Project Management
Session Five
Organizational Structures

Kerzner: Chapter 3
Burke: Chapter 20
PMBOK: Chapter 2
Hidden Revolution: New Organization Structures

- Organizations need to be dynamic in nature, rapid restructuring to environmental conditions.
- Management usually look externally for solutions.
- Human resources more important than non-human.
- Need to balance socio and technical requirements.
- Factors: Control, Integration, External Relations.
  - Authority
  - Responsibility
  - Accountability
Restructuring Necessity

- The technology revolution (complexity and variety of products, new materials and processes, and the effects of massive research)
- Competition and the profit squeeze (saturated markets, inflation of wage and material costs, and production efficiency)
- The high cost of marketing
- The unpredictability of consumer demands (due to high income, wide range of choices available, and shifting tastes)
Management is satisfied with its technical skills, but projects are not meeting time, cost, and other project requirements.

There is a high commitment to getting project work done, but great fluctuations in how well performance specifications are met.

Highly talented specialists involved in the project feel exploited and misused.

Particular technical groups or individuals constantly blame each other for failure to meet specifications or delivery dates.

Projects are on time and to specifications, but groups and individuals aren’t satisfied with the achievement.
Which Structure Is Best For Project Management?
Questions

- To what extent does the task of organization call for close control if it is to be performed efficiently?
- What are the needs and attitudes of the people performing the tasks? What are the likely effects of control mechanisms on their motivation and performance?
- What are the natural social groupings with which people identify themselves?
- To what extent are satisfying social relationships important in relation to motivation and performance?
Questions (continued)

- What aspect of the organization’s activities needs to be closely integrated if the overall task is to be achieved?

- What organizational measures can be developed that will provide an appropriate measure of control and integration of work activities, while at the same time meeting the needs of people and providing adequate motivation?

- What environmental changes are likely to affect the future trend of company operations? What organizational measures can be taken to insure that the enterprise responds to these effectively?
The Classical Management Structure

- General Manager
  - Director Level: Engineering, Production, Sales, Marketing, Admin.
  - Division Level
  - Department Level
  - Section Level: Functional Responsibility
Classical Structure
Advantages

- Easier budgeting and cost control are possible.
- Better technical control is possible.
  - Specialists can be grouped to share knowledge and responsibility.
  - Personnel can be used on many different projects.
  - All projects will benefit from the most advanced technology (better utilization of scarce personnel).
- It provides flexibility in the use of manpower.
Advantages (Continued)

- It provides a broad manpower base to work with.
- It provides continuity in the functional disciplines; policies, procedures, and lines of responsibility are easily defined and understandable.
- It readily admits mass production activities within established specifications.
- It provides good control over personnel, since each employee has one and only one person to report to.
- Communication channels are vertical and well established.
- Quick reaction capability exists, but may be dependent upon the priorities of the functional managers.
Classical Structure
Disadvantages

- No one individual is directly responsible for the total project (i.e., no formal authority; committee solutions).
- It does not provide the project-oriented emphasis necessary to accomplish the project tasks.
- Coordination becomes complex, and additional lead time is required for approval of decisions.
Disadvantages (Continued)

- Decisions normally favor the strongest functional groups.
- There is no customer focal point.
- Response to customer needs is slow.
- There is difficulty in pinpointing responsibility; this is the result of little or no direct project reporting, very little project-oriented planning, and no project authority.
- Motivation and innovation are decreased.
- Ideas tend to be functionally oriented with little regard for ongoing projects.
Functional/Traditional Organization Structure

General Manager

- Director Level:
  - Engineering
  - Production
  - Sales
  - Marketing
  - Admin.

- Division Level

- Department Level

- Section Level

Functional Responsibility
Functional Weaknesses

- Functional organizations tend to emphasize the separate functional elements at the expense of the whole organization.
- Under functional departmentation there is no group that effectively integrates the various functions of an organization and monitors them from the "big picture standpoint."
- Functional organizations do not tend to develop "general managers."
- Functional organizations emphasize functional relationships based on the vertical organizational hierarchy.
Functional Weaknesses (Continued)

- Functional organizations tend to fragment other management processes.
- Functional organizations develop a strong resistance to change.
- Functional segregation through the formal organization process encourages conflict among the various functions.
- The emphasis on the various operation functions focuses attention on the internal aspects and relations of the company to the detriment of its external relations.
- Functional organizations tend to be closed systems.
Departmental Project Management

Division Manager

- Department X
  - Project Leaders
    - Section Level
- Department Y
  - Project Leaders
    - Section Level
- Department Z
  - Project Leaders
    - Section Level
Project Expeditor

ENGINEERING DIVISION

- LIAISON DEPT.
- PIPING
- HVAC
- CHEMICAL
- DRAFTING

Legend:
- → Formal authority / reporting flow
- --- Informal authority / reporting flow
Project Coordinator

LEGEND

- FORMAL FLOW
- INFORMAL FLOW

DIVISION MGR.

PROJECT MGR.

DEPT. MANAGER

DEPT. MANAGER
Weaknesses

- Upper-level management was not ready to cope with the problems arising from shared authority.
- Upper-level management was reluctant to relinquish any of its power and authority to project managers.
- Line-staff project managers who reported to a division head did not have any authority or control over those portions of a project in other divisions; that is, the project manager in the engineering division could not direct activities in the manufacturing division.
Pure Project Structure

General Manager

Project A Manager

Project B Manager

Project C Manager

ENG.

MFG.

ENG.

MFG.

ENG.

MFG.
**Projectized Structure**

**Advantages**

- It provides complete line authority over the project (i.e., strong control through a single project authority).
- The project participants work directly for the project manager. Unprofitable product lines are easily identified and can be eliminated.
- There are strong communications channels.
- Staffs can maintain expertise on a given project without sharing key personnel.
- Very rapid reaction time is provided.
Personnel demonstrate loyalty to the project; better morale with product identification.

A focal point develops for out-of-company customer relations.

There is flexibility in determining time (schedule), cost, and performance trade-offs.

Interface management becomes easier as unit size is decreased.

Upper-level management maintains more free time for executive decision making.
Projectized Structure Disadvantages

- Cost of maintaining this form in a multi-product company would be prohibitive due to duplication of effort, facilities, and personnel; inefficient usage.
- There exists a tendency to retain personnel on a project long after they are needed. Upper-level management must balance workloads as projects start up and are phased out.
Disadvantages (Continued)

- Technology suffers because, without strong functional groups, outlook of the future to improve company’s capabilities for new programs would be hampered (i.e., no perpetuation of technology).
- Control of functional (i.e., organizational) specialists requires top-level coordination.
- There is a lack of opportunities for technical interchange between projects.
- There is a lack of career continuity and opportunities for project personnel.
The Matrix Management Structure

- General Manager
  - Engineering
  - Operations
  - Finance
  - Others

Project Mgr. X
Project Mgr. Y
Project Mgr. Z

Project Responsibility
Functional Responsibility
Participants must spend full time on the project; this ensures a degree of loyalty.

Horizontal as well as vertical channels must exist for making commitments.

There must be quick and effective methods for conflict resolution.

There must be good communication channels and free access between managers.

All managers must have input into the planning process.

Both horizontally and vertically oriented managers must be willing to negotiate for resources.

The horizontal line must be permitted to operate as a separate entity except for administrative purposes.
Matrix Structure
Advantages

- The project manager maintains maximum project control (through the line managers) over all resources, including cost and personnel.
- Policies and procedures can be set up independently for each project, provided that they do not contradict company policies and procedures.
- The project manager has the authority to commit company resources, provided that scheduling does not cause conflicts with other projects.
- Rapid responses are possible to change, conflict resolution, and project needs.
- The functional organization exists primarily as support for the project.
Matrix Structure
Advantages (Continued)

- Each person has a “home” after project completion. People are susceptible to motivation and end-item identification. Each person can be shown a career path.
- Because key people can be shared, the program cost is minimized. People can work on a variety of problems: that is, better people control is possible.
- A strong technical base can be developed, and much more time can be devoted to complex problem-solving. Knowledge is available for all projects on an equal basis.
- Conflicts are minimal, hierarchical referral are easily resolved.
- There is a better balance between time, cost and performance.
- Rapid development of specialists and generalists occurs.
- Authority and responsibility are shared.
- Stress is distributed among the team (& functional managers).
Matrix Structure
Disadvantages

- Multidimensional information flow.
- Multidimensional work flow.
- Dual reporting.
- Continuously changing priorities.
- Management goals different from project goals.
- Potential for continuous conflict and conflict resolution.
- Difficulty in monitoring and control.

- Company-wide, the organizational structure is not cost-effective because more people than necessary are required, especially administrative.
- Each project organization operates independently. Care must be taken that duplication of efforts does not occur.
- More effort and time are needed initially to define policies & procedures, compared to traditional organizational form.
Matrix Structure

Disadvantages (Continued)

- Functional managers may be biased with own priorities.
- The balance of power between the project and functional organizations must be watched.
- The balance of time, cost & performance must be monitored.
- Although rapid response time is possible for individual problem resolution, the reaction time can become quite slow.
- Employees and managers are more susceptible to role ambiguity than in the traditional organizational form.
- Conflicts and their resolution may be a continuous process (possibly requiring support of an organizational specialist).
- People do not feel they have any control over their own destiny when continuously reporting to multiple managers.
Matrix Structure

Disadvantages (Continued)

- Employees and managers are more susceptible to role ambiguity than in the traditional organizational form.
- Conflicts and their resolution may be a continuous process (possibly requiring support of an organizational specialist).
- People don’t feel they control their own destiny when continuously reporting to multiple managers.
Matrix Management Structure
(With a Director of Project Management)

General Manager

Director: Project Mgmt.
Director: Engineering
Director: Manufacturing
Director: Finance/Admin.

Project Mgr. X
Project Mgr. Y
Project Mgr. Z

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Weak Matrix Organization

Chief Executive

Functional Manager
  - Staff
  - Staff
  - Staff

Functional Manager
  - Staff
  - Staff

Functional Manager
  - Staff
  - Staff

Project Coordination
Balanced Matrix Organization

Chief Executive

Functional Manager
  - Staff
  - Staff

Project Manager
  - Staff
  - Staff

Functional Manager
  - Staff
  - Staff

Functional Manager
  - Staff
  - Staff

Project Coordination

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Strong Matrix Organization

Chief Executive

Functional Manager
  - Staff
  - Staff
  - Staff

Functional Manager
  - Staff
  - Staff
  - Staff

Functional Manager
  - Staff
  - Staff
  - Staff

Manager of Proj Mgrs
  - Project Manager
  - Project Manager
  - Project Manager

Project Coordination
Composite Matrix Organization

- Chief Executive
  - Functional Manager
    - Staff
    - Staff
    - Staff
  - Functional Manager
    - Staff
    - Staff
    - Staff
  - Functional Manager
    - Staff
    - Staff
    - Staff
  - Manager of Proj Mgrs
    - Project Manager
    - Project Manager
    - Project Manager

Project Coordination
# Organization Structure Influence on Projects

<table>
<thead>
<tr>
<th></th>
<th>Functional</th>
<th>Weak Matrix</th>
<th>Balanced Matrix</th>
<th>Strong Matrix</th>
<th>Project-ized</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project M. Authority</strong></td>
<td>Little</td>
<td>Limited</td>
<td>Low to Moderate</td>
<td>Moderate To High</td>
<td>High to Total</td>
</tr>
<tr>
<td><strong>Resource Availability</strong></td>
<td>Little</td>
<td>Limited</td>
<td>Low to Moderate</td>
<td>Moderate To High</td>
<td>High to Total</td>
</tr>
<tr>
<td><strong>Control of Budget</strong></td>
<td>Functional Manager</td>
<td>Functional Manager</td>
<td>Mixed</td>
<td>Project Manager</td>
<td>Project Manager</td>
</tr>
<tr>
<td><strong>Project M. Role</strong></td>
<td>Part-time</td>
<td>Part-time</td>
<td>Full-time</td>
<td>Full-time</td>
<td>Full-time</td>
</tr>
<tr>
<td><strong>Project M. Adm Staff</strong></td>
<td>Part-time</td>
<td>Part-time</td>
<td>Part-time</td>
<td>Full-time</td>
<td>Full-time</td>
</tr>
</tbody>
</table>
The Out-of-control Matrix

When a matrix appears to be out of control, executives tend to revert back to classical management. This results in:

- Reduced authority for the project manager.
- All project decision-making performed at executive levels.
- Increase in executive meddling in projects.
- Creation of endless job description manuals.

This can often be prevented by asking for authority / responsibility clarification and using a responsibility assignment matrix (RAM).
Factors for Selecting an Organizational Form

- Project size
- Project length
- Project management experience
- Philosophy and visibility of executives
- Project location
- Available resources
- Unique aspects of the project
Balancing Technical and Human Skills

- Technical Skills
  - High
  - Low
- Human Skills

- Junior Team Member
- Senior Team Member
- Supervisor
- Middle Manager
- Senior Officer
- President
Multidimensional Matrix

Time, Dimension or Space

Note: Each slice could be a different country.
Project vs. Functional Influences

Relative Influence

Functional Influence in Decision-Making

Dual Influence

Project Influence in Decision-Making

Functional Organization

Matrix Organization

Project Organization