Chapter 02

The environment in which projects operate

erga

Project Management

Prepared by **Quality Management Dept.**

Presented by **Fouad Abou Rjeily**

Erga Academy

PM17 – PMP6 Certification

EPDM & ESM tracks

20 credits

Plan

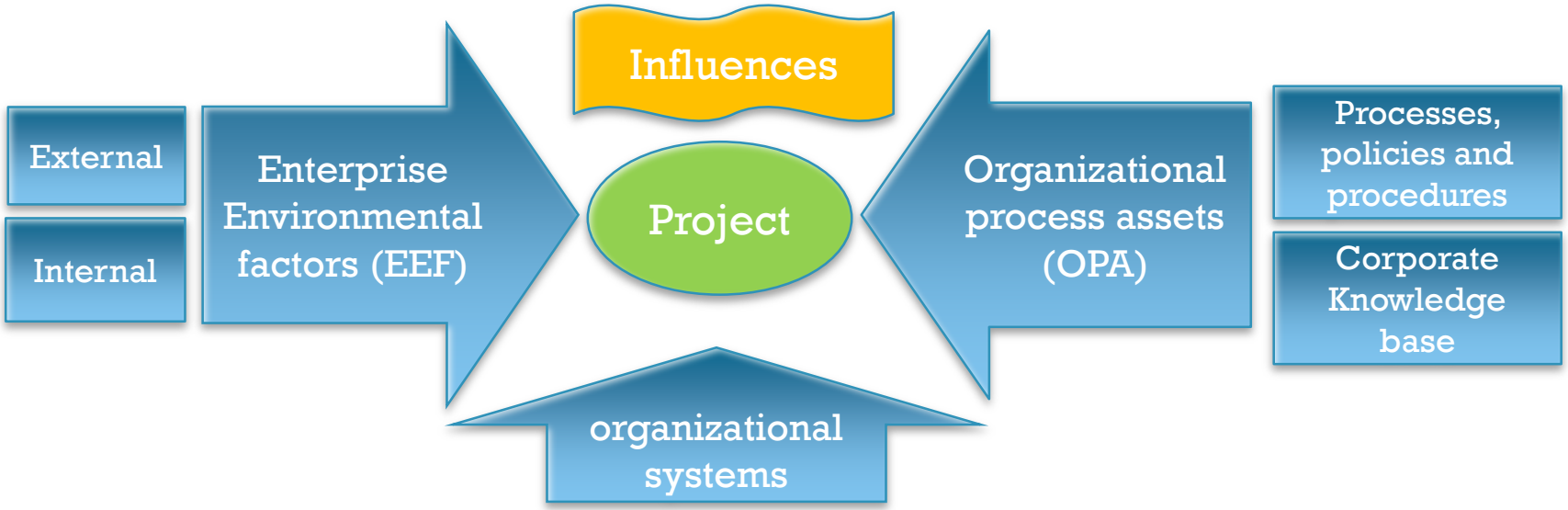

1. Introduction
2. Environment in which projects operate
3. The role of the Project Manager
4. Project Integration Management
5. Project Scope Management
6. Project Schedule Management
7. Project Cost Management
8. Project Quality Management
9. Project Resource Management
10. Project Communications Management
11. Project Risk Management
12. Project Procurement Management
13. Project Stakeholder Management
14. Professional Responsibility

Plan

- Chapter 02- The Environment in which Projects operate
  - **2.1 Overview**
  - **2.2 Enterprise Environmental Factors**
    - 2.2.1 EEFs Internal to the Organization
    - 2.2.2 EEFs External to the Organization
  - **2.3 Organizational Process Assets**
    - 2.3.1 Processes, Policies, and Procedures
    - 2.3.2 Organizational Knowledge Repositories
  - **2.4 Organizational Systems**
    - 2.4.1 Overview
    - 2.4.2 Organizational Governance Frameworks
    - 2.4.3 Management Elements
    - 2.4.4 Organizational Structure Types

2.1 Overview

- Projects exist and operate in environments that may have an influence on them. These influences can have a favorable or unfavorable impact on the project.
- Two major categories of influences are **Enterprise Environmental Factors (EEFs)** and **Organizational Process Assets (OPAs)**.



2.2 Enterprise Environmental Factors

Overview

- ***Enterprise environmental factors (EEFs) refer to conditions, not under the control of the project team, that influence, constrain, or direct the project.***
- These conditions can be internal and/or external to the organization.
- These factors may enhance or constrain project management options. In addition, these factors may have a positive or negative influence on the outcome.

2.2 Enterprise Environmental Factors

2.2.1 EEFs Internal to the Organization

Culture

- Culture and style are group phenomena known as cultural norms, which develop over time by practice and common usage. It is shaped by the common experiences of members of the organization.

- Common experiences may include:
  - Shared visions, mission, values,…
  - Regulations, policies, procedures…
  - Hierarchy & authority…
  - Work ethics, work hours…
  - Recognized decision makers/influencers…
- In light of globalization, cultural impact is critical in projects involving diverse organizations and countries.

2.2 Enterprise Environmental Factors

2.2.1 EEFs Internal to the Organization

Organizational Communications

- Project management success is highly dependent on an effective organizational communication style, especially in the face of this profession's globalization.
- The organizations should have communication capabilities so that the PM can effectively manage the project with distant stakeholders and facilitate decision making.

2.2 Enterprise Environmental Factors

2.2.1 EEFs Internal to the Organization

The following EEFs are **internal** to the organization:

- **Organizational culture, structure, and governance**. Examples include vision, mission, values, beliefs, cultural norms, leadership style, hierarchy and authority relationships, organizational style, ethics, and code of conduct.
- **Geographic distribution of facilities and resources**. Factory locations, virtual teams, shared systems, and cloud computing…
- **Infrastructure**. Existing facilities, equipment, organizational telecommunications channels, information technology hardware, availability, and capacity…
- **Information technology software**. Scheduling software tools, configuration management systems, web interfaces to other online automated systems, and work authorization systems…
- **Resource availability**. Contracting and purchasing constraints, approved providers and subcontractors, and collaboration agreements…
- **Employee capability**. Existing human resources expertise, skills, competencies, and specialized knowledge…

2.2 Enterprise Environmental Factors

2.2.2 EEFs External to the Organization

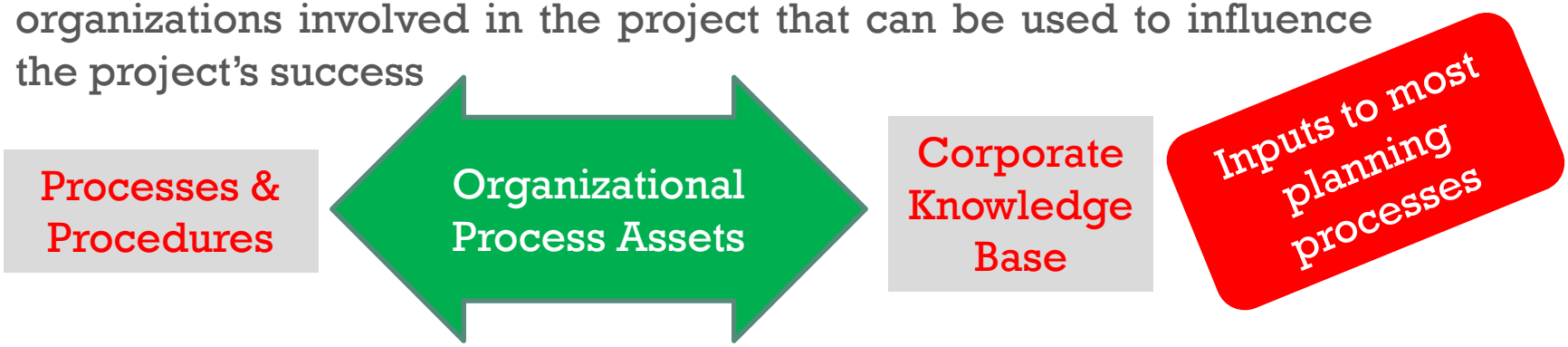
The following EEFs are **external** to the organization.

- **Marketplace conditions**. Competitors, market share brand recognition, & trademarks…
- **Social and cultural influences and issues**. Political climate, codes of conduct, ethics, and perceptions…
- **Legal restrictions**. Country or local laws and regulations related to security, data protection, business conduct, employment, and procurement…
- **Commercial databases**. Benchmarking results, standardized cost estimating data, industry risk study information, and risk databases…
- **Academic research**. Industry studies, publications, and benchmarking results…
- **Government or industry standards**. Regulatory agency regulations and standards related to products, production, environment, quality, and workmanship…
- **Financial considerations**. Currency exchange rates, interest rates, inflation rates, tariffs, and geographic location…
- **Physical environmental elements**. Working conditions, weather, and constraints…

2.3 Organizational Process Assets

Overview

- Include any or all process related assets from any or all of the organizations involved in the project that can be used to influence the project's success



- OPA refers to the organization's policies, guidelines, procedures, plans, approaches, or standards for conducting work, including project work.

- OPA also includes the information the organization has learned from previous projects (including how to store and retrieve that information). (Historical Information and lessons learned knowledge base) and templates etc.

2.3 Organizational Process Assets

2.3.1 Processes, Policies, and Procedures

The organization's processes and procedures for conducting project work include but are not limited to:

- **Initiating and Planning**
  - **Guidelines and criteria for tailoring** the organization's set of standard processes and procedures to satisfy the specific needs of the project;
  - **Specific organizational standards** such as policies (human resources policies, health and safety policies, security and confidentiality policies, quality policies, procurement policies, and environmental policies);
  - **Product and project life cycles, and methods and procedures** (project management methods, estimation metrics, process audits, improvement targets, checklists, and standardized process definitions for use in the organization);
  - **Templates** (project management plans, project documents, project registers, report formats, contract templates, risk categories, risk statement templates, probability and impact definitions, probability and impact matrices, and stakeholder register templates); and
  - **Preapproved supplier lists** and various types of contractual agreements (fixed-price, cost-reimbursable, and time and material contracts).

2.3 Organizational Process Assets

2.3.1 Processes, Policies, and Procedures

- **Executing, Monitoring, and Controlling**
  - **Change control procedures**, including the steps by which performing organization standards, policies, plans, and procedures or any project documents will be modified, and how any changes will be approved and validated;
  - **Traceability matrices**;
  - **Financial controls procedures** (time reporting, required expenditure and disbursement reviews, accounting codes, and standard contract provisions);
  - **Issue and defect management procedures** (defining issue and defect controls, identifying and resolving issues and defects, and tracking action items);
  - **Organizational communication requirements** (specific communication technology available, authorized communication media, record retention policies, videoconferencing, collaborative tools, and security requirements);
  - …

2.3 Organizational Process Assets

2.3.1 Processes, Policies, and Procedures

- **Executing, Monitoring, and Controlling (cont'd)**
  - …
  - **Resource availability control** and assignment management;
  - **Procedures** for prioritizing, approving, and issuing work authorizations;
  - **Templates** (risk register, issue log, and change log);
  - **Standardized guidelines**, work instructions, proposal evaluation criteria, and performance measurement criteria; and
  - **Product, service, or result verification** and validation procedures.

- **Closing.** Project closure guidelines or requirements (e.g., final project audits, project evaluations, deliverable acceptance, contract closure, resource reassignment, and knowledge transfer to production and/or operations).

2.3 Organizational Process Assets

2.3.2 Organizational Knowledge Repositories

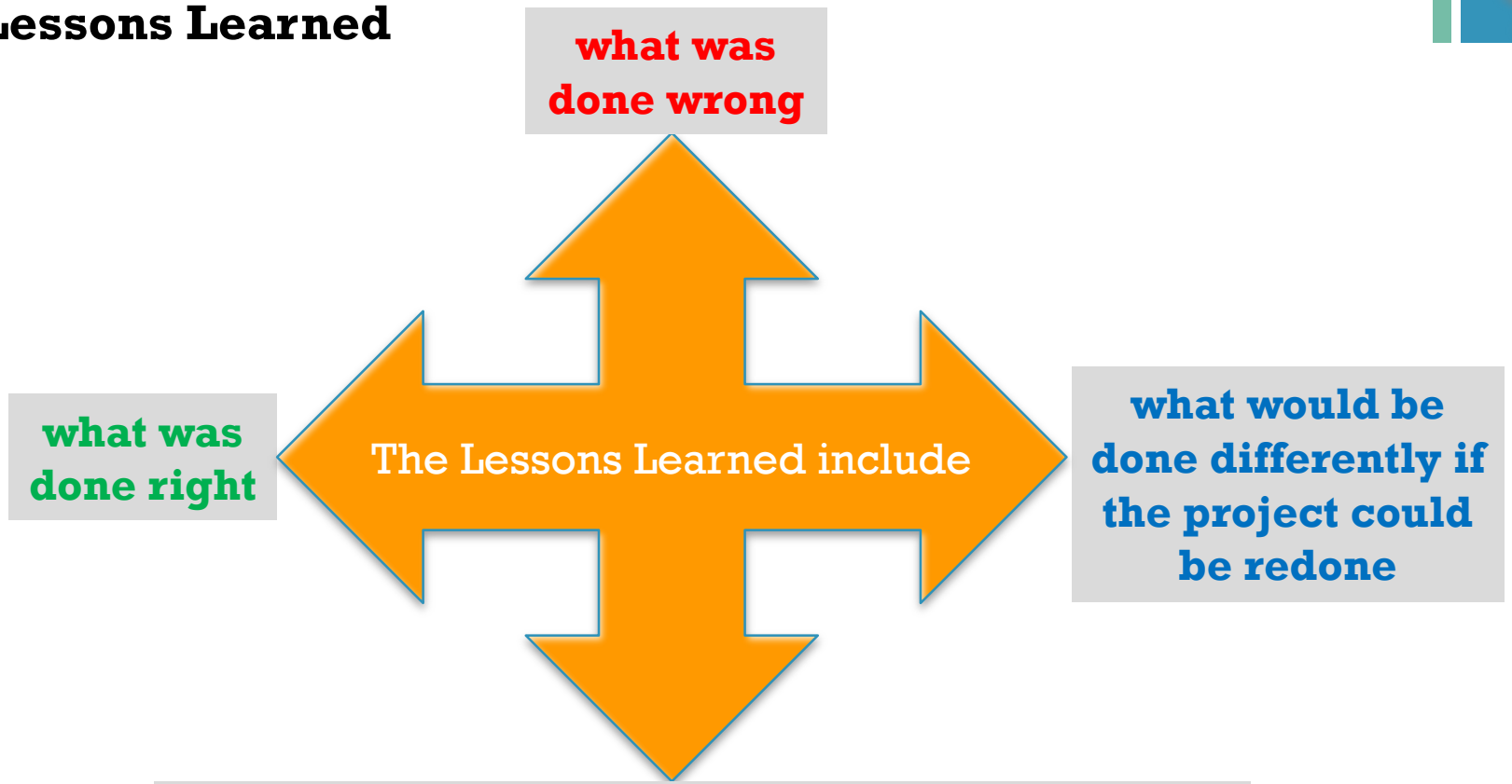
The organizational knowledge repositories for storing and retrieving information include but are not limited to:

- **Configuration management knowledge repositories** containing the versions of software and hardware components and baselines of all performing organization standards, policies, procedures, and any project documents;
- **Financial data repositories** containing information such as labor hours, incurred costs, budgets, and any project cost overruns;
- **Historical information and lessons learned** knowledge repositories (project records and documents);
- **Issue and defect management** data repositories containing issue and defect status, control information, issue and defect resolution;
- **Data repositories for metrics used** to collect and make available measurement data on processes and products;
- **Project files** from previous projects (all project management related data).

2.3 Organizational Process Assets

2.3.2 Organizational Knowledge Repositories

Lessons Learned



2.3 Organizational Process Assets

2.3.2 Organizational Knowledge Repositories

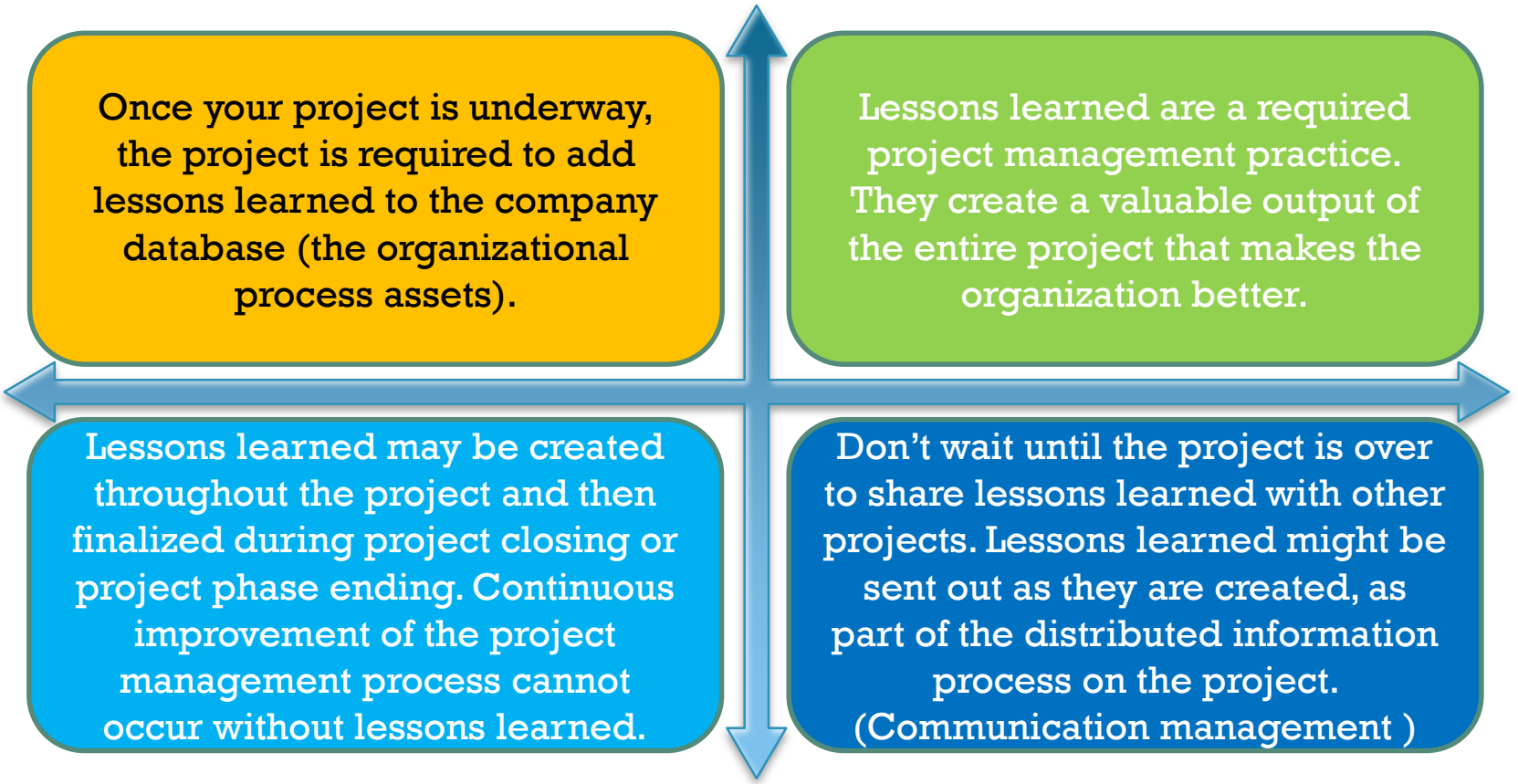
Lessons Learned (cont'd)

- Lessons Learned should cover the three areas:
  - Technical aspects of the project.
  - Project Management (How did we do with WBS creation?, risk planning? etc.,).
  - Management (How did I do with communications and leadership as a PM?).
- Lessons learned from similar projects are collected and reviewed before starting the work on a new project.
  - Why make the same mistakes or face the same problems others faced?
  - Why not benefit from the other's experience?
  - If you are going in to your company database and see data for all executed projects, how valuable would that be for developing a project plan for new project?

2.3 Organizational Process Assets

2.3.2 Organizational Knowledge Repositories

Lessons Learned (cont'd)



2.3 Organizational Process Assets

2.3.2 Organizational Knowledge Repositories

Templates

- Why reinvent the wheel? If similar projects have been completed in the past, rely on the WBS and activity lists from the historical information to serve as a template for the current project.

- Templates can include several elements:
  - Required actions to complete the project scope
  - Required resources and skills
  - Required hours of duration for activities
  - Known risks
  - Output of the work
  - Descriptions of work packages

2.3 Organizational Process Assets

2.3.2 Organizational Knowledge Repositories

To Remember

- **Enterprise Environmental Factors** are existing systems and culture that you have to **live with** while managing the project. They may act as **constraints** for the project.
- Whereas **Organizational Process Assets** positively influence the project. Existing policies, procedures, lessons learned, historical information are assets that you can use and **save time** on your project.

2.4 Organizational Systems

2.4.1 Overview

- Projects operate within the constraints imposed by the organization through their structure and governance framework.
  - To operate effectively and efficiently, the PM needs to understand where responsibility, accountability, and authority reside within the organization. This will help the PM effectively use his or her power, influence, competence, leadership, and political capabilities to successfully complete the project.

- A system is a collection of various components that together can produce results not obtainable by the individual components alone.
  - A component is an identifiable element within the project or organization that provides a particular function or group of related functions.
  - The interaction of the various system components creates the organizational culture and capabilities.

2.4 Organizational Systems

2.4.1 Overview

- The interaction of multiple factors within an individual organization creates a unique system that impacts the project operating in that system. The system factors include but are not limited to:
  - **Governance frameworks**
  - **Management elements**
  - **Organizational structure types.**

2.4 Organizational Systems

2.4.2. Organizational governance frameworks

1. Governance Framework

- A **framework** that:
  - Provides the structure, processes and decision-making models and tools for managing the project.
  - Defines PM roles and responsibilities and accountability for project success.
  - Determines the effectiveness of the PM.
  - Ensures controlling projects by the organization's management and their alignment with the strategic objectives.
- The PMO plays decisive role in project governance.

A framework in which the project team should perform

2.4 Organizational Systems

2.4.2. Organizational governance frameworks

1. Governance Framework (cont'd)

- Elements of project governance framework may include:
  - ✓ Project organizational chart
  - ✓ Escalation process for resolving issues
  - ✓ Project success criteria
  - ✓ Processes for project decision making
  - ✓ Processes from project issues management
  - ✓ Processes for project communication
  - ✓ Processes for phase reviews
  - ✓ Processes for change management
  - ✓ Relationships between project team, organizational groups and external stakeholders
  - ✓ Project organizational charts & roles
  - ✓ Project life cycle approach…

2.4 Organizational Systems

2.4.3 Management elements

- Management elements are the components that comprise the key functions or principles of general management in the organization. The general management elements are allocated within the organization according to its governance framework and the organizational structure type selected.

- The key functions or principles of management include:
  - Division of work using specialized skills and availability to perform work;
  - Authority given to perform work;
  - Responsibility to perform work appropriately assigned based on such attributes as skill and experience;
  - Discipline of action (respect for authority, people, and rules);
  - Unity of command (only one person gives orders for any action or activity to an individual);
  - …

2.4 Organizational Systems

2.4.3 Management elements

- …
- Unity of direction (one plan and one head for a group of activities with the same objective);
- General goals of the organization take precedence over individual goals;
- Paid fairly for work performed;
- Optimal use of resources;
- Clear communication channels;
- Right materials to the right person for the right job at the right time;
- Fair and equal treatment of people in the workplace;
- Clear security of work positions;
- Safety of people in the workplace;
- Open contribution to planning and execution by each person; and
- Optimal morale.

- …

2.4 Organizational Systems

2.4.3 Management elements

- Performance of these management elements are assigned to selected individuals within the organization.
- These individuals may perform the noted functions within various organizational structures. For example, in a hierarchical structure, there are horizontal and vertical levels within the organization. These hierarchical levels range from the line management level through to the executive management level.
- The responsibility, accountability, and authority assigned to the hierarchical level indicate how the individual may perform the noted function within that organizational structure.

2.4 Organizational Systems

2.4.4 Organizational structure types

- Determination of the appropriate organizational structure type is a result of the study of tradeoffs between two key variables:
  - The organizational structure types available for use
  - How to optimize them for a given organization.
- There is not a one-size-fits-all structure for any given organization. The final structure for a given organization is unique due to the numerous variables to be considered.

2.4 Organizational Systems

2.4.4 Organizational structure types

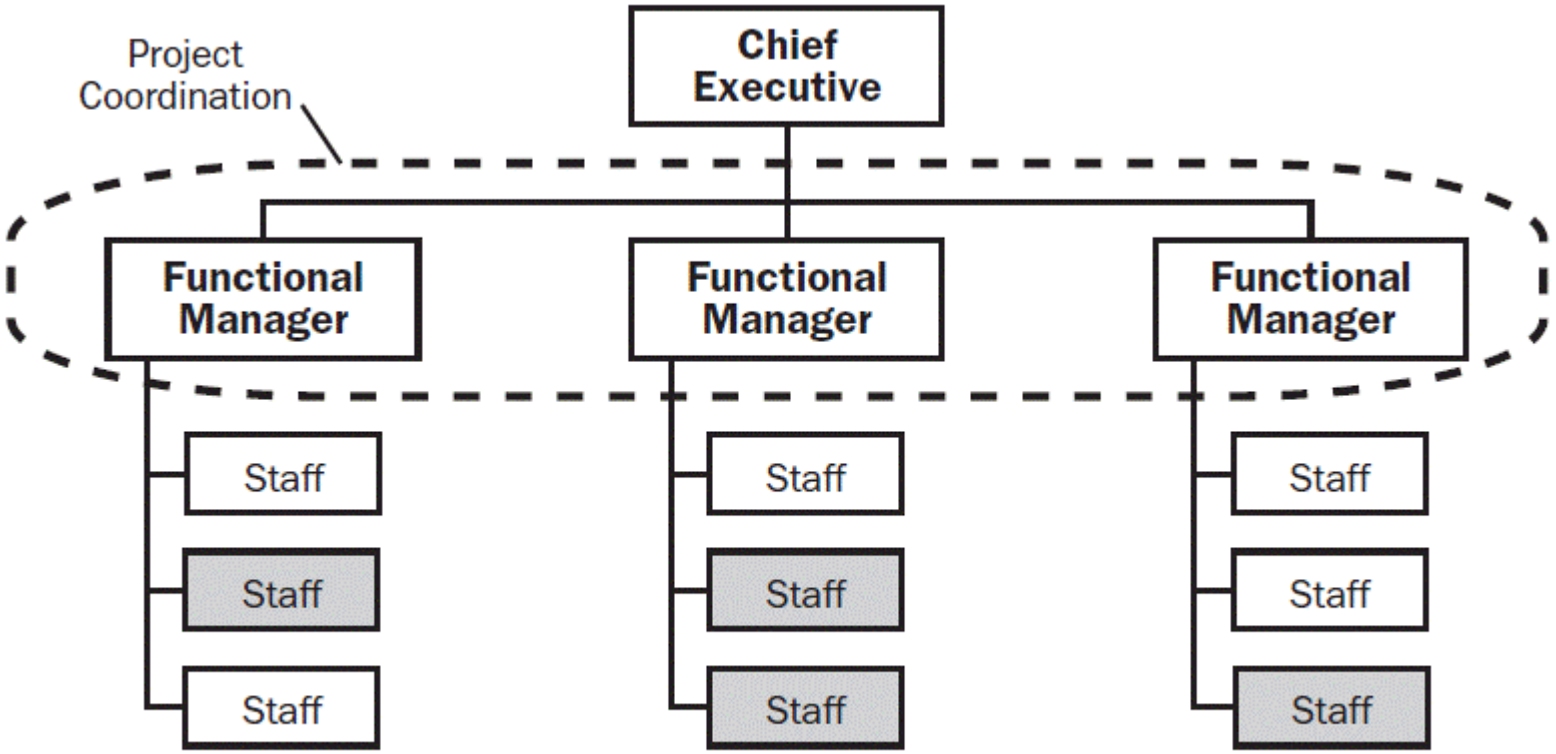
1. Organizational Structure Types

- Organizational structures take many forms or types:
  - Organic or simple
  - Functional (centralized)
  - Multi-divisional (may replicate function for each division with little centralization)
  - Matrix-Strong
  - Matrix-Weak
  - Matrix-Balanced
  - Project-oriented (composite, hybrid)
  - Virtual
  - Hybrid
  - PMO

2.4 Organizational Systems

2.4.4 Organizational structure types

1. Organizational Structure Types: Functional organization



(Gray boxes represent staff engaged in project activities)

PM's Authority: None or Little

2.4 Organizational Systems

2.4.4 Organizational structure types

1. Organizational Structure Types: Functional organization

The organization is grouped by areas of specialization within different functional areas

Projects generally occur within a single department

Information required from other department will be routed through departmental heads

Team members complete project work in addition to normal departmental work and report to 1 supervisor

Similar resources are centralized and grouped by specialty

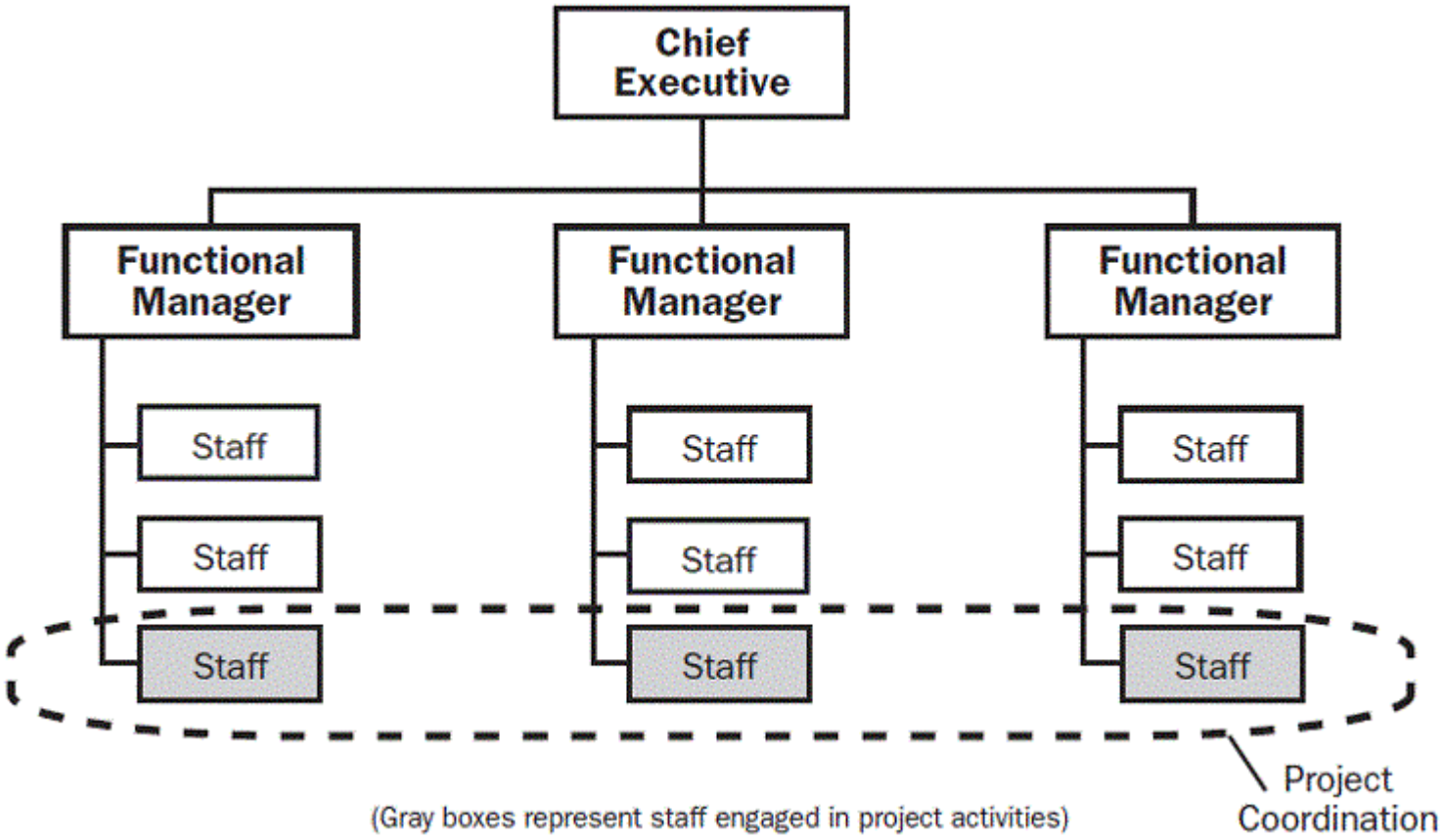
Clear career path in areas of specialization

Job security is guaranteed

2.4 Organizational Systems

2.4.4 Organizational structure types

1. Organizational Structure Types: Weak Matrix organization



PM's Authority: Low, he is a project expediter or coordinator here

2.4 Organizational Systems

2.4.4 Organizational structure types

1. Organizational Structure Types: Weak Matrix organization

Team members do project work in addition to normal departmental work

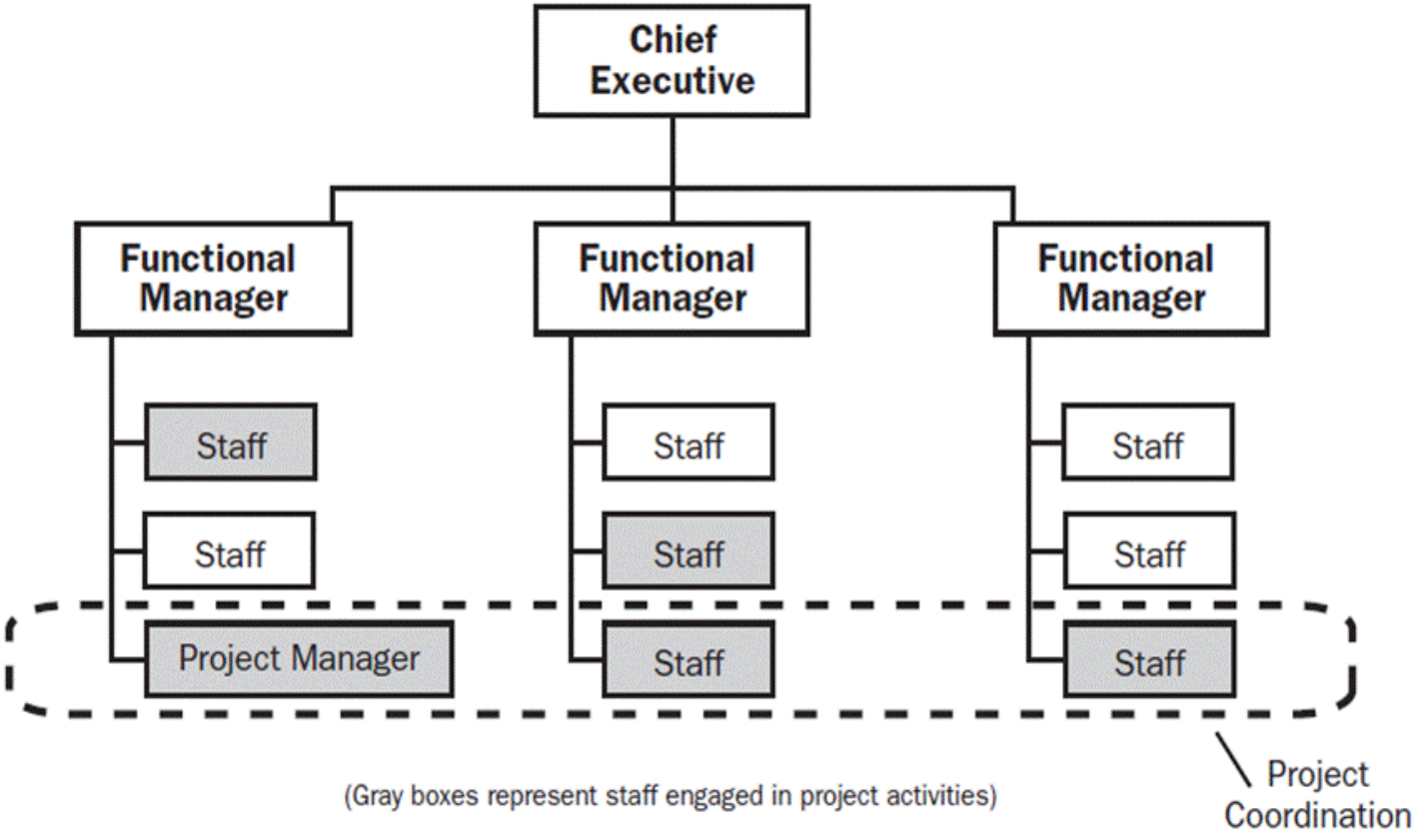
Power rests with functional manager

PM plays a role of	
Project Expediter: Cannot take decision. Staff assistant and Communication coordinator.	**Project Coordinator:** Similar to Project Expeditor except has some power to take decision.

2.4 Organizational Systems

2.4.4 Organizational structure types

1. Organizational Structure Types: Balanced Matrix organization



PM's Authority: Low to moderate

2.4 Organizational Systems

2.4.4 Organizational structure types

1. Organizational Structure Types: Balanced Matrix organization

Two bosses

Team members report to PM and Functional Manager

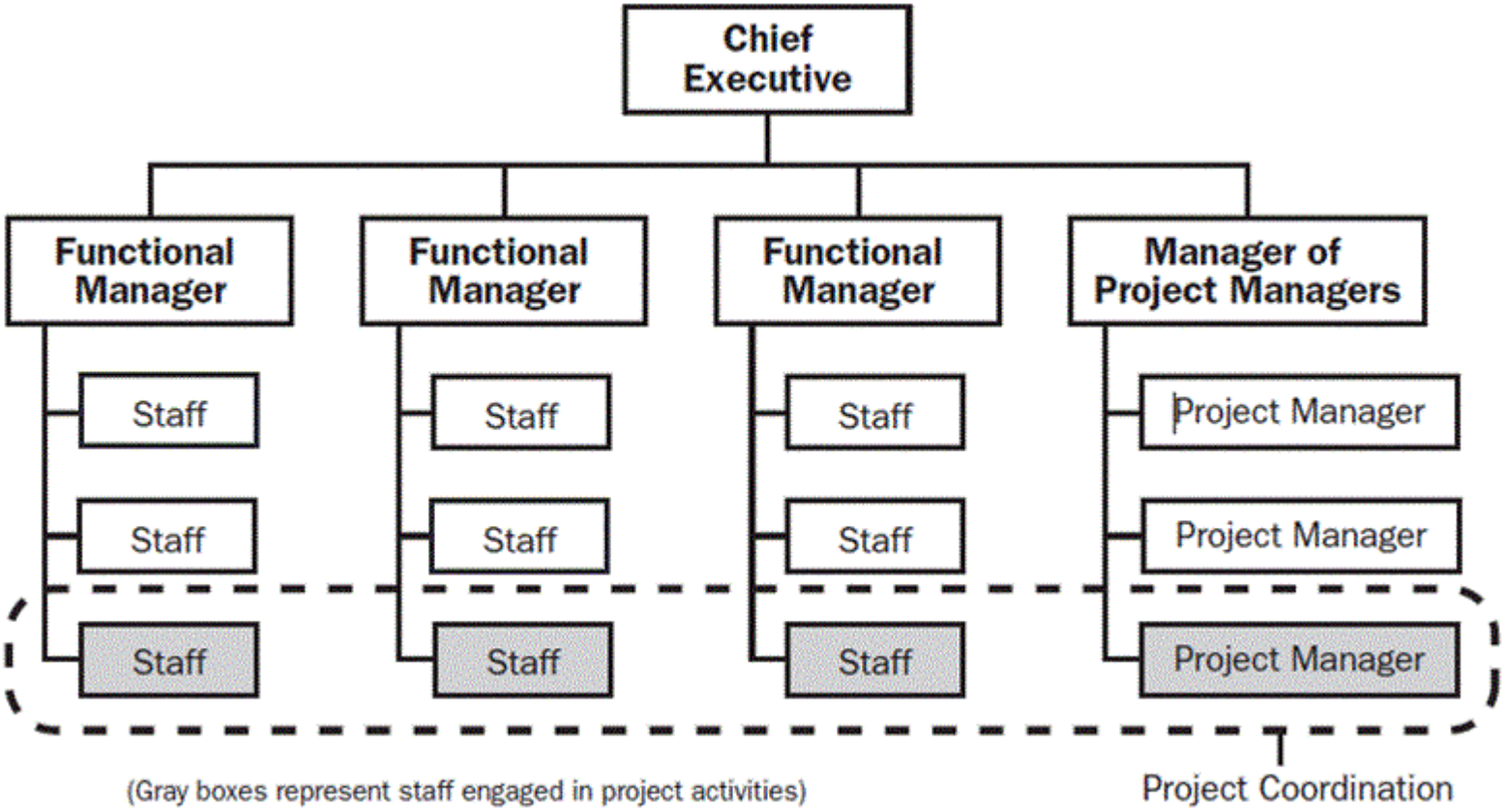
Team members do project work in addition to normal departmental work

Power is shared between the functional and PM

2.4 Organizational Systems

2.4.4 Organizational structure types

1. Organizational Structure Types: Strong Matrix organization

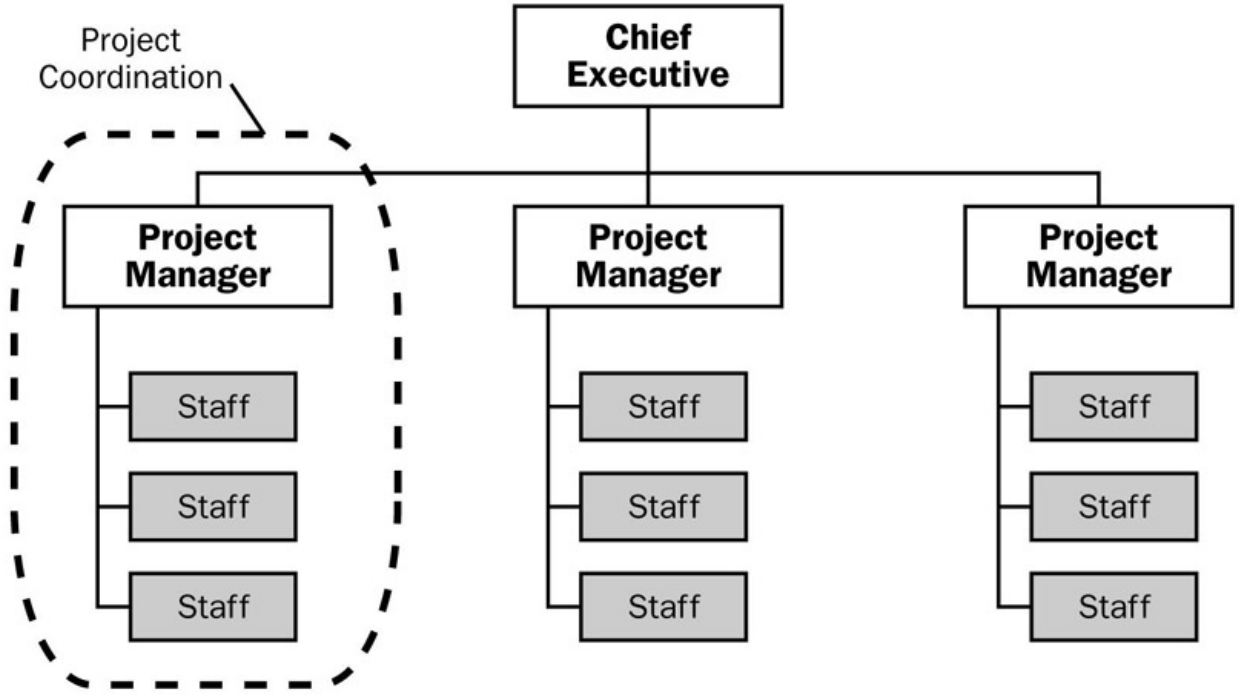


PM's Authority: Moderate to High

2.4 Organizational Systems

2.4.4 Organizational structure types

1. Organizational Structure Types: Projectized organization



(Gray boxes represent staff engaged in project activities.)

PM's Authority: High to almost total

2.4 Organizational Systems

2.4.4 Organizational structure types

1. Organizational Structure Types: Projectized organization

The entire company is organized by projects

The PM has control of power and full authority over project resources

Personnel are assigned and report to a PM

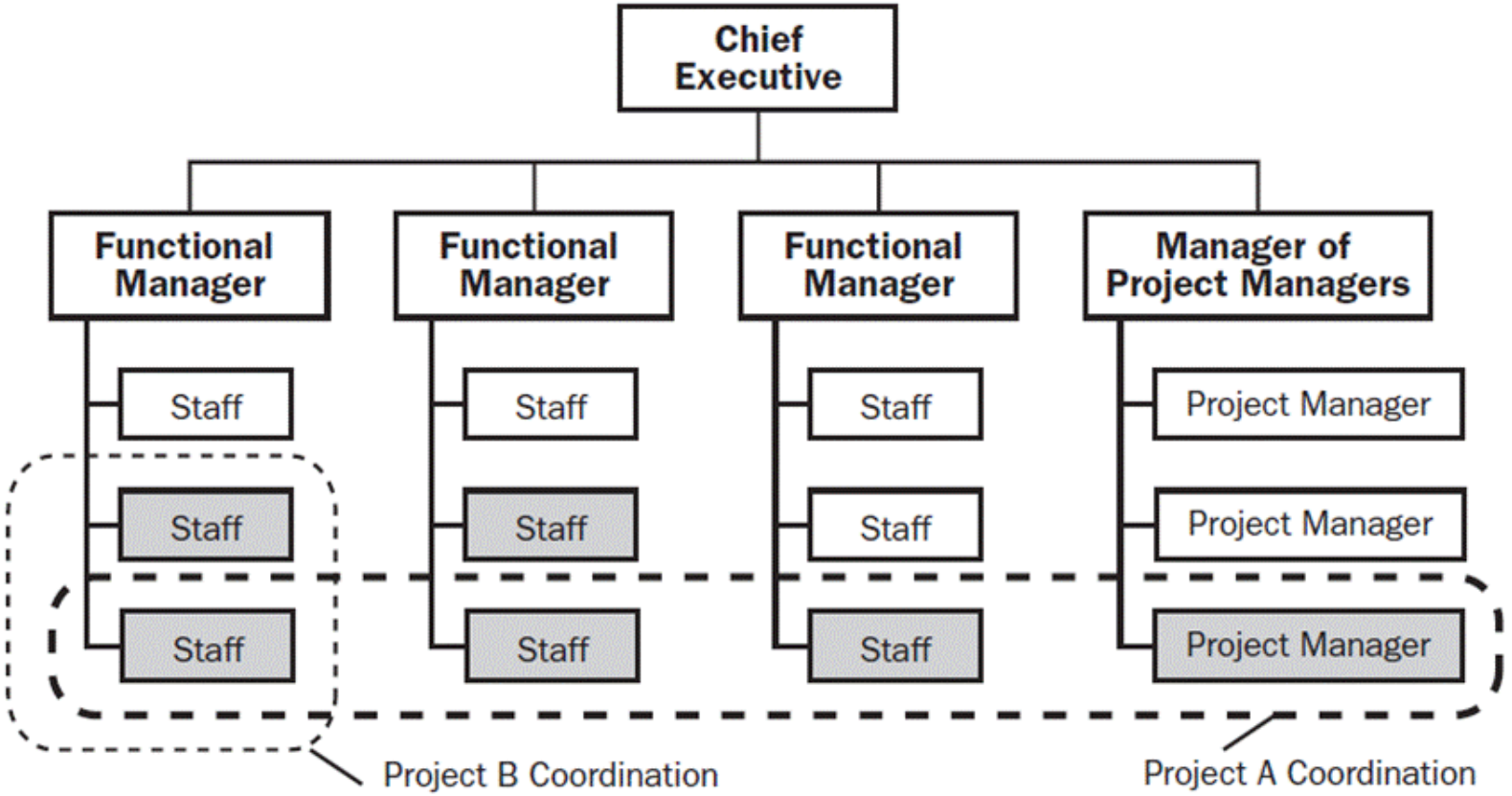
Team members complete only project work and when its over they don't have HOME

Communication generally occurs only within the project

2.4 Organizational Systems

2.4.4 Organizational structure types

1. Organizational Structure Types: Hybrid organization



PM's Authority: Depends on structure

2.4 Organizational Systems

2.4.4 Organizational structure types

1. Organizational Structure Types (cont'd)

	Advantages	Disadvantages
FUNCTIONAL	• Clearly defined career paths • Direct supervisor reporting structure • Familiar structure • Employees are experts	• PM role will be part time with no defined career path • Resource allocation/ commitment for project is challenging • Performance reviews done by functional manager only
MATRIX	• Improved PM control • More support from functional manager • Multiple inputs on team members' performance	• More than one boss so increased complexity of work/team structures • Conflicting priorities & objectives between functional and PMs may exist • Additional policies & procedures needed
PROJECTIZED	• Efficient project organization • Simplified communications • Resources are committed to the project → Project loyalty	• No "home" when projects are completed • Resources are isolated rather than shared • Job functions and facilities are duplicated

2.4 Organizational Systems

2.4.4 Organizational structure types

1. Organizational Structure Types

Organizational Structure Type	Project Characteristics					
	Work Groups Arranged by:	PM's Authority	PM's Role	Resource Availability	Who Manages the Project Budget?	Project Management Administrative Staff
Organic or Simple	Flexible: people working side-by-side	Little or none	Part-time : may or may not be a designated job role like coordinator	Little or none	Owner or operator	Little or none
Functioned (centralized)	Job being done (e.g.,engineering, manufacturing)	Little or none	Part-time : may or may not be a designated job role like coordinator	Little or none	Functional manager	Part-time
Multi-divisional (may replicate function for each division with little centralization)	One of : product; production processes;portfolio; program;geographic region;customer type	Little or none	Part-time : may or may not be a designated job role like coordinator	Little or none	Functional manager	Part-time
Matrix-Strong	By job function,with project manager as a function	Moderate to high	Full-time designated job role	moderate to high	Project manager	Full-time

2.4 Organizational Systems

2.4.4 Organizational structure types

Organizational Structure Type	Project Characteristics					
	Work Groups Arranged by:	PM's Authority	PM's Role	Resource Availability	Who Manages the Project Budget?	Project Management Administrative Staff
Matrix-Weak	Job function	Low	Part-time: done as part of anchor job and not a designated job role like coordinator	Low	Functional manager	Part-time
Matrix-Balanced	job function	Low to moderate	Part-time : embedded in the functions as a skill and may not be a designated job role like coordinator	low to moderate	Mixed	Part-time
Project-oriented (composite,hybrid)	Project	high to almost total	Full-time designated job role	high to almost total	Project manager	Full-time
Virtual	network atructure with nodes as points of contact with other people	Low to moderate	full-time or part-time	low to moderate	Mixed	Could be full-time or part-time
Hybrid	Mix of other types	Mixed	Mixed	Mixed	Mixed	Mixed
PMO*	Mix of other types	high to almost total	Full-time designated job role	high to almost total	Project manager	Full-time

2.4 Organizational Systems

2.4.4 Organizational structure types

2. Factors in Organization structure selection

Factors to consider in selecting an organizational structure include:

- Degree of alignment with organizational objectives,
- Specialization capabilities,
- Span of control, efficiency, and effectiveness,
- Clear path for escalation of decisions,
- Clear line and scope of authority,
- Delegation capabilities,
- Accountability assignment,
- Responsibility assignment,
- Adaptability of design,
- Simplicity of design,
- Efficiency of performance,
- Cost considerations,
- Physical locations (colocated, regional, and virtual), and
- Clear communication (policies, status of work, and organization's vision).

2.4 Organizational Systems

2.4.4 Organizational structure types

3. Project management office

***An organizational entity that centralizes and coordinates the management of projects*.**

The responsibility of a PMO can range from providing project management support functions to actually being responsible for the direct management of a project.

Types of PMO:

Supportive

- Provide a consultative role by supplying trainings and templates.
- Degree of control is Low.

Controlling

- Provide support & ensure compliance with project governance.
- Degree of control is Moderate.

Directive

- Play strategic role in managing projects.
- PMs are assigned by and report to the PMO
- Degree of control is Very high.

2.4 Organizational Systems

2.4.4 Organizational structure types

3. Project management office (cont'd)

- The role of the PMO must be clearly defined.
- Preferably all those who are in the PMO must be qualified on Project Management e.g. PMP certified.
- The commitment of executive (top) management is required.
- The PMO will not improve the project performance without the use of proper project management processes and techniques. So professional project management must be encouraged.

2.4 Organizational Systems

2.4.4 Organizational structure types

3. Project management office (cont'd)

- Providing PMs for different projects and being responsible for the results of the projects while PM is responsible for the result of his/her own project. All projects (or projects of a certain size, type or influence) are managed by this office.

Project Manager	PMO
Focuses on specific project	Focuses on overall business objectives
Manages scope, time, resources, budget for a specific project	Manages overall risk, overall opportunities, interdependencies among multiple projects
Reports project specific information	Report status about multiple projects & from a corporate perspective

2.4 Organizational Systems

2.4.4 Organizational structure types

3. Project management office (cont'd)

- A primary function of a PMO is to support PMs in a variety of ways, which may include but are not limited to:
  - Managing shared resources across all projects;
  - Identifying and developing project management methodology;
  - Coaching, mentoring, training, and oversight;
  - Monitoring compliance with project management standards, policies, procedures, and templates by means of project audits;
  - Developing and managing project policies, procedures, templates, and other shared documentation (organizational process assets); and
  - Coordinating communication across projects.

2.4 Organizational Systems

2.4.4 Organizational structure types

3. Project management office (cont'd)

- A PMO may have the authority to act as an integral stakeholder and a key decision maker throughout the life of each project in order to keep it aligned with the business objectives. The PMO may:
  - Make recommendations,
  - Lead knowledge transfer,
  - Terminate projects, and
  - Take other actions, as required.

Thank you

Knowledge area

- You can find the whole Project Management Professional course on Z:\eLibraries\eBooks\Management\PMP 6 Course
- You can also visit www.pmi.org for more information

Please call us for any support