

Project Organization



Groups, Teams and Committees

- ◆ **Group:** A set of people who are assigned to a common task and who work individually to accomplish their assignment.
- ◆ **Team:** A small group of people working on the same problem or subproblem in a project. The team members depend on one another to do their tasks.
 - ◆ **Project Team:** Based on the premise that every member can and must make a valuable contribution to the project.
- ◆ **Committee:** Comprised of people who come together to review and critique issues, propose recommendations for action.

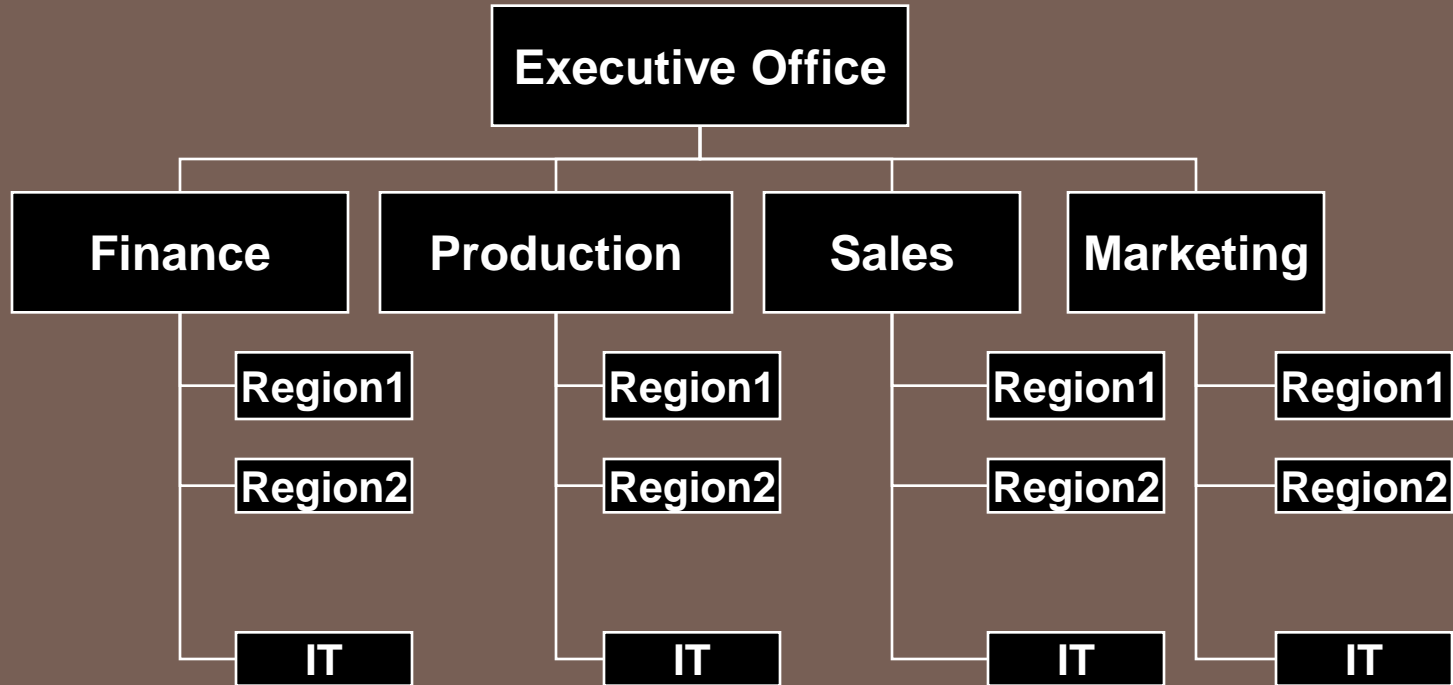
Organization

- ◆ **Definition Organization:** A set of *organizational* units and their different *relationships* with each other.
- ◆ Organizational units can be organized according to many different categories, for example by function or by project type. Typical examples of organizational units:
 - ◆ **Functional organization:** Research, Development, Marketing, Sales
 - ◆ **Project organization:** Project 1, Project 2,
- ◆ A organization usually has 3 different types of relationships between organizational units.
 - ◆ **Reporting structure:** To report status information
 - ◆ **Decision structure:** To propagating decisions
 - ◆ **Communication structure:** To exchange of information

Functional Organization

- ◆ **Definition:** In a **functional organization** participants are grouped into so-called **departments**, each of which addresses a function.
- ◆ Examples of departments:
 - ◆ **Traditional businesses:** Research, development, production, sales, finance.
 - ◆ **In software companies the departments correspond to the activities in the software process:** Analysis, design, integration, testing departments.
- ◆ Key properties:
 - ◆ **Projects are usually pipelined through the departments of a functional organization.** The project starts in research, then it moves to development, then it moves to production,
 - ◆ **Only a few participants are involved in the complete project.**
 - ◆ **Separate departments often address the same cross-functional needs (Examples: Purchasing, HR, IT ... Etc.)**

Example of a Functional Organization



Line functional organization of a „traditional business“

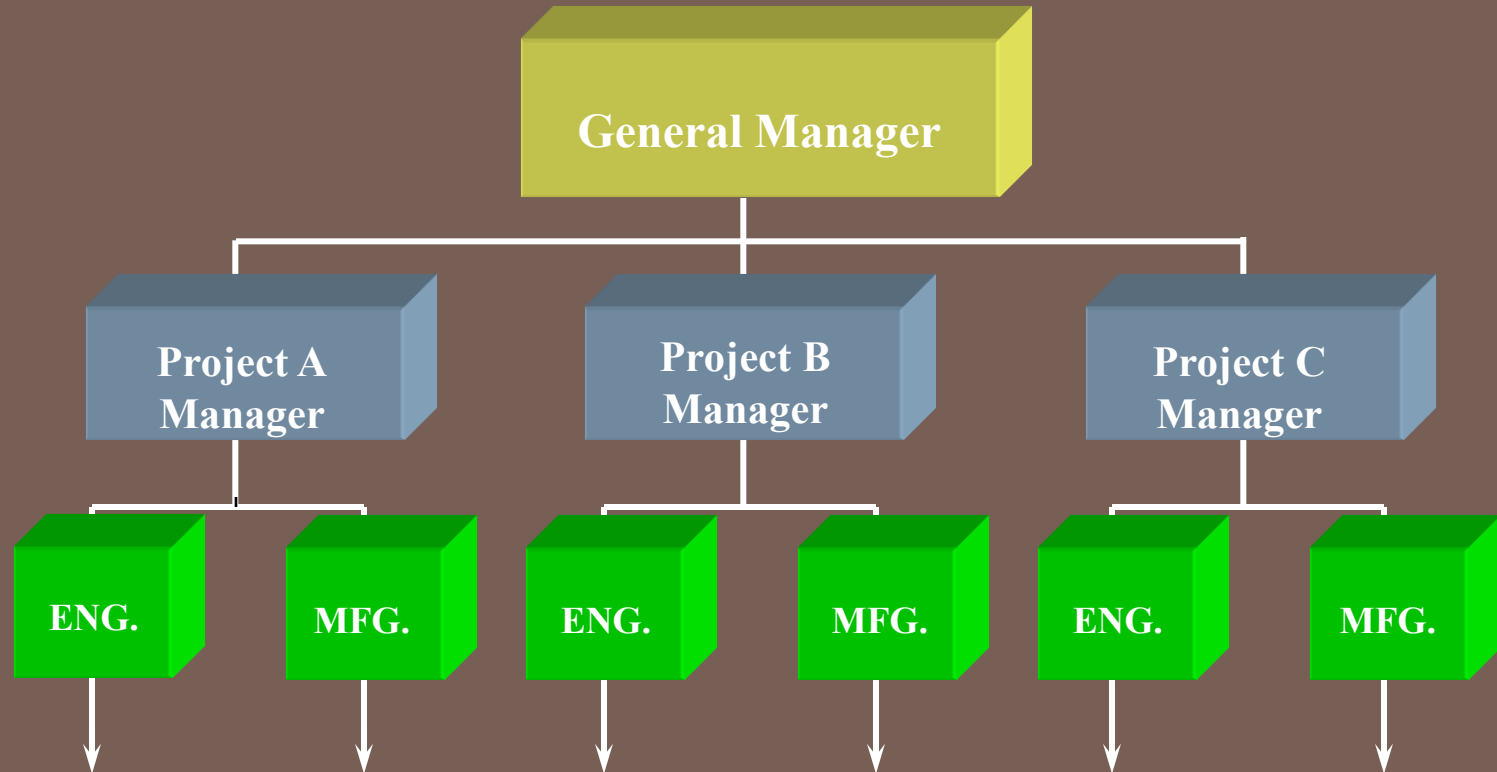
Properties of Functional Organizations

- ◆ Advantages:
 - ◆ **Members of a department have a good understanding of the functional area they support.**
 - ◆ **Departments don't compete with another to get the support of their support teams**
- ◆ Disadvantages:
 - ◆ **Because each department has its own support team, different work procedures and reporting systems are the rule.**
 - ◆ **It is difficult to make major investments in equipment and facilities.**
 - ◆ **Example:** Two departments with a budget of 50,000 Euro each need a printer that costs 100,000 Euro.
 - ◆ Both need only 50% of the maximum capacity.
 - ◆ Neither department can buy it, because they don't have sufficient funds.
 - ◆ **High chance for overlap or duplication of work among departments**

Project Organization

- ◆ In a **project organization** participants are grouped into **projects**, each of which has a problem to be solved within time and budget.
- ◆ **Key properties:**
 - ◆ Teams are assembled for a project as it is created. Each project has a project leader.
 - ◆ All participants are involved in the complete project.
 - ◆ Teams are disassembled when the project terminates

Project Organization



Properties of Project Organizations

◆ Advantages

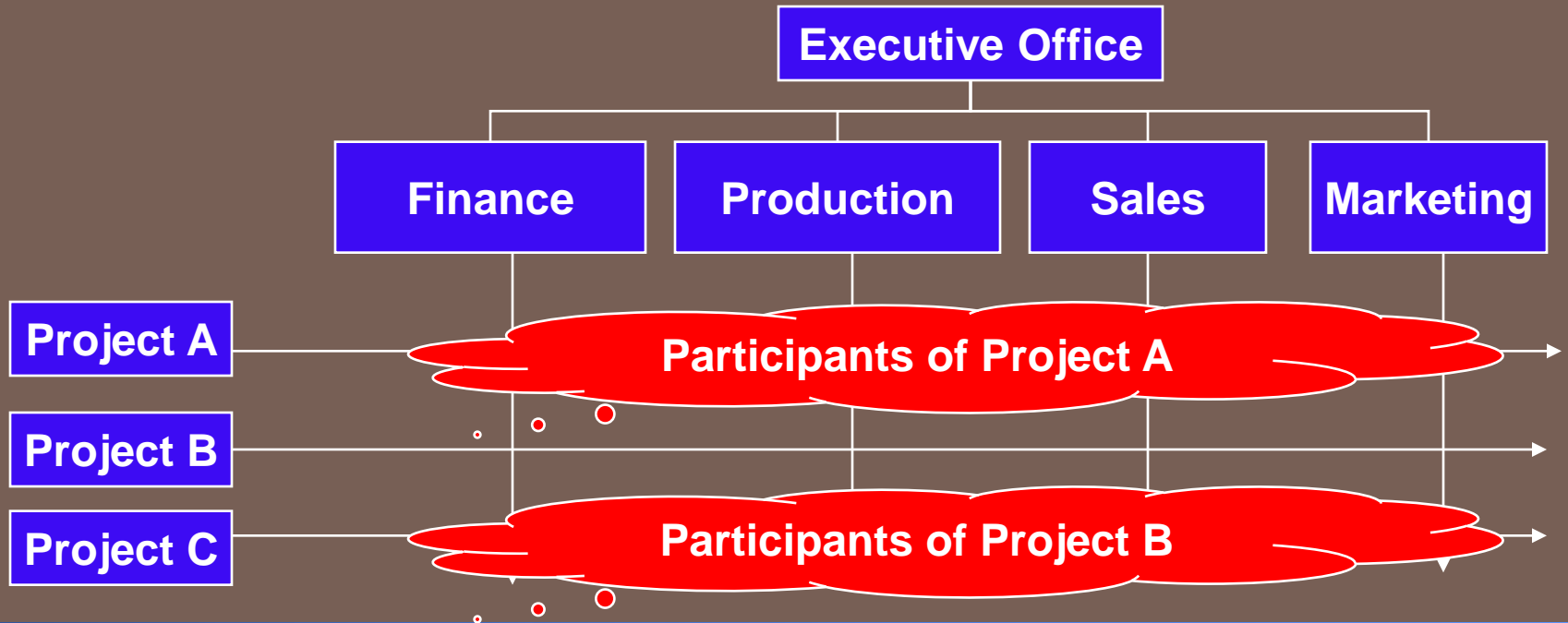
- ◆ **Very responsive to new project requests (because the project is newly established and can be tailored around the problem)**
- ◆ **New people can be hired/selected who are very familiar with the problem or who have special capabilities.**
- ◆ **There is no waste of staff workload**

◆ Disadvantages:

- ◆ **Teams cannot be assembled rapidly. Often it is difficult to manage the staffing/hiring process.**
- ◆ **Because there are „no predefined lines“, roles and responsibilities need to be defined at the beginning of the project**

Matrix Organization

- ◆ In a matrix organization, participants from different departments of the functional organization are assigned to work on projects as they are created.
- ◆ The project manager and team members may be assigned to the project for $\leq 100\%$ of their time



Properties of Matrix Organizations

- ◆ Advantages:
 - ◆ Teams for projects can be assembled rapidly
 - ◆ Scarce expertise can be applied to different projects as needed
 - ◆ Consistent work and reporting procedures can be used for projects of the same type.
- ◆ Disadvantages:
 - ◆ Team members usually are not familiar with each
 - ◆ Team member have different working styles
 - ◆ Team members must get used to each other

New Challenges in Matrix Organizations

- ◆ Team members must respond to two different bosses with different focus:
 - ◆ **Focus of the functional manager:** Assignments to different projects, performance appraisal
 - ◆ **Focus of the project manager:** Work assignments, project team support
- ◆ Team members working on multiple projects have competing demands for their time
 - ◆ **Team members working on more than one project have even more project members to report to**
 - ◆ **Some people who have claim on the team member's time may be at similar levels in the organization's hierarchy**
- ◆ Multiple work procedures and reporting systems are used by different team members
 - ◆ **Development of common procedures needs to be addressed at project kickoff time**

When to use a Functional Organization

- ◆ Projects with high degree of certainty, stability, uniformity and repetition.
 - ◆ **Requires little communication**
 - ◆ **Role definitions are clear**
- ◆ **When?**
 - ◆ **The more people on the project, the more need for a formal structure**
 - ◆ **Customer might insist that the test team be independent from the design team**
 - ◆ **Project manager insists on a previously successful structure**

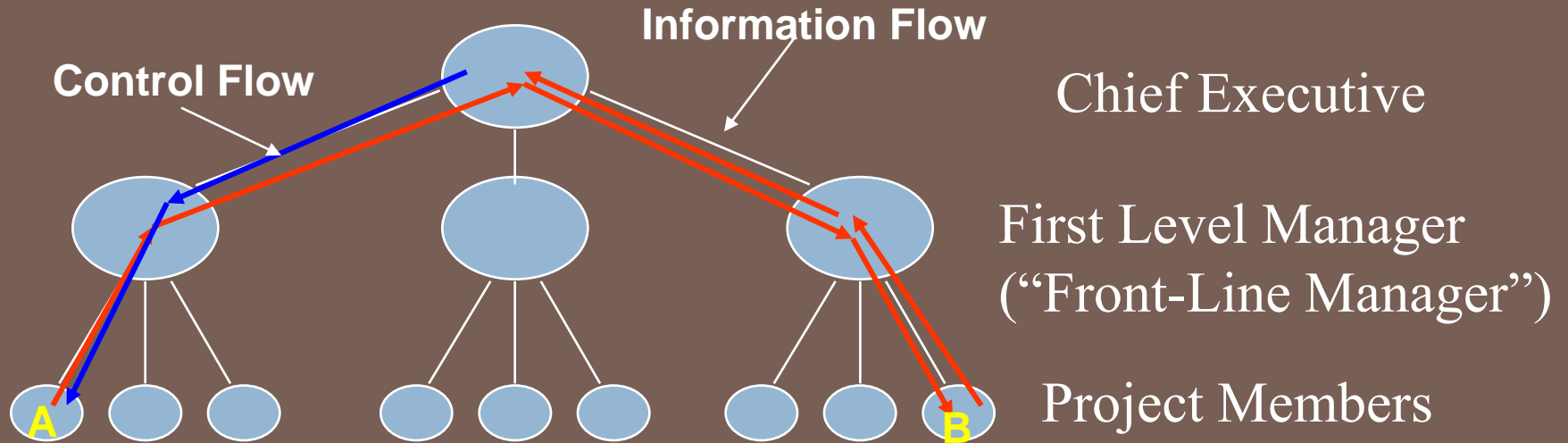
When to Use a Project or Matrix Organization

- ◆ Project with degree of uncertainty
 - ◆ Open communication needed among members
 - ◆ Roles are defined on project basis
- ◆ When?
 - ◆ Requirements change during development
 - ◆ New technology develops during project

Hierarchical Organization

- ◆ Often also called *centralized organization*. Examples: Military, church, traditional businesses.
- ◆ **Key property:** The organization has a tree structure. Decisions are made at the root and communicated to the leaf nodes. The decision association is also used for reporting and communication.
- ◆ Advantages:
 - ◆ **Centralized control over project selection**
 - ◆ **One set of management and reporting procedures for all project participants across all projects**
 - ◆ **Established working relationships among people**
 - ◆ **Clearly established lines of authority to set priorities and resolved conflicts**
 - ◆ **Authority to pressure people to honor their action items**
 - ◆ **Clearly defined career path**

Hierarchical Project Organization



A wants to talk to B: Complicated Information Flow

B wants to make sure A does a certain change: Complicated Control flow

Basis of organization:
Complicated information and control flow
across hierarchical boundaries

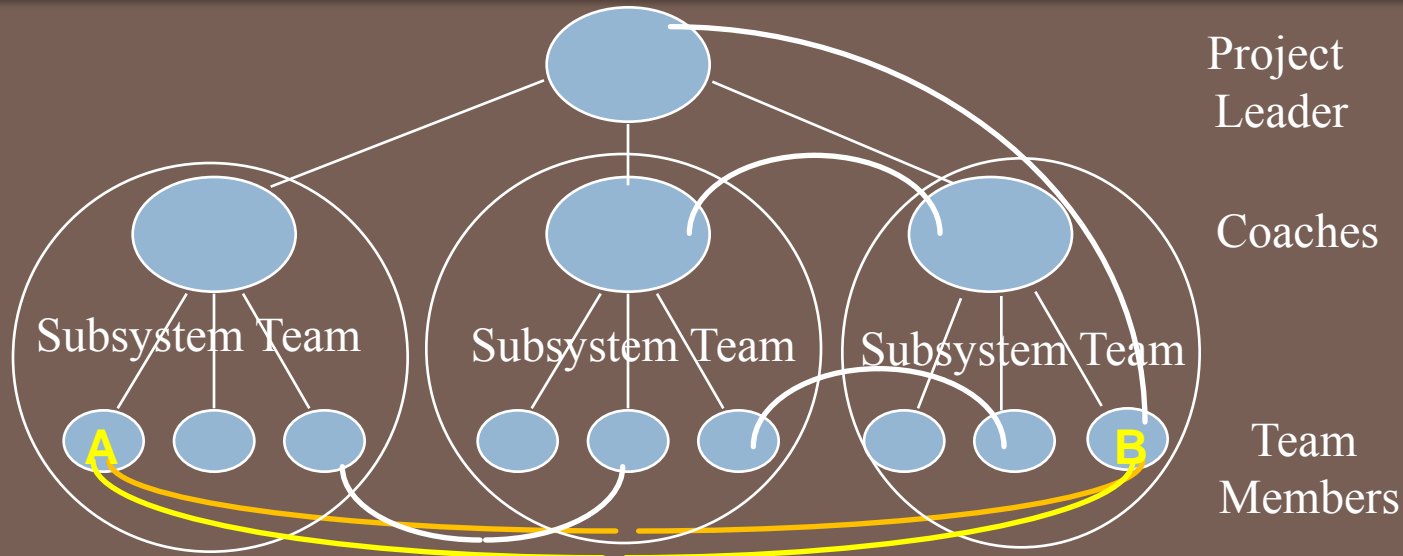
Disadvantages of Hierarchical Organizations

- ◆ Slow response time
 - ◆ The process of evaluating and approving change requests often takes too long because of long reporting/decision lines.
- ◆ Difficult to manage the workload of the people:
 - ◆ People are assigned fulltime to the organization, but projects don't come in a smooth stream.
 - ◆ Project request might not require the people who are available or their expertise.
- ◆ Unfamiliarity with application or solution domain area
 - ◆ People are usually hired for their technical proficiency in a specialty that the organization normally performs.
 - ◆ They often have only limited experience, if the problem to be solved is outside of their field of expertise.

Nonhierarchical Organizations

- ◆ **Key property:** The organization has a general graph structure with different edges for the decision, reporting and communication flows. Decisions can be made at various nodes in the graph.

Nonhierarchical Project Organization



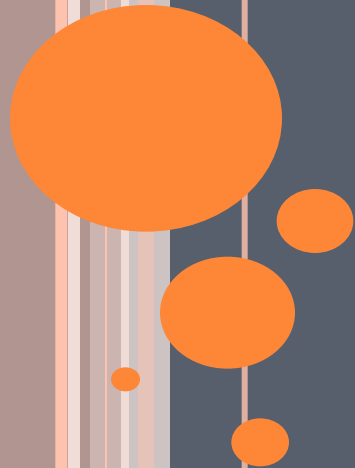
A wants to talk to B: Communication Flow

B wants to make sure A does a certain change: Decision Flow

Basis of organization:

Nonlinear information flow across dynamically formed units

SUMMING UP PROJECT ORGANIZATION



ORGANIZATIONAL STRUCTURE

		Organization Structure				
		Functional	Matrix			Projectized
			Weak Matrix	Balanced Matrix	Strong Matrix	
Project Characteristics	Project Managers Authority	Little or None	Limited	Low to Moderate	Moderate to High	High to Almost Total
	Percent of Performing Organization's Personnel Assigned Full Time to Project Work	Virtually None	0-25%	15-60%	50-95%	85-100%
	Project Managers Role	Part-Time	Part-Time	Full-Time	Full-Time	Full-Time
	Common Titles for Project Manager's Role	Project Coordinator Project Leader	Project Coordinator Project Leader	Project Manager Project Officer	Project Manager Program Manager	Project Manager Program Manager
	Project Management Administrative Staff	Part-Time	Part-Time	Part-Time	Full-Time	Full-Time

FUNCTIONAL ORGANIZATIONS

Pros

- Only one boss
- Functional expertise
- Economies of scale

Cons

- Functions are more important than projects
- Project Managers have little influence




MATRIX ORGANIZATIONS

Pros

- Project Managers have some control and influence over resources
- Coordination between functions and projects
- Functional people have a functional 'home' but work on projects

Cons

- Two boss syndrome
 - May have administrative inefficiencies
 - Complex to monitor and control
 - Split loyalty
 - Priority conflicts
 - Can lead to duplicative efforts
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PROJECTIZED ORGANIZATIONS

Pros

- Efficient project structure
- Loyalty to projects
- Good project communication

Cons

- Inefficient use of “general management” resources
- No “home” to go to on project completion
- Lack of talent development in functional areas

