

Informatik-Projektentwicklung

– Lecture 7 –

Prof. Dr. Peter Müller

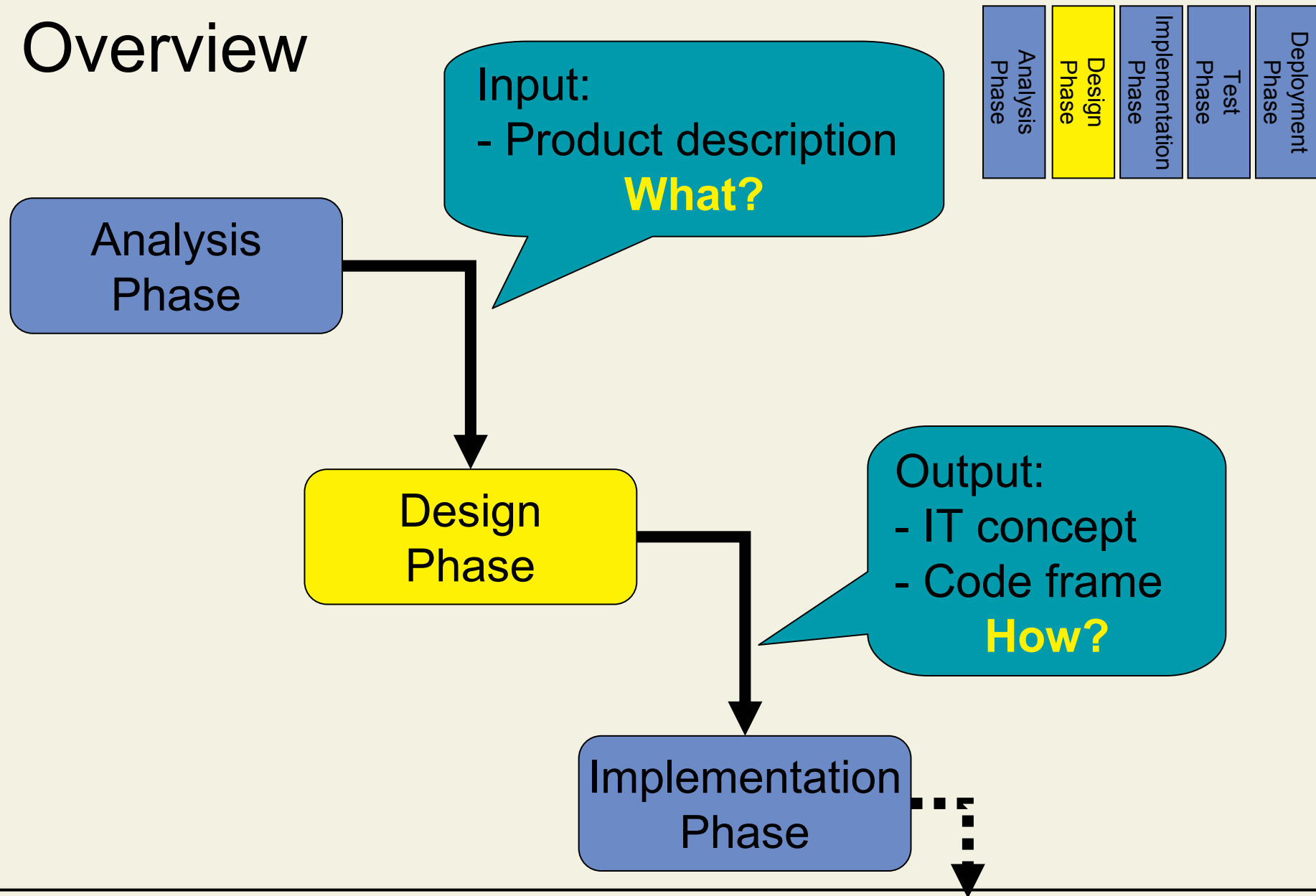
Software Component Technology

Wintersemester 03/04

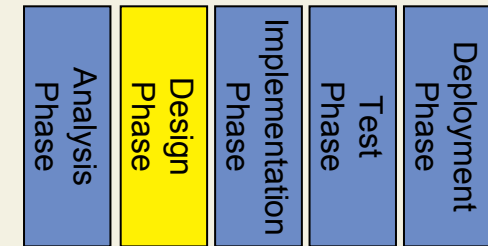
ETH

Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Overview



Software Architecture



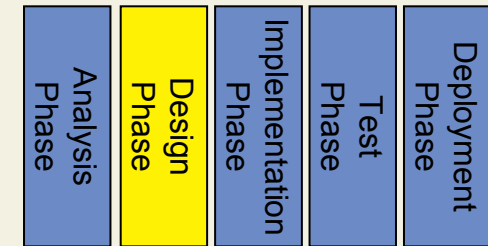
- Definition:

The architecture of a software system defines that system in terms of computational components and interactions among those components.

[Shaw, Garlan: Software Architecture]

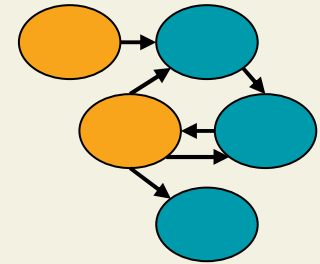
- Components: Clients and servers, databases, filters, layers in a hierarchical system, etc.
- Interactions: Procedure call, shared variable access, client-server protocols, event multicast, etc.

Design Phase: Summary



- Purpose
 - To define how a system meets the specified requirements
 - To decompose a system into manageable components and to specify their functionality and interaction
- Main Deliverables
 - IT concept, documented code frame
- Main actors
 - Architects, designers
- Tools and techniques
 - Decomposition
 - Architectural styles and design patterns

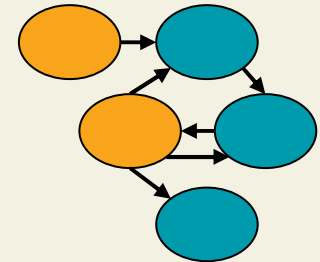
Procurement Management



For which of the following procurement processes is a make-or-buy analysis used?

- a. Contract administration
- b. Procurement planning
- c. Solicitation
- d. Source selection

Overview



Planning

Procurement
Planning



Solicitation
Planning



Execution

Solicitation



Source
Selection



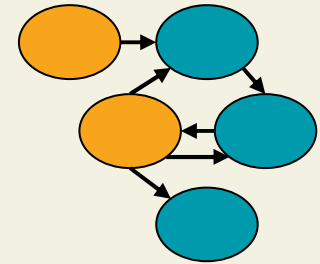
Contract
Administration



Closing

Contract
Closeout

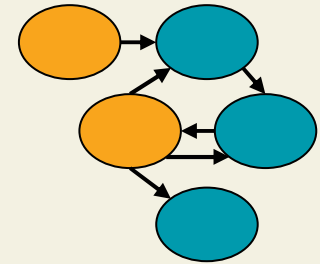
Procurement Management



The primary objective of incentive clauses is to:

- a. Reduce costs for the buyer
- b. Help the seller control costs
- c. Synchronize objectives
- d. Reduce risk for the seller by shifting risk to the buyer

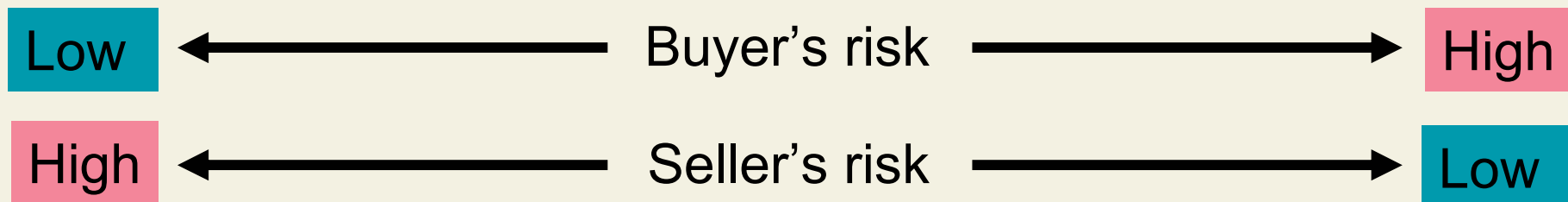
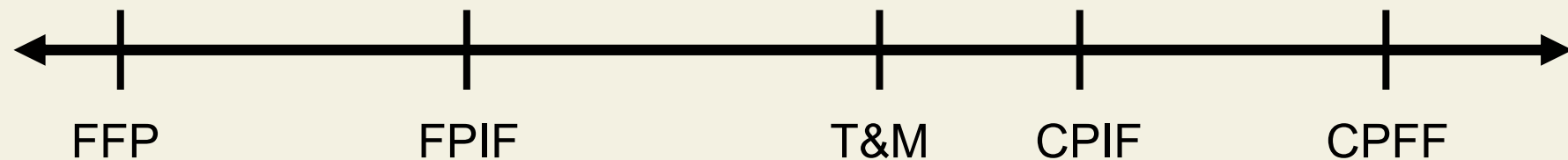
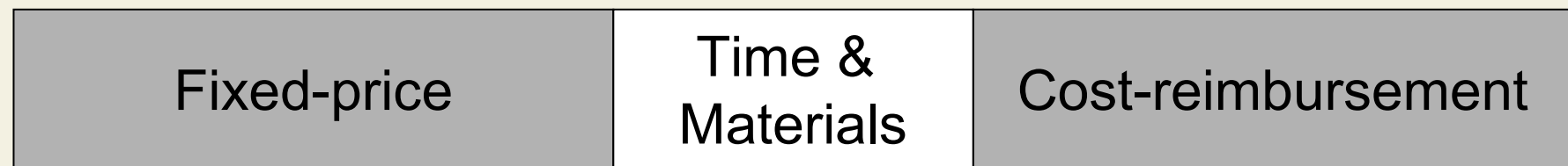
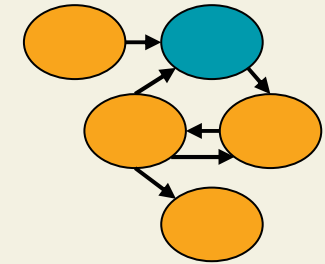
Procurement Management



With which type of contract is the seller MOST concerned about project scope?

- a. Fixed price
- b. Cost plus fixed fee
- c. Time & materials
- d. Purchase order

Contract Types and Risk



Agenda for Today

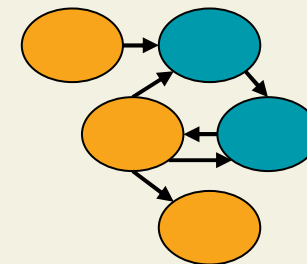
7. Organizational Aspects and HR Management

7.1 Organizational Aspects

7.2 Human Resource Management

7.3 Leadership

7.4 Team Development



7. Organizational Aspects and HR Mgmt.

7.1 Organizational Aspects

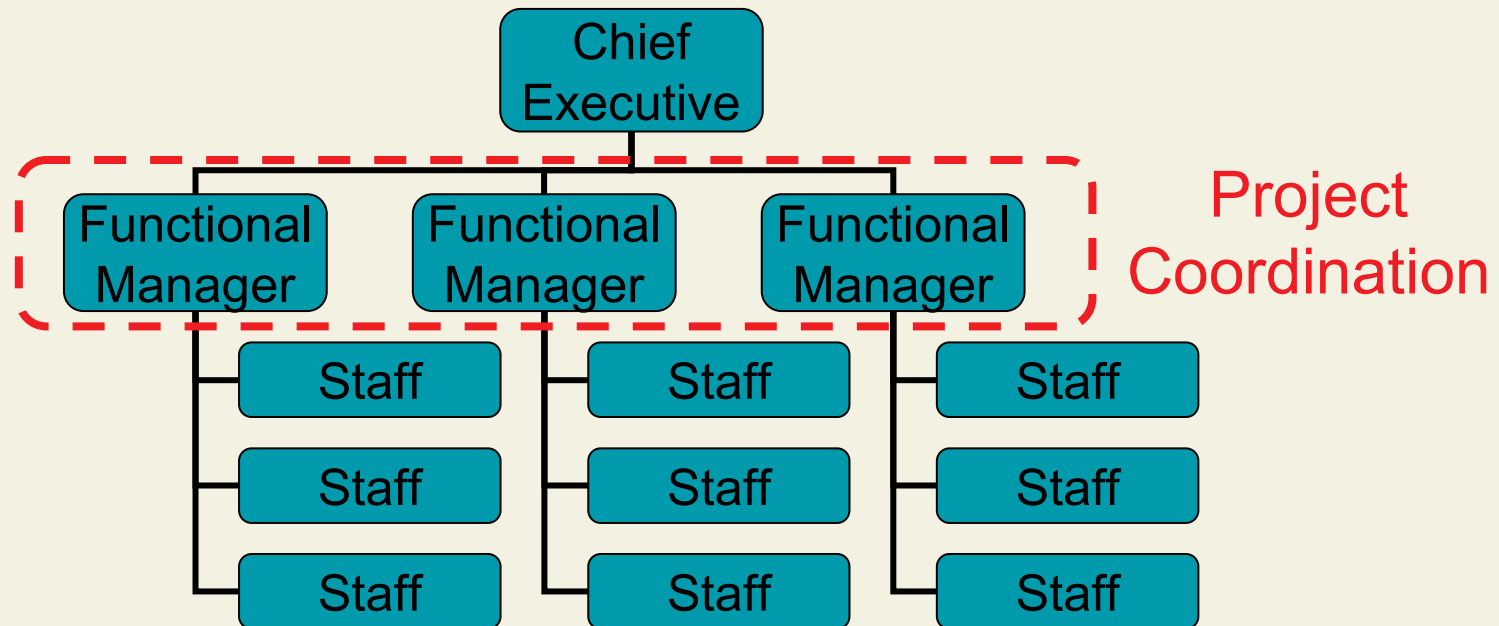
- Organizational Structures
- Stakeholders

7.2 Human Resource Management

7.3 Leadership

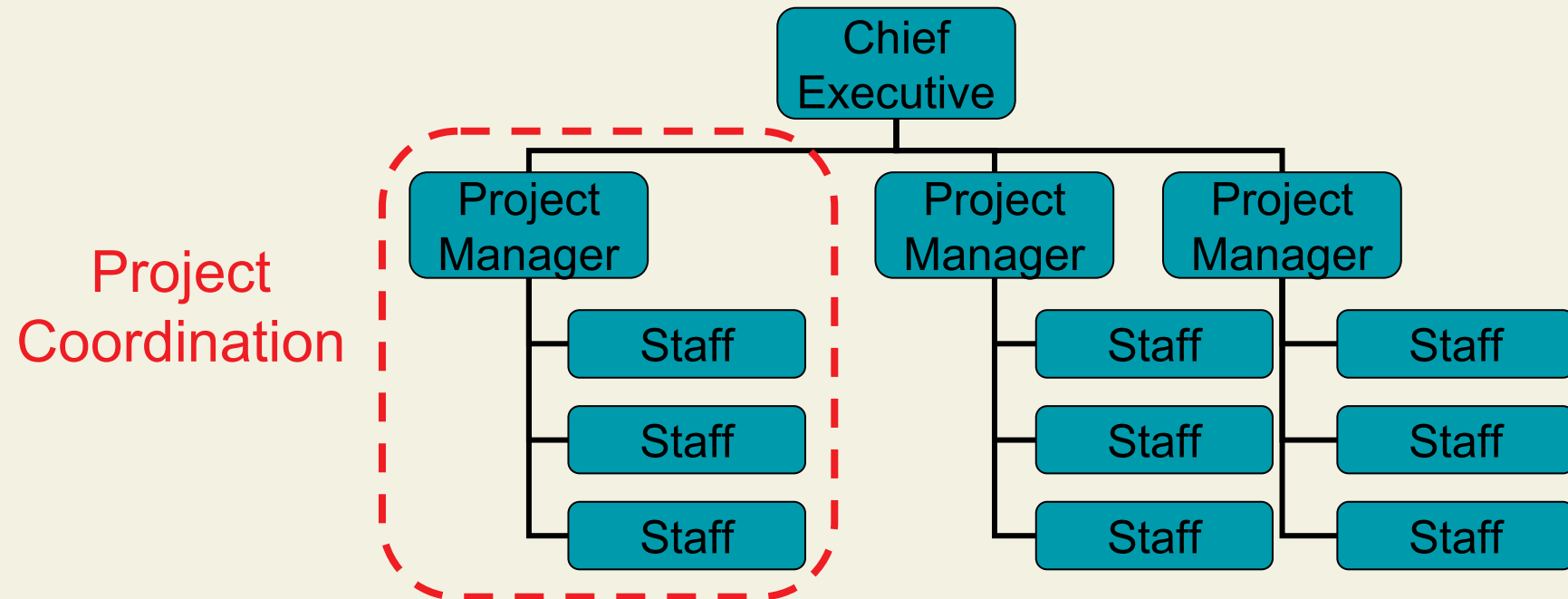
7.4 Team Development

Functional Organization



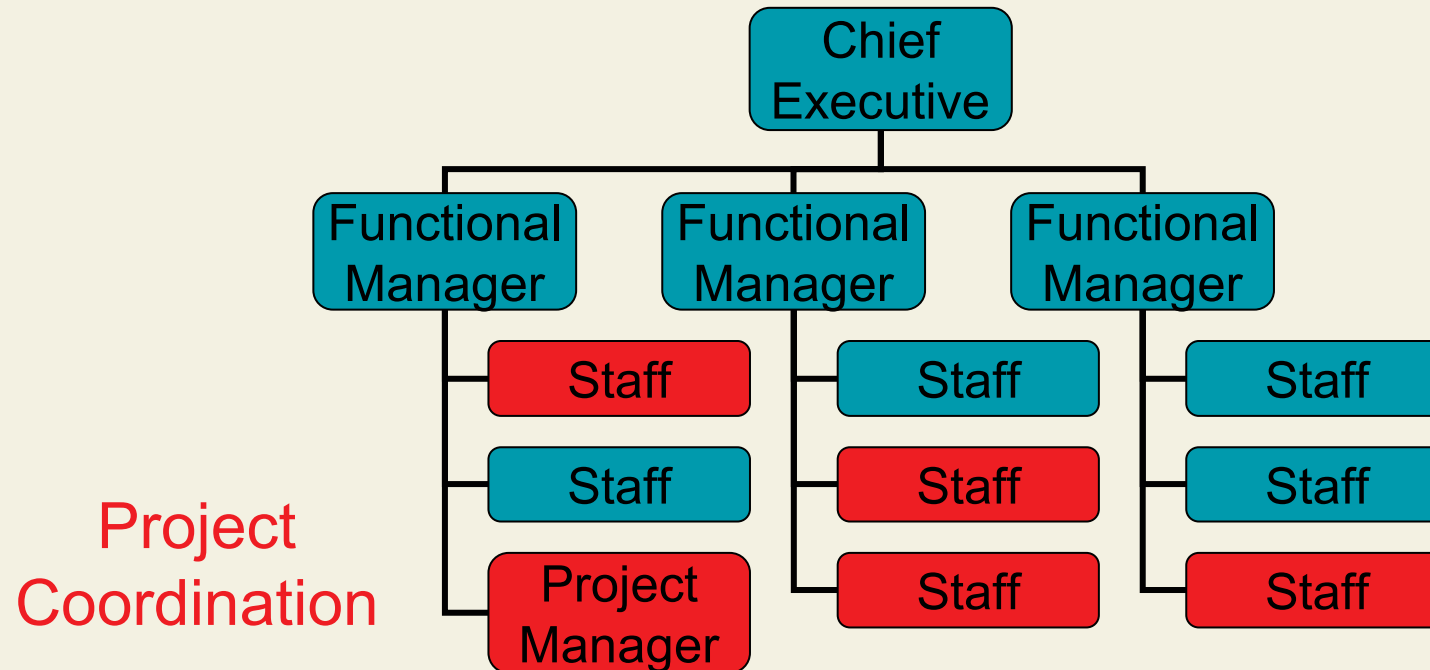
- Staff members are grouped by specialty
 - Production, marketing, accounting, etc.
- Scope of projects is limited to the boundaries of the function

Projectized Organization



- Most resources are involved in project work
- Project managers have great deal of independence and authority

Matrix Organization



- A blend of functional and projectized organizations

Comparison to Functional Organization

■ Projectized organization

Efficient project organization	No “home” when project is completed
Loyalty to the project	Lack of professionalism in disciplines
More effective communication	Duplication of facilities and job functions

■ Matrix organization

Highly visible project objectives	More than one boss for project teams
Maximum utilization of scarce resources	Tougher problems with resource allocation
Better horizontal and vertical dissemination of information	Functional managers may have different priorities than project mngrs
Team members maintain “a home”	Higher potential for conflict

Repetition: Stakeholders

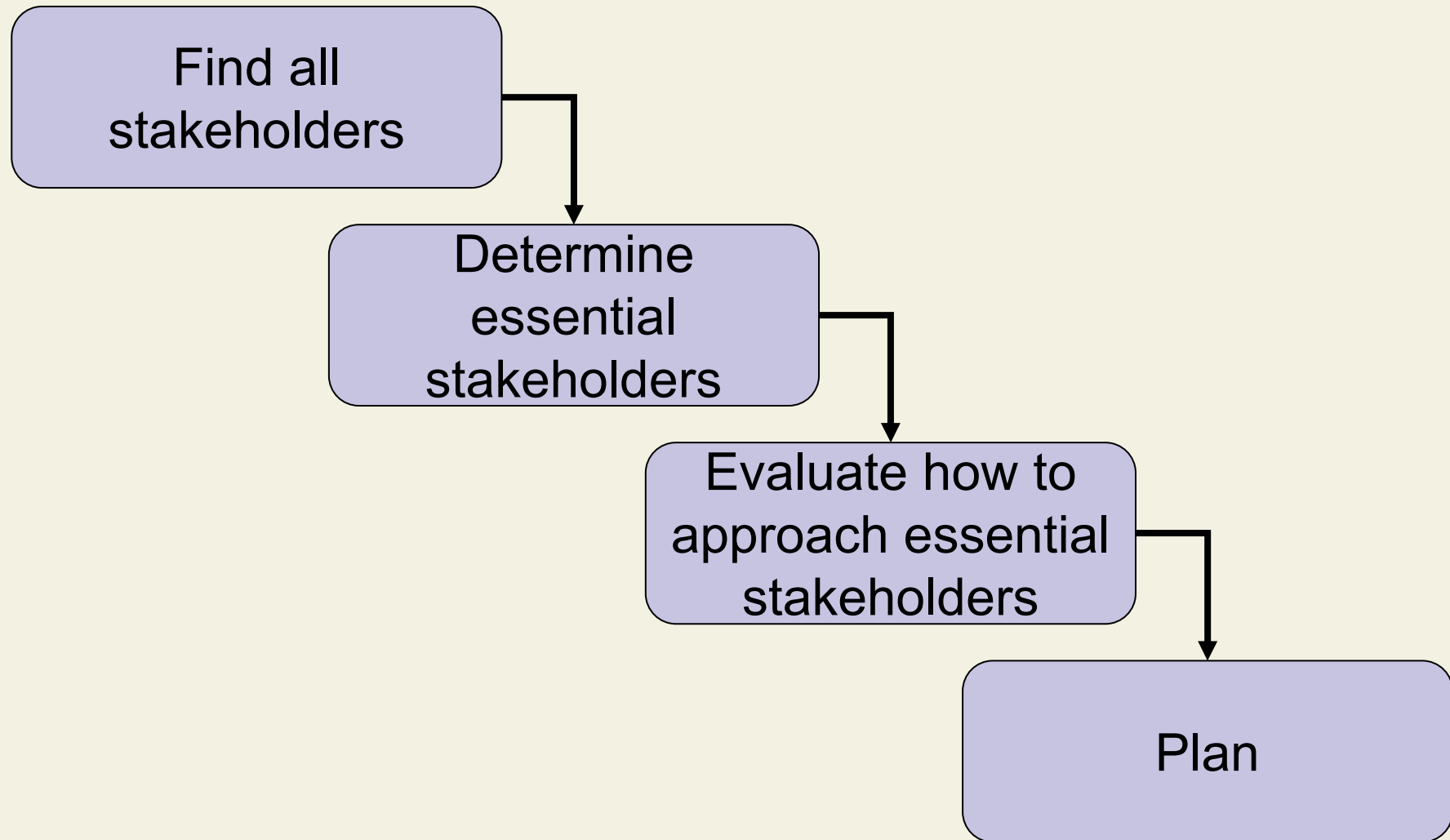
- Definition

Individuals and organizations that are actively involved in the project, or whose interests may be positively or negatively affected as a result of project execution or project completion; they may also exert influence over the project and its results

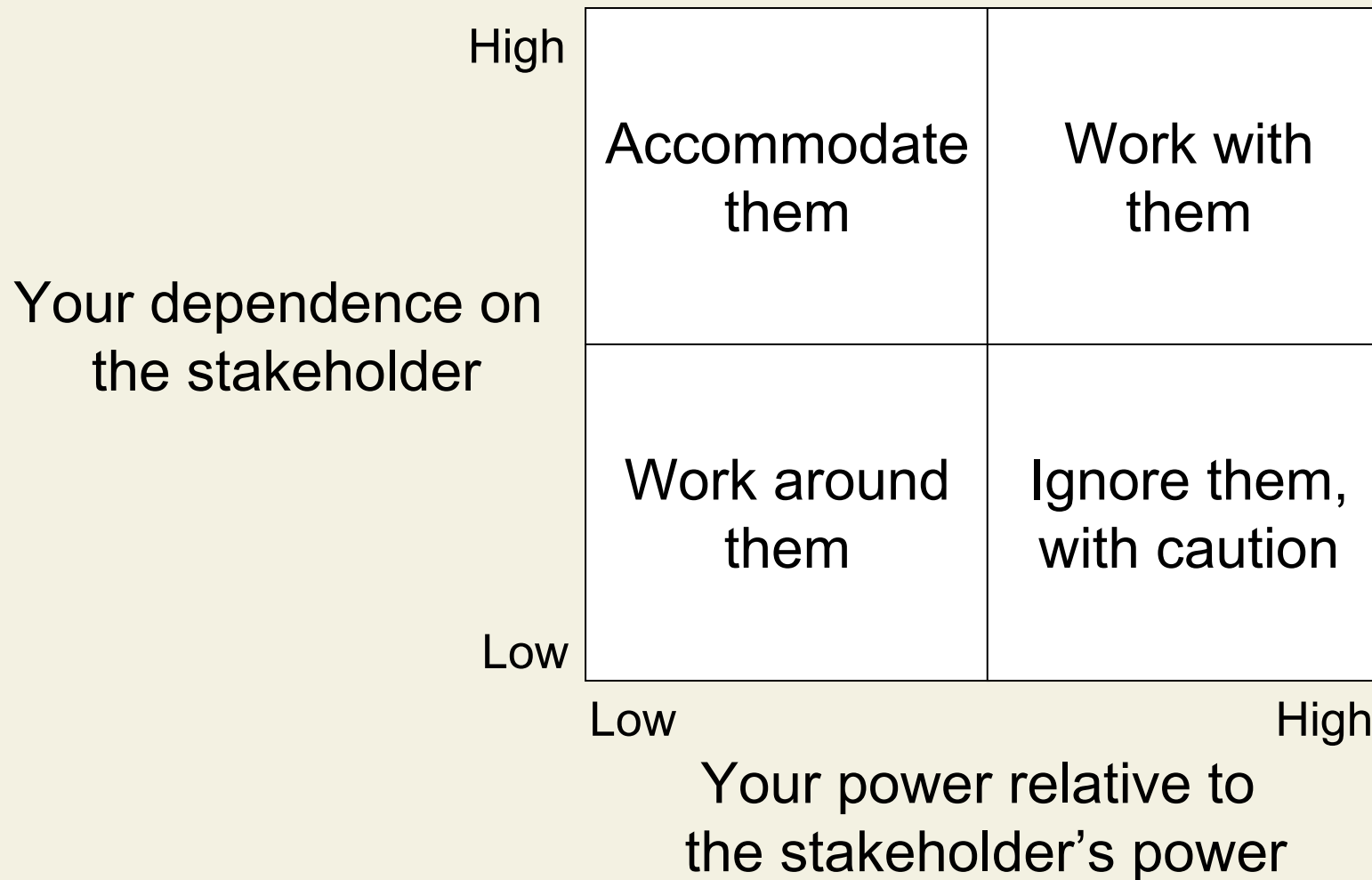
- Key stakeholders

- Project manager
- Customer
- Performing organization
- Project team members
- Sponsor

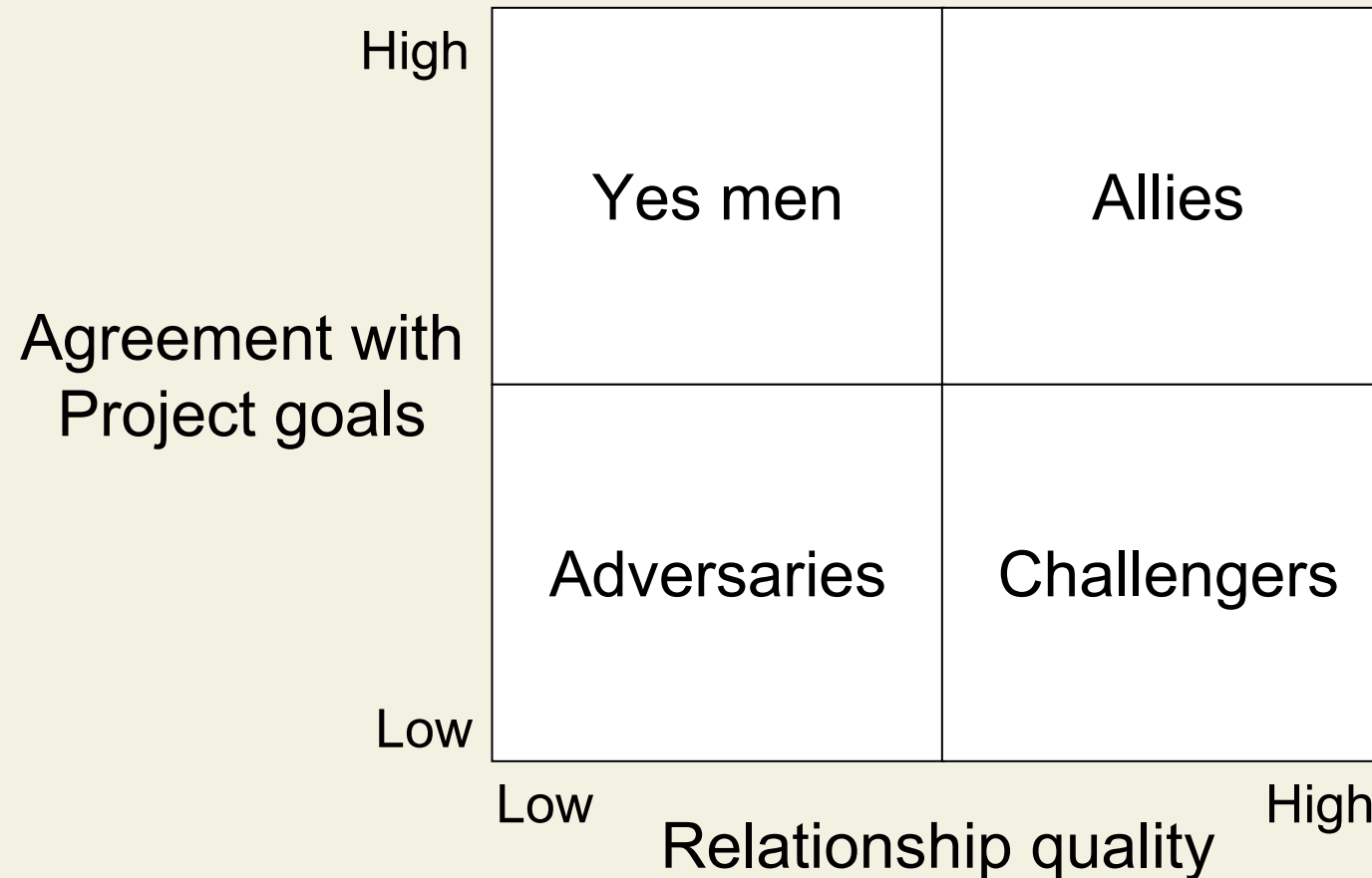
Stakeholder Analysis



Determining Essential Stakeholders



Evaluating Essential Stakeholders



Evaluating Essential Stakeholders

- Acknowledge the caution that exists
- Be clear about what you want from them

Agreement with
Project goals

Yes men

Allies

- Bring them into your team
- Ask for advice and support

Adversaries

Challengers

- State your vision
- Acknowledge their position in a neutral way

Low

Relationship quality

- Be grateful for their challenges
- Follow their suggestions

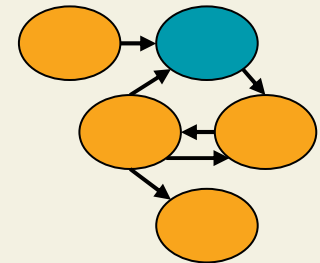
7. Organizational Aspects and HR Mgmt.

7.1 Organizational Aspects

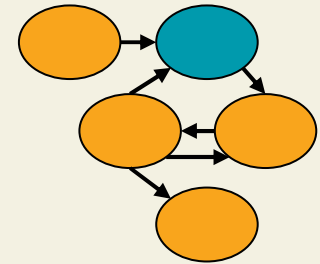
7.2 Human Resource Management

7.3 Leadership

7.4 Team Development



Organizational Planning: Summary

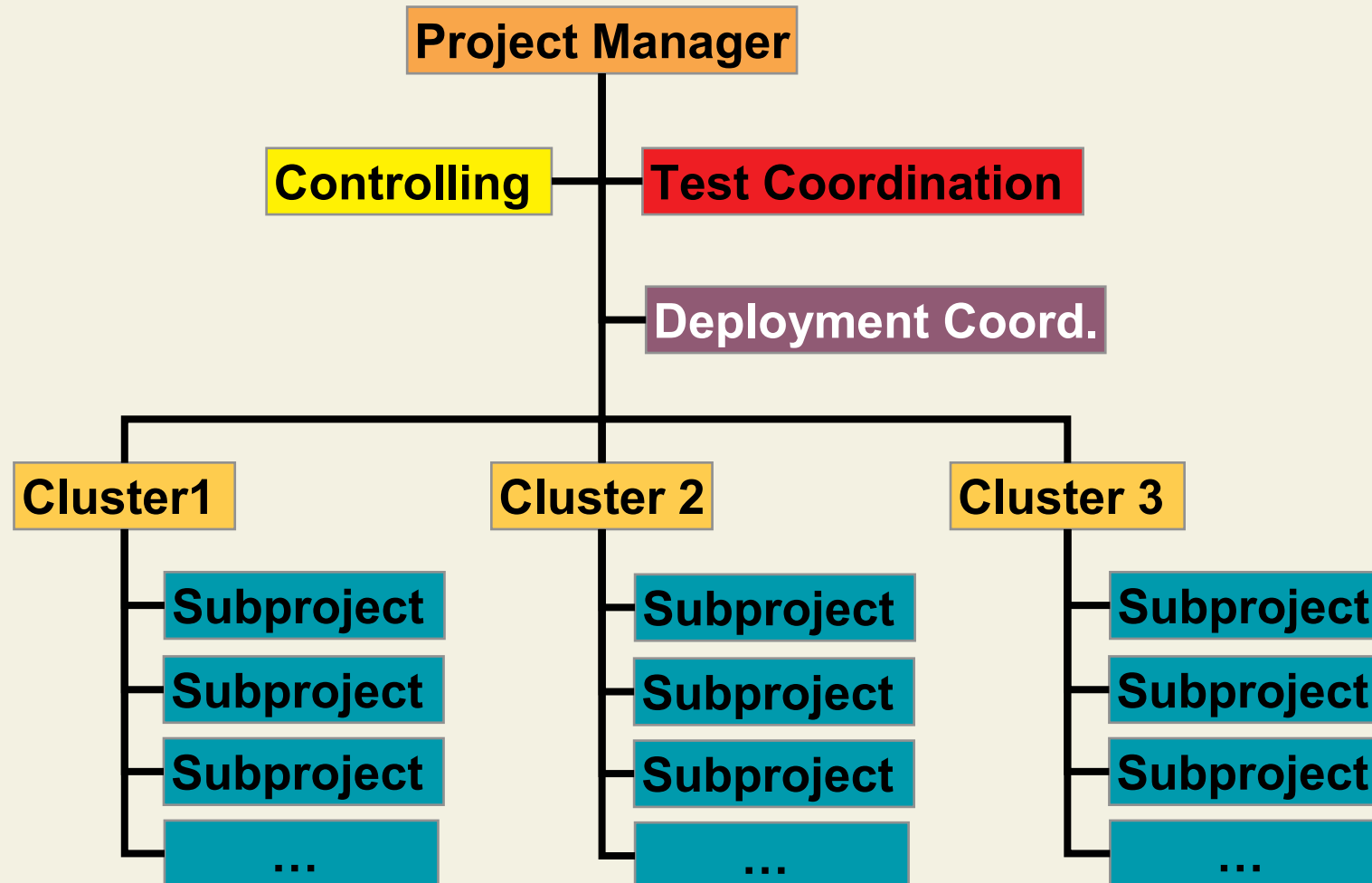


■ Purpose

- To identify, document, and assign project roles, responsibilities, and reporting relationships

Inputs	Tools & Techniques	Outputs
1. Project interfaces	1. Organizational theory 2. Stakeholder analysis	1. Roles and responsibility assignments 2. Organizational chart 3. Staffing management plan

Example: Project Organisation



Example: Responsibility Assignment Matrix

Roles & Responsibilities	Task	Processes					
		Status Reporting to PMO	Status Reporting to Steering Comm. and Mgmt.	Change Requests	Risk Management	Documentation and Information Platform	Migration Management
Role / Committee							
Business Coordinator		-	I	P	P	I	P
IT Project Manager		R	I	P	P	I	P
PMO		I	R	R	R	R	R
Project Board		-	I	A	A	I	A
Steering Committee		-	I	A	A	I	-

Legend

A - Approval

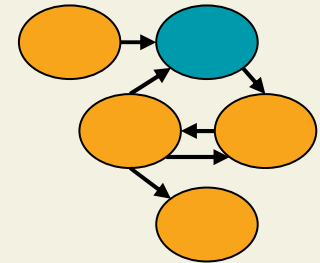
R - Responsible

P - Participation (mandatory)

I - Information

- Should be linked to WBS closely

Staff Acquisition: Summary



■ Purpose

- To get the needed human resources (individuals or groups) assigned to and working on the project

Inputs	Tools & Techniques	Outputs
<ol style="list-style-type: none">1. Staffing management plan2. Staffing pool description	<ol style="list-style-type: none">1. Negotiations2. Procurement	<ol style="list-style-type: none">1. Project staff assigned2. Project team directory

7. Organizational Aspects and HR Mgmt.

7.1 Organizational Aspects

7.2 Human Resource Management

7.3 Leadership

- Leadership Styles
- Power

7.4 Team Development

Leadership

- Definitions:

- *Leadership is influencing people to do willingly and well that which has to be done* [Charles Pellerin]
- *Leadership is the capacity to integrate the goals of the organization with the aspirations of the people through a shared vision and committed action*

- Areas of leadership in a project

- Project leadership
- Technical leadership
- Team leadership

Leadership in Project Environments

- Focusing and motivating a group to achieve what is important
- Making decisions at the right time
- Providing continuity and momentum
- Getting the most out of people

Leading versus Managing

Leading

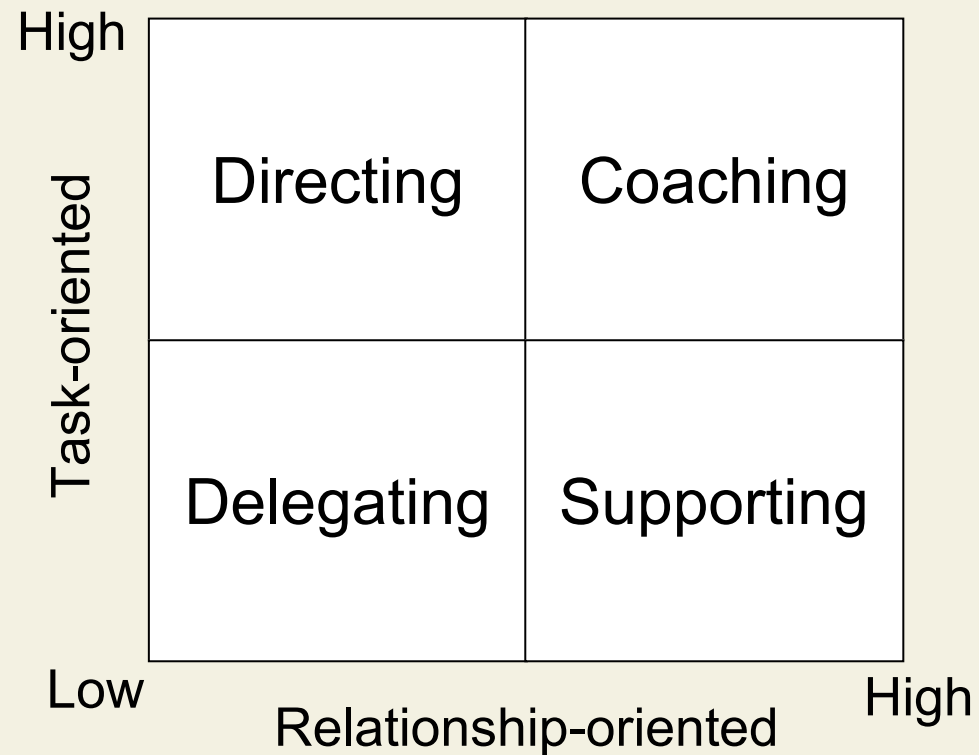
- Innovate
- Develop
- Originate
- Focus on people
- Inspire trust
- Ask what and why
- Do the right things

Managing

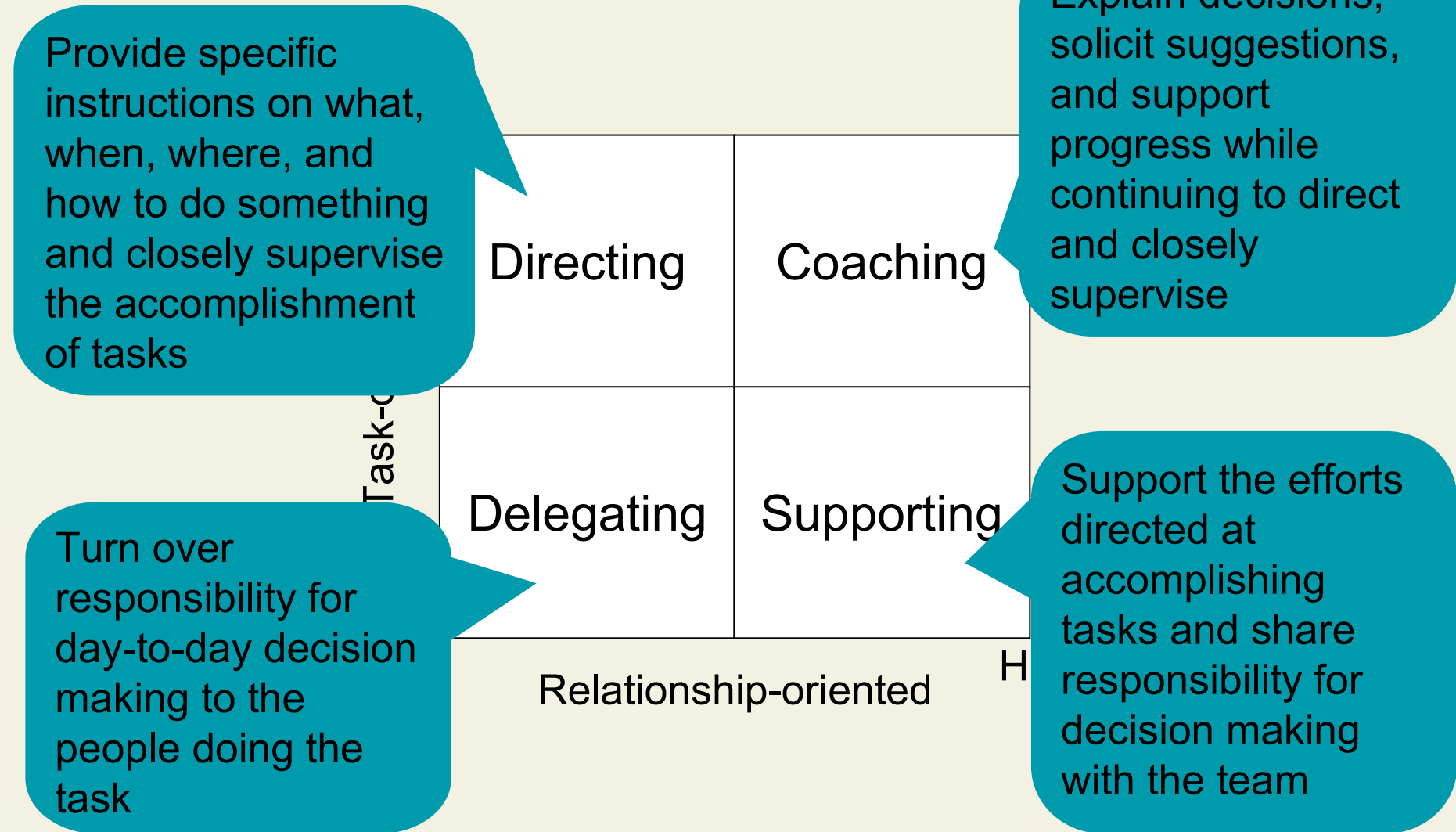
- Administer
- Maintain
- Imitate
- Focus on structures
- Rely on control
- Ask how and when
- Do things right

- Leadership requires both managing and leading

Leadership Styles

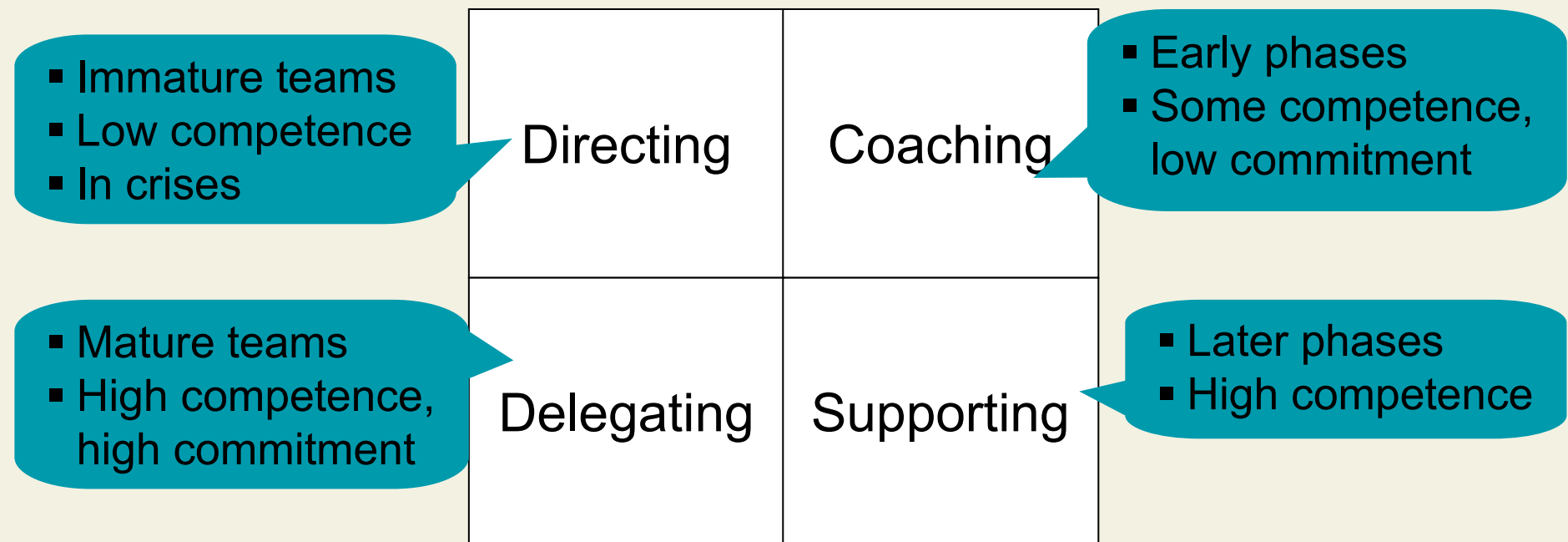


Leadership Styles



Situational Leadership

- Leadership styles depends on
 - The leader
 - The follower
 - The situation



Power

- Definition of *Power*:

Power is the capacity to exert influence over others

- Definition of *Authority*:

Authority is the right to exert influence

- Power is especially important in negotiations

Position Based Power

- Legitimate (formal position)
- Reward (ability to reward a person)
- Coercive (penalty)
- Resource control
- Connection / network

Personal Power

- Expert (knowledge, experience)
- Referent (referring to the authority of someone at a higher position)
- Reputation (accomplishments in the past)
- Integrity (trustworthiness, honesty)
- Bureaucratic (knowledge of rules, etc.)
- Charismatic (communication)
- Information (possessing important information)

Power of Project Managers

- Project managers have difficulty getting people to cooperate and perform, especially in matrix organizations
- Power of project managers
 - Expert
 - Reward
 - Legitimate
 - Referent
 - Coercive



Leadership

As for the best leaders, the people do not notice their existence. The next best, the people honor and praise. The next, the people fear; and the next, the people hate. When the best leader's work is done, the people say, "We did it ourselves".

[Lao-Tuz, Chinese philosopher]

7. Organizational Aspects and HR Mgmt.

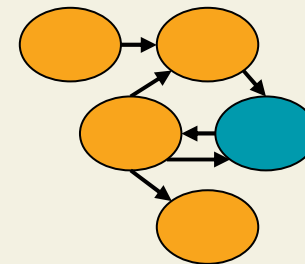
7.1 Organizational Aspects

7.2 Human Resource Management

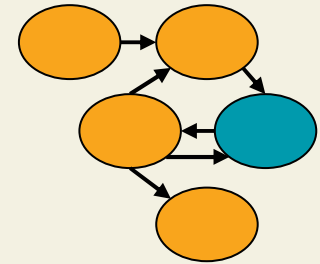
7.3 Leadership

7.4 Team Development

- Group Development
- Virtual Teams



Why Teams?



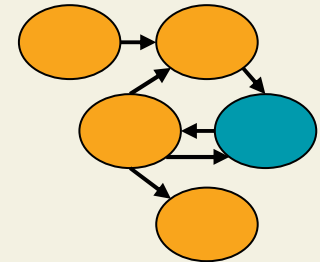
Benefits to organization

- Increased productivity
- Increased quality
- Better morale
- Better problem solving
- Increased creativity
- Better decisions

Benefits to individuals

- Work is less stressful
- Responsibility is shared
- Rewards and recognitions shared
- Members can influence each other
- All experience a sense of accomplishment

Teams



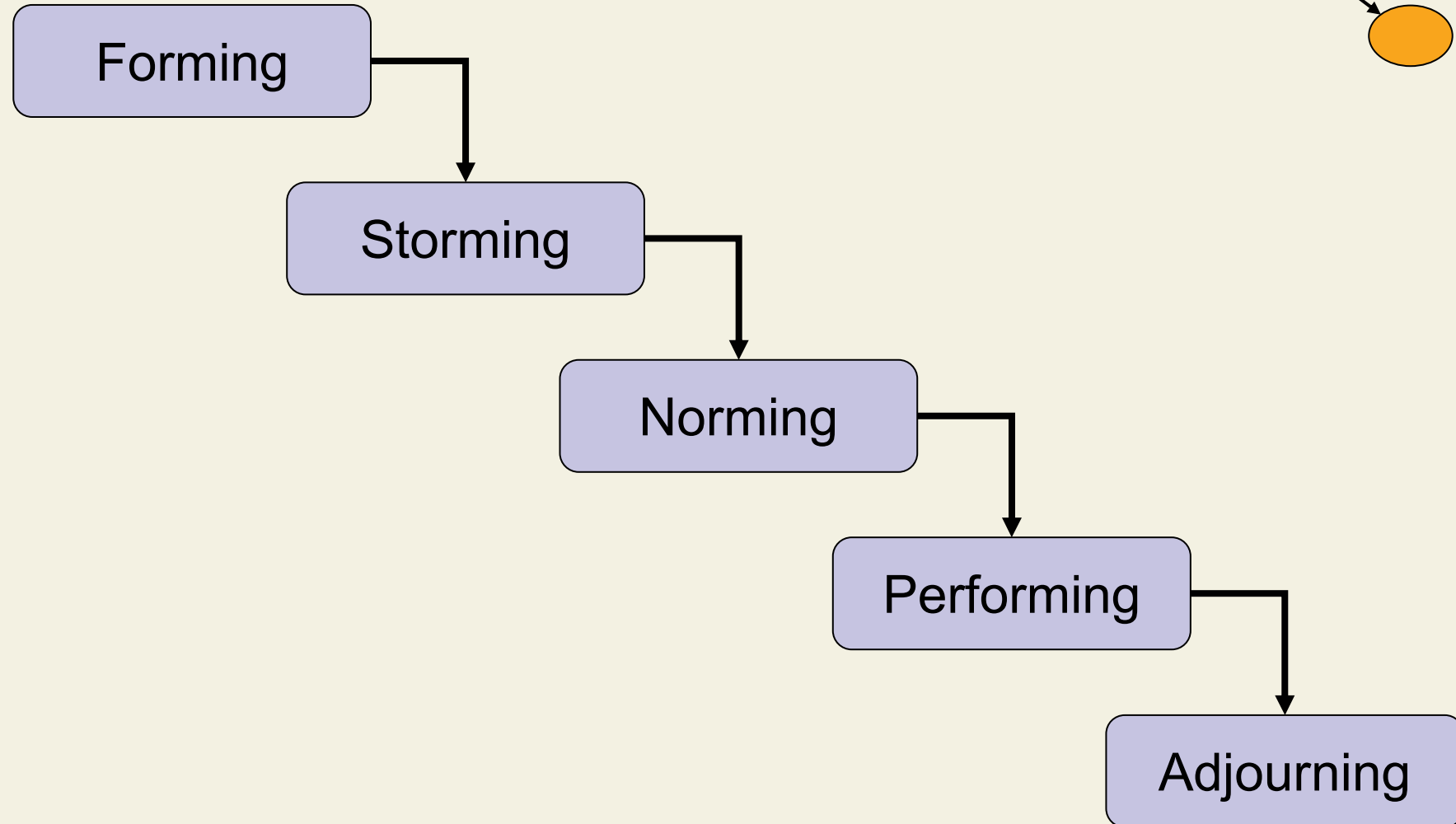
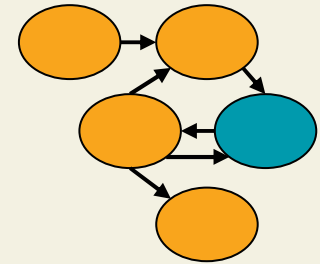
- Definition:

A small number of people with complementary skills who are committed to a common purpose, performance goals, and approach for which they hold themselves mutually accountable

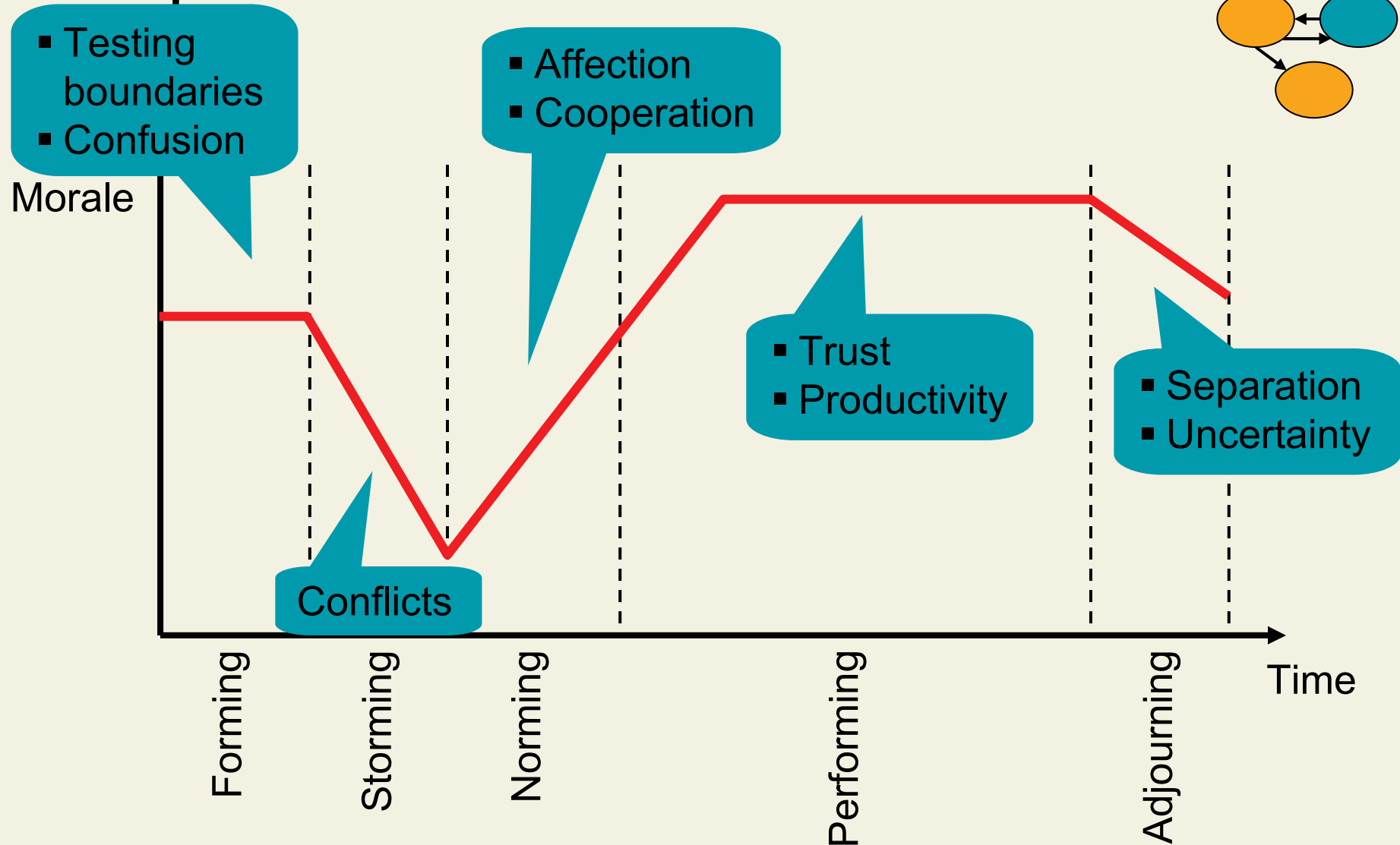
[Katzenbach and Smith, 1994]

- A group of people is not a team
- Teams usually have 7-10 members, 25 at the most

Stages and Leadership Styles



Interpersonal Issues

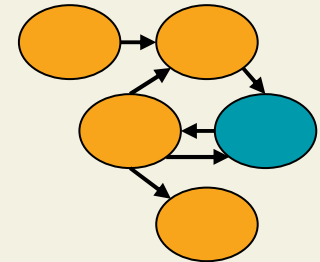


Stages of Group Development

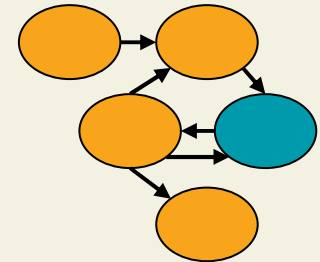
Forming	Storming	Norming	Performing	Adjourning
Awareness and orientation	Competition and conflict	Cooperation	Trust and performance	Separation and moving on
Tasks need to be clarified	Team leader needs conflict resolution skills	Team willing to work together and establish procedures	Team focused on results and performance	Team focus shifts to what do I do next
Directing	Coaching	Supporting	Delegating	

Barriers to Team Building

- Credibility of the project leader
- Unclear project objectives
- Changing goals and priorities
- Lack of team definition and structure
- Confusion about roles and responsibilities
- Performance appraisals that fail to recognize teamwork
- Excessive team size



Virtual Teams



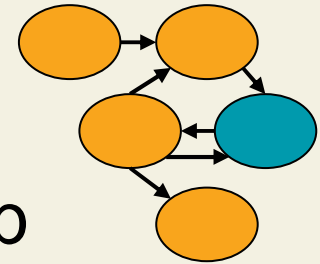
- Definition:

Virtual teams are teams of people who primarily interact electronically and who may meet face-to-face occasionally

- Reasons

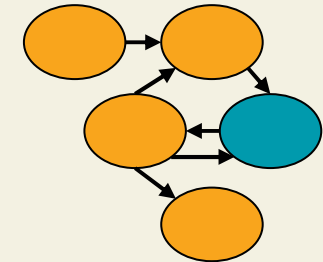
- Global organizations
- Organization-wide projects
- Home offices
- 24-hour work on projects

Managing Virtual Teams



- Develop some level of trust and relationship
- Encourage information sharing
- Hold an initial face-to-face startup
- Hold periodic meetings
- Provide more formal communication
- Define a team charter
- Recognize and honor diversity

Team Development: Summary



■ Purpose

- To enhance the ability of stakeholders to contribute as individuals
- To enhance the ability of the team to function as a team

Inputs	Tools & Techniques	Outputs
<ol style="list-style-type: none"> 1. Project staff 2. Project plan 3. Staffing management plan 4. Performance reports 	<ol style="list-style-type: none"> 1. Team-building activities 2. Management skills 3. Rewards 4. Collocation 5. Training 	<ol style="list-style-type: none"> 1. Performance improvements 2. Input to performance appraisals

	Initiating	Planning	Executing	Controlling	Closing
Integration		Project Plan Dev.	Project Plan Execution	Integr. Change Ctrl	
Scope	Initiation	Scope Planning Scope Definition			
Time		Act. Definition, Act. Sequencing, Schedule Dev.			
Cost		Resource Planning			
Quality					
HR		Organizational Pl. Staff Acquisition	Team Development		
Comm.					
Risk					
Procurement		Procurement Pl. Solicitation Pl.	Solicitation Source Sel. Contract Admin.		Contract Closeout