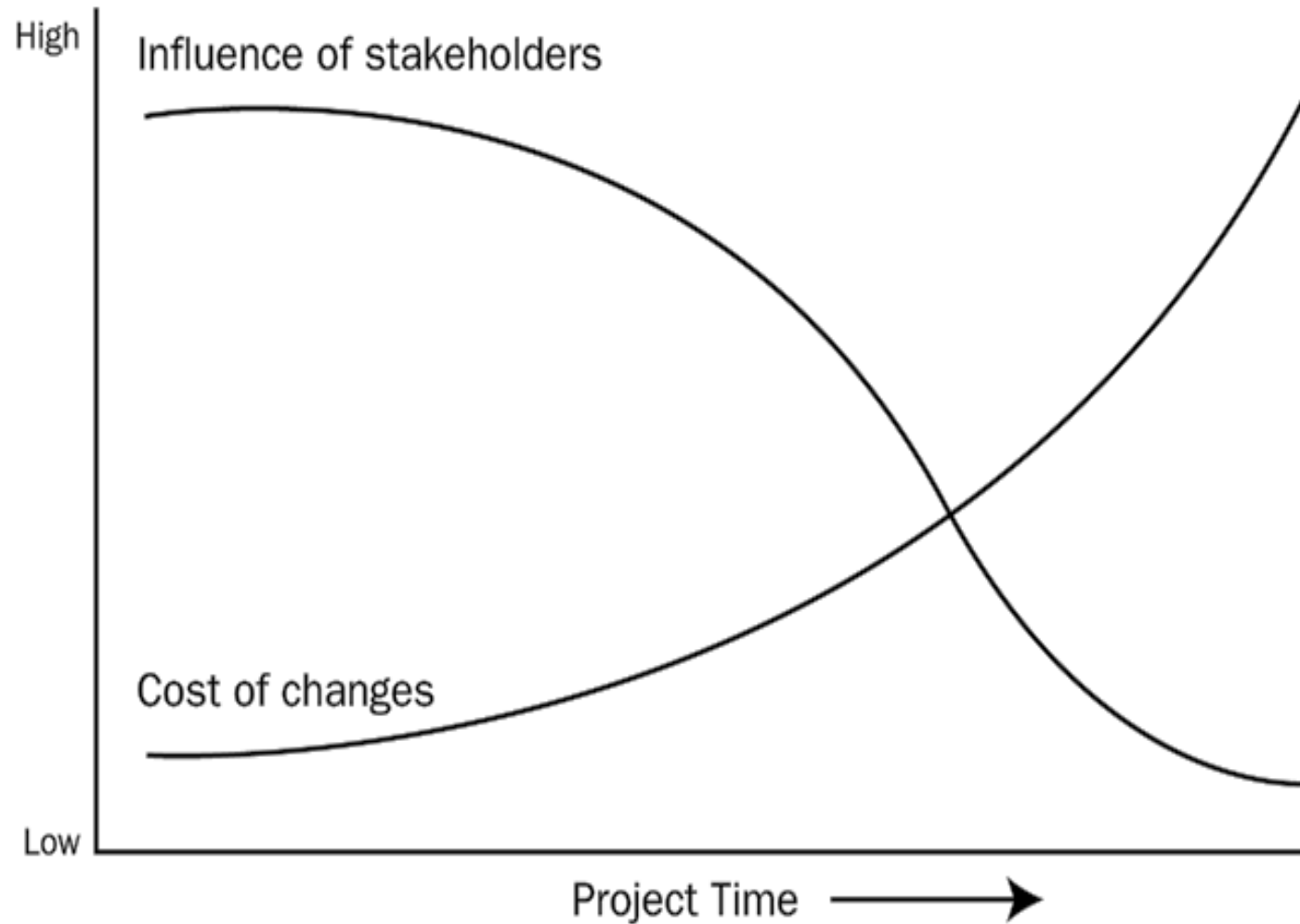
- **Starting the project**
- **Organizing and preparing**
- **Carrying out the project work**
- **Closing the project**

# Characteristics of Project Life Cycle

**Most project life-cycles share a number of common characteristics:**

**The ability of the stakeholders to influence the final characteristics of the project's product and the final cost of the project is highest at the start and gets progressively lower as the project continues.**

**Cost and staffing levels are low at the start, higher toward the end, and drop rapidly as the project draws to a conclusion.**



## Stakeholders' Influence Over Time

# **Characteristics of Project Life Cycle**

**The probability of successfully completing the project is lowest, and hence risk and uncertainty are highest, at the start of the project.**

**The probability of successful completion generally gets progressively higher as the project continues.**

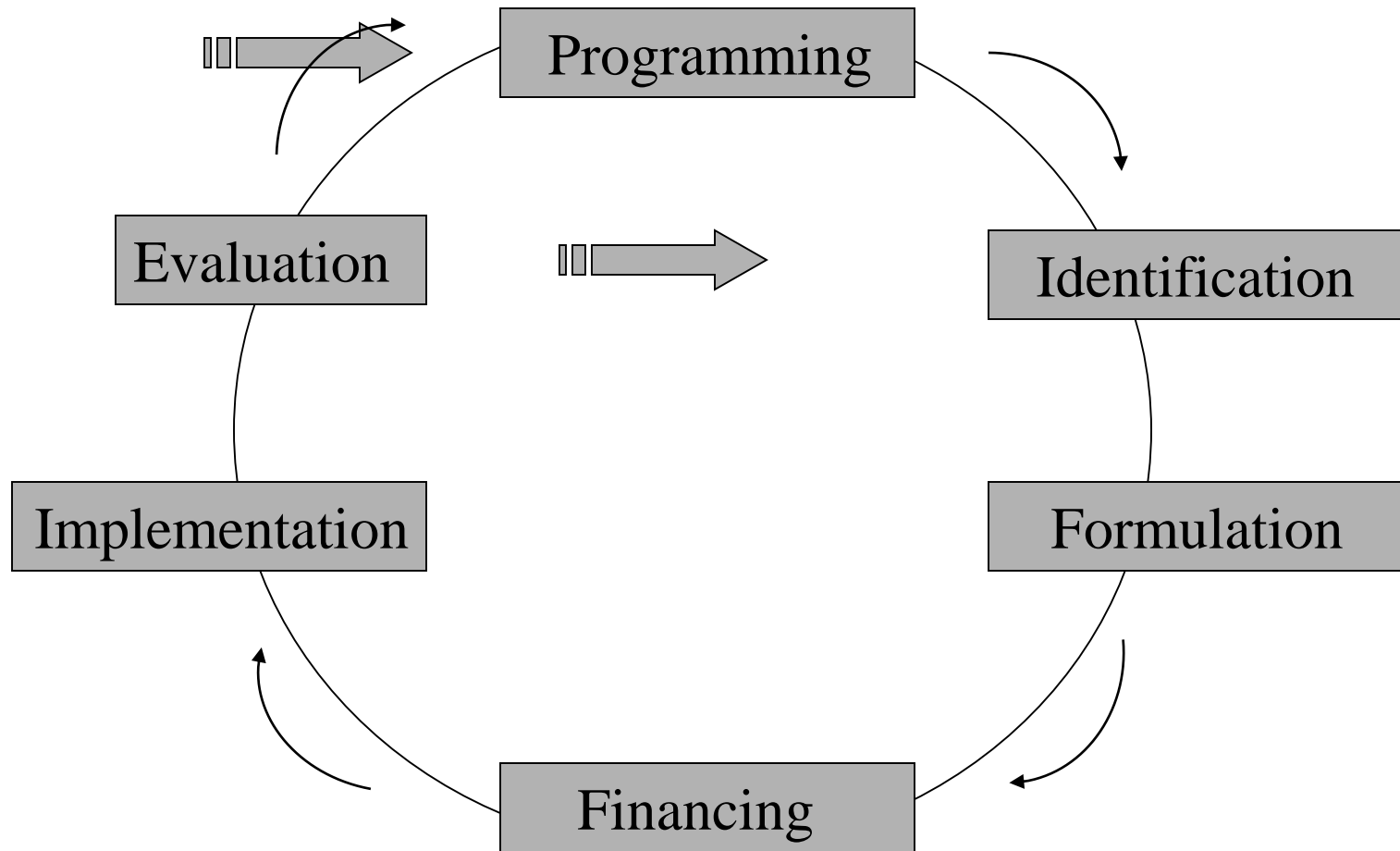
# Project Phases and Project Life Cycle

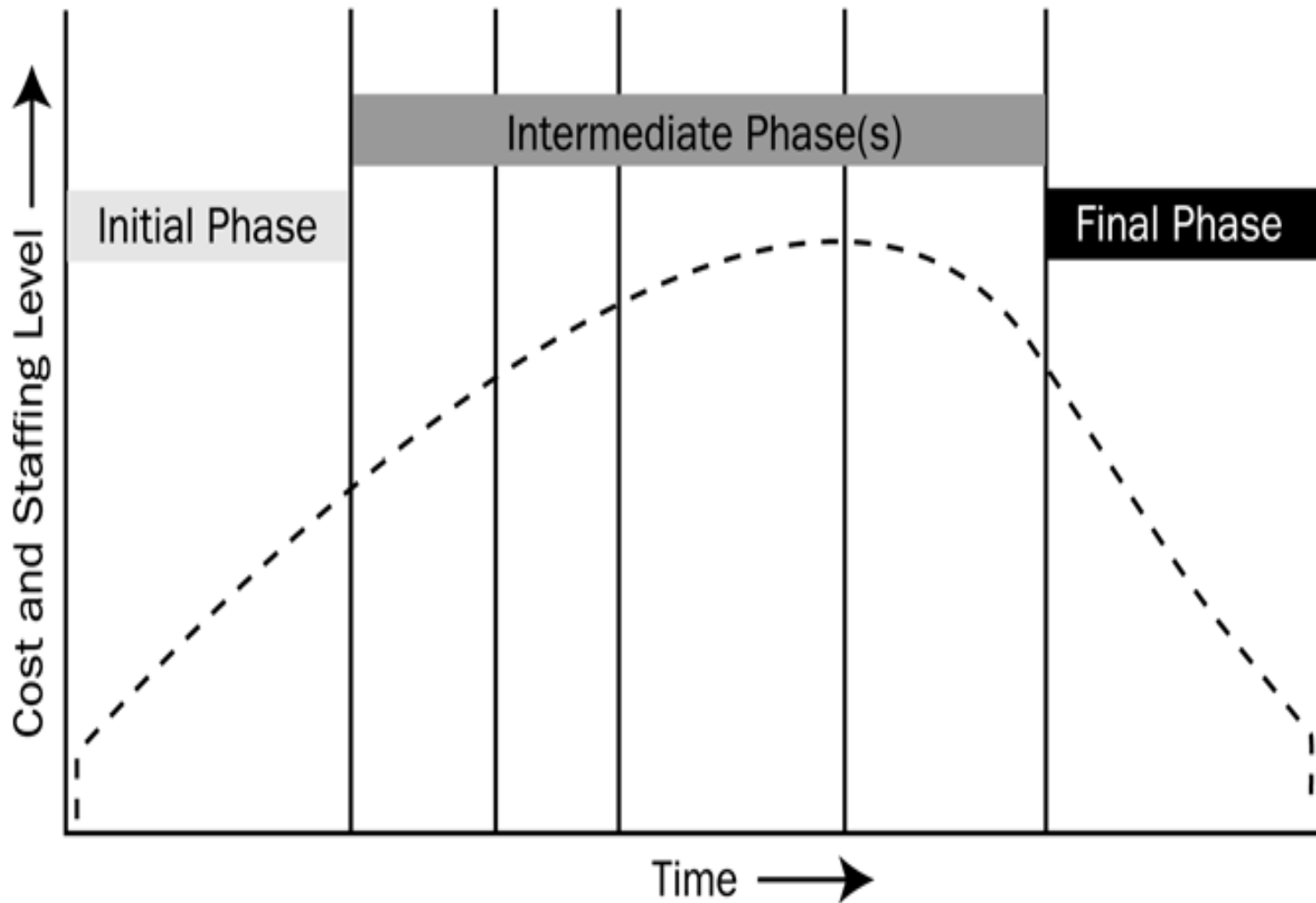
**A project life cycle is a collection of project phases that defines:**

- ✓ **What work will be performed in each phase.**
- ✓ **What deliverables will be produced and when.**
- ✓ **Who is involved in each phase.**
- ✓ **How management will control and approve work produced in each phase.**
- ✓ **A deliverable is a product or service produced or provided as part of a project**



# Project Cycle





**Typical Project Cost and Staffing Level Across the Project Life Cycle**

# **Handoffs (Transfer)**

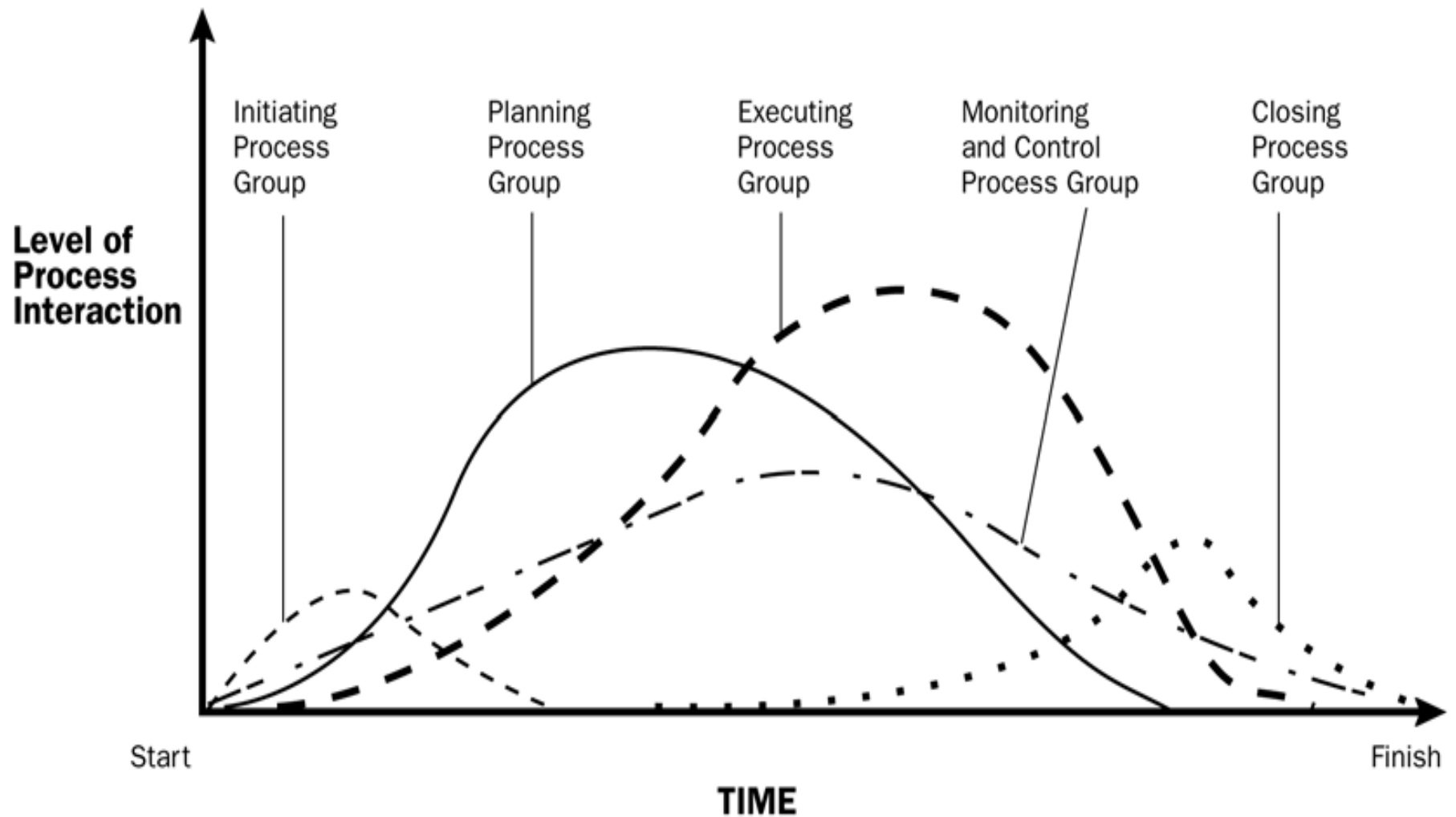
**Project phases evolve through the life cycle in a series of phase sequences called handoffs, or technical transfers.**

**The end of one phase sequence typically marks the beginning of the next.**

# Phase-to-Phase Relationships

**There are three basic types of phase-to Phase relationships:**

- **A Sequential relationship** : where a phase can only start once the previous phase is complete.
- **An Overlapping relationship** : where the phase starts prior to completion of the previous one (Fast tracking). Overlapping phase may increase risk and can result in rework.
- **An Iterative relationship** : where only one phase is planned at any given time and the planning for the next is carried out as work progresses on the current phase and deliverables.



**Process Groups Interact in a Project**

**ANY QUESTIONS ?**

# **HOMEWORK 1**

- **PREPARE AN ORGANIZATIONAL CHART FOR EMU.**
- **DESCRIBE THE TYPE OF ORGANIZATIONAL STRUCTURE OF THAT CHART AND EXPLAIN WHY.**
- **DESCRIBE BRIEFLY THE RESPONSIBILITIES OF EACH POSITION IN THAT CHART.**
- **TO BE SUBMITTED BY 25<sup>th</sup> of October 2018.**
- **SUBMISSION WILL BE INDIVIDUALLY to Nima Tazehzadeh office CE141.**