

Managing Projects

**Project Organization,
Leadership, and Control**

Project Organization

In a project driven organization, such as construction or aerospace, all work is characterized through projects, with each project as a separate cost center having its own profit and loss statement. The total profit of the corporation is simply the summation of the profits on all projects. In a project-driven organization, everything centers around the projects. In the non-project-driven organization, such as low-technology manufacturing, profit and loss are measured on vertical or functional lines. In this type of organization, projects exist merely to support the product lines or functional lines. Priority resources are assigned to the revenue-producing functional line activities rather than the projects.

Elements of the Project-Driven Organization

The project office

- Project manager alone may serve this function
- Larger project has project engineer, project administrator

Key functional support

- System analysis, system engineering and integration
- Product design, quality assurance, production planning
- Installation, testing, training

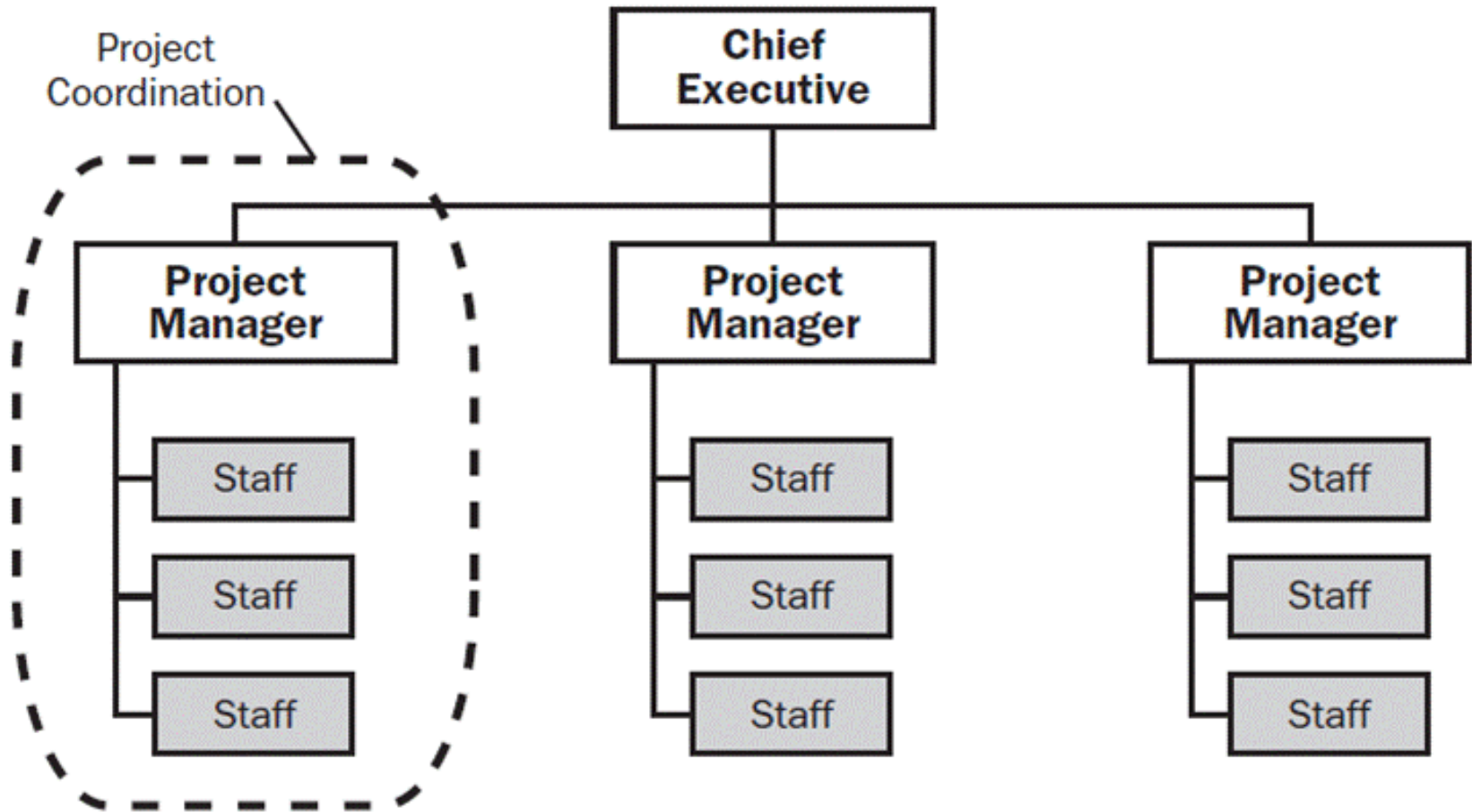
Manufacturing and routine administration

- Less likely to be under direct project control as its expensive to replicate for each project
- Manufacturing, accounting & finance
- Plant facilities and maintenance

Future business

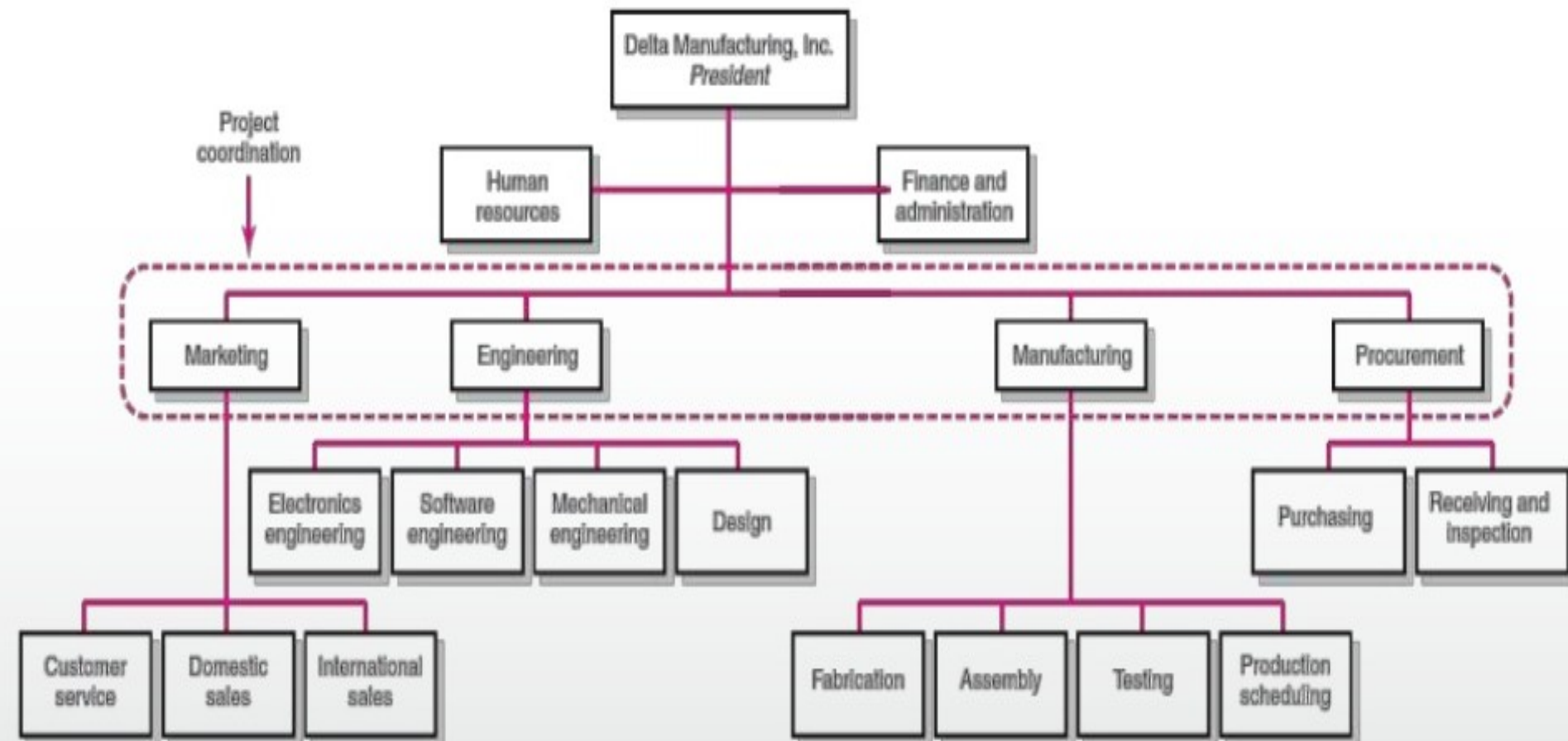
- Non-project-specific R&D and marketing

Projectized versus Functional Organizations



(Gray boxes represent staff engaged in project activities)

Functional Organizations



Functional Organization

Advantages

- Efficient use of technical personnel
- Career continuity and growth for technical personnel
- Good technology transfer between projects
- Good stability, security, and morale

Disadvantages

- Weak customer interface
 - Weak project authority
 - Poor horizontal communication
 - Discipline rather than program oriented
 - Slower work flow
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Projectized Organization

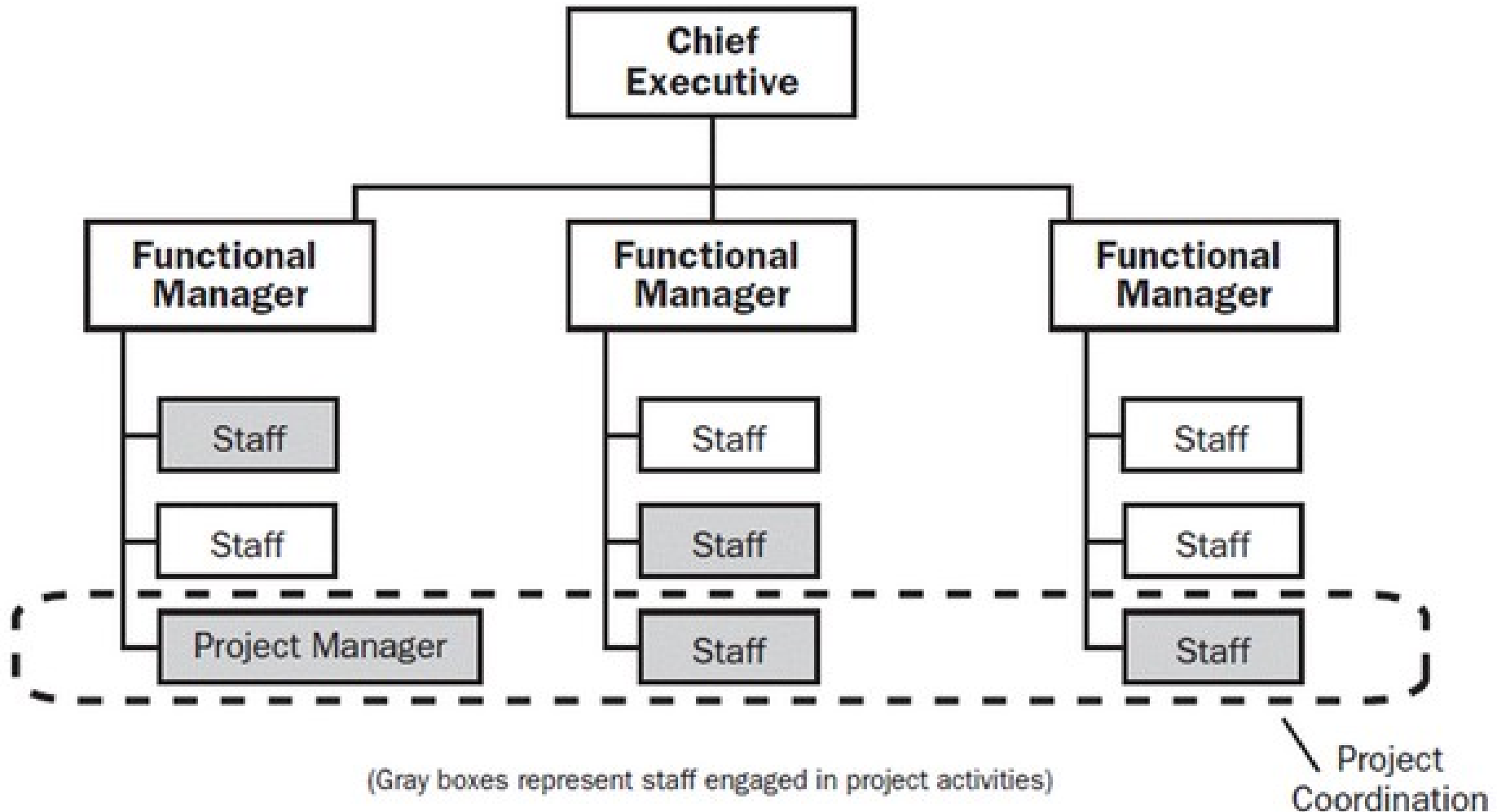
Advantages

- Good project schedule and cost control
- Single point for customer contact
- Rapid reaction time possible
- Simpler project communication
- Training ground for general management

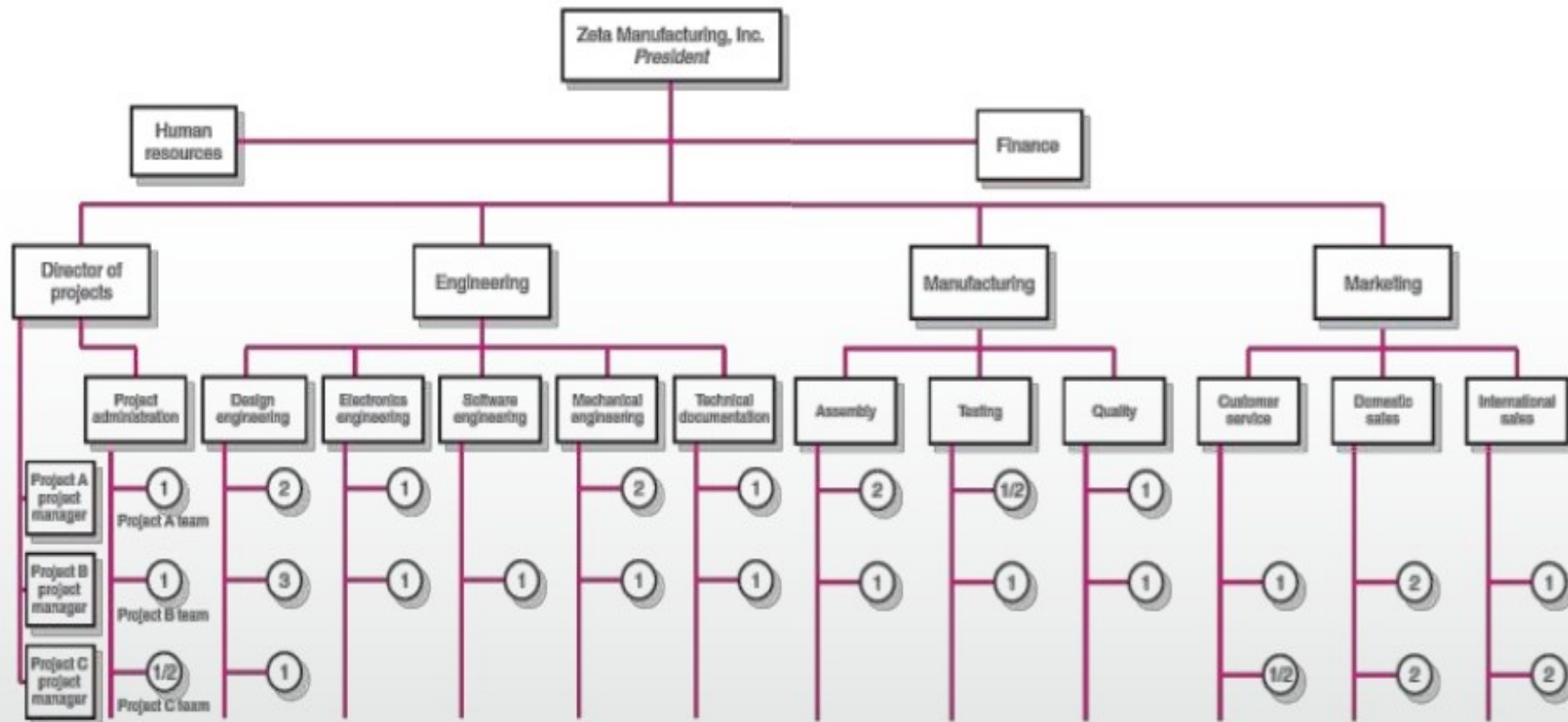
Disadvantages

- Uncertain technical direction
 - Inefficient use of specialists
 - Insecurity regarding future job assignments
 - Poor crossfeed of technical information between projects
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Matrix Organization



Matrix Organization Structure



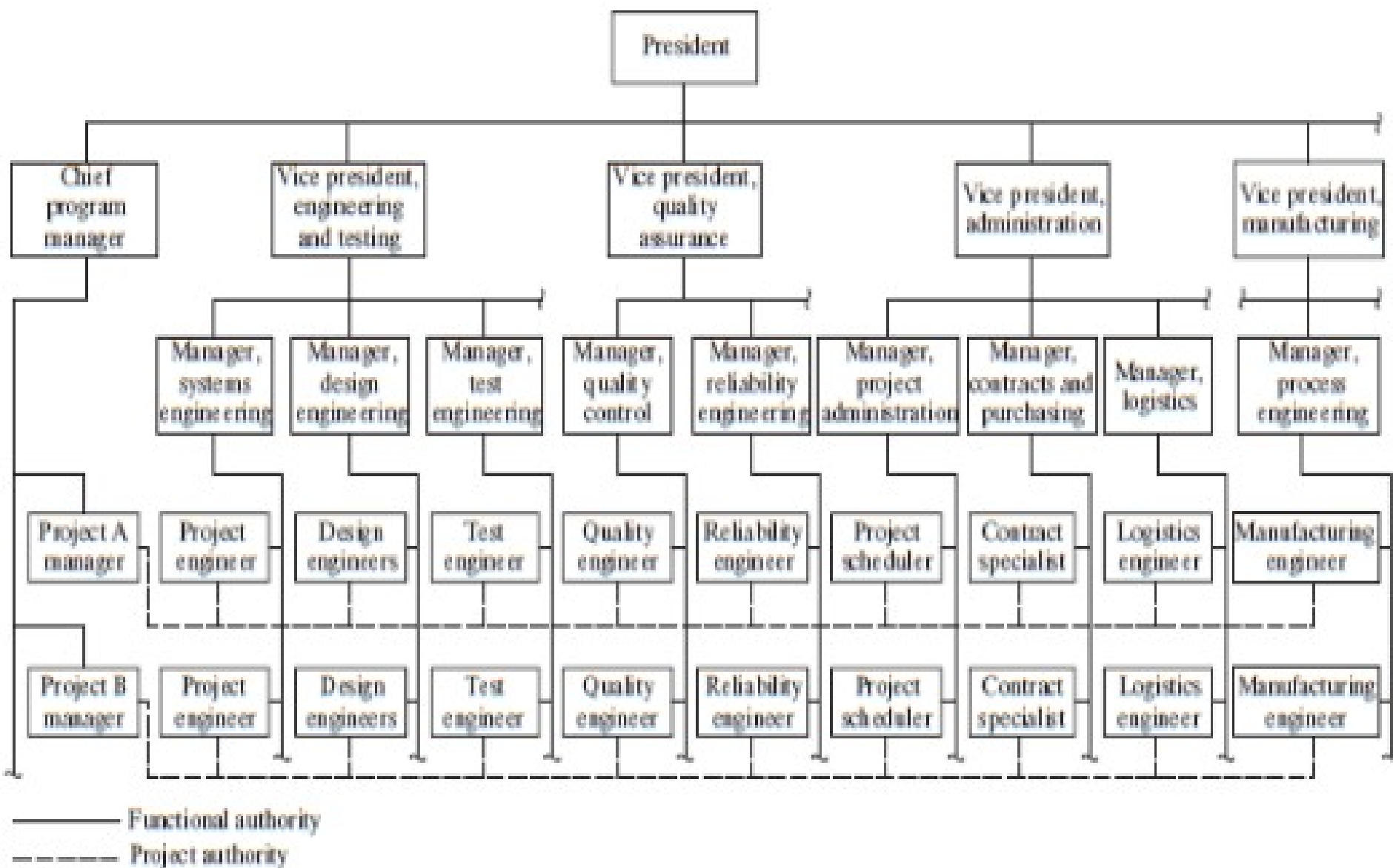


Figure 15-3 Typical matrix organization.

FUNCTIONAL

MATRIX

PROJECTIZED

(WEAK, BALANCED, STRONG)

LOW

PROJECT MANAGER INFLUENCE

HIGH



PROJECT MANAGER'S
AUTHORITY

RESOURCE AVAILABILITY

PROJECT BUDGET
MANAGEMENT

PROJECT MANAGER'S ROLE

PROJECT ADMINISTRATIVE
STAFF



Project Characteristics	Organizational Structure				
	Functional	Matrix			Projectized
		Weak	Balanced	Strong	
Project manager authority	Little or none	Limited	Low to moderate	Moderate to high	High to almost total
Resource availability	Little or none	Limited	Low to moderate	Moderate to high	High to almost total
Who controls the project budget	Functional manager	Functional manager	Mixed	Project manager	Project manager
Project manager's role	Part-time	Part-time	Full-time	Full-time	Full-time
Project management administrative staff	Part-time	Part-time	Part-time	Full-time	Full-time

Organization Structure and Project Success

1. Functional organization
2. Functional matrix
3. Balanced matrix
4. Project matrix
5. Project team

Characteristics of Effective Project Manager

Enthusiasm, stamina, and an appetite for hard work to withstand the special pressures of project management.

Seniority and position in the organization commensurate with that of the functional managers.

Blend of **technical**, **administrative**, and **interpersonal** skills.

Motivating Project Performance

Team building

Managing conflict

Keys to project success

Customer communications

Early learning path

Team Building

Building the project team is one of the prime responsibilities of the project or program manager. Team building involves a whole spectrum of management skills required to identify, commit, and integrate various task groups from traditional functional organizations into a single program management system. This process has been known for centuries. However, it becomes more complex and requires more specialized management skills as bureaucratic hierarchies decline and horizontally oriented teams and work units

Managing Conflict

Sources of Conflict

- Conflict over schedules
- Conflict over priorities
- Conflict over work-force resources
- Conflict over technical opinions
- Conflict over administrative procedures
- Conflict over personality
- Conflict over cost



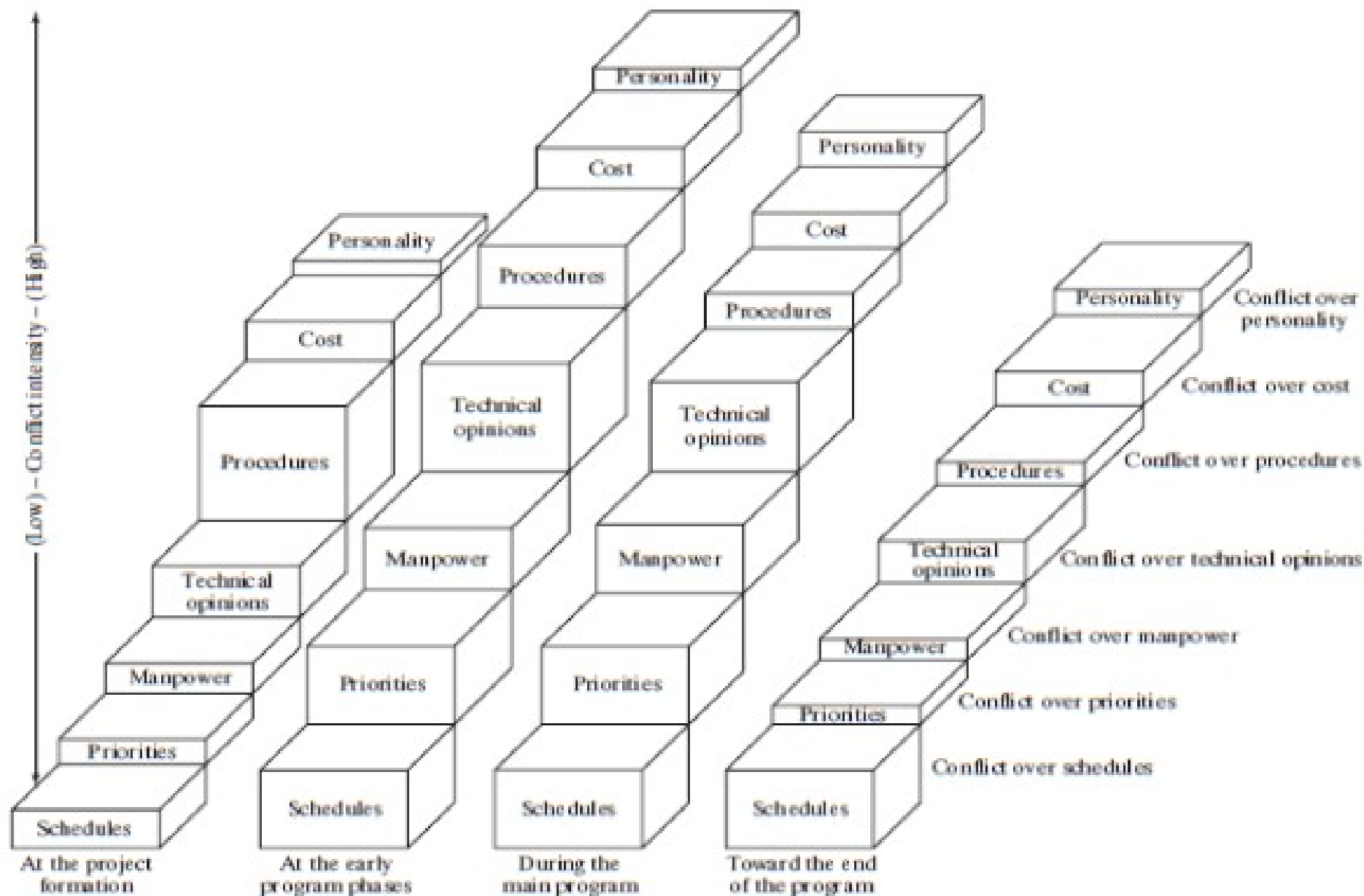


Figure 15-5 Conflict sources over the project life cycle. (From Hans J. Thamhain, *Engineering Program Management*, © John Wiley & Sons, Inc., New York, 1984, p. 244. Reprinted by permission of John Wiley & Sons, Inc.)

Methods of Conflict Management

(Blake and Mouton)

1. Withdrawal
2. Forcing
3. Smoothing
4. Compromising or negotiating
5. Confronting or problem solving

Major sources of conflict during the project life cycle. [Adapted with permission from H. J. Thamhain and D. L. Wilemon, "Conflict Management in Project Life Cycles," *Sloan Management Review* (Spring 1975): 31–50.]

Start ————— Project life cycle —————> Finish			
<u>Project conception</u>	<u>Project definition</u>	<u>Project execution</u>	<u>Project close-out</u>
Priorities	Priorities	Schedules	Schedules
Procedures	Schedules	Technical	Personality
Schedules	Procedures	Manpower	Manpower
Manpower	Technical	Priorities	Priorities

Customer

Communication

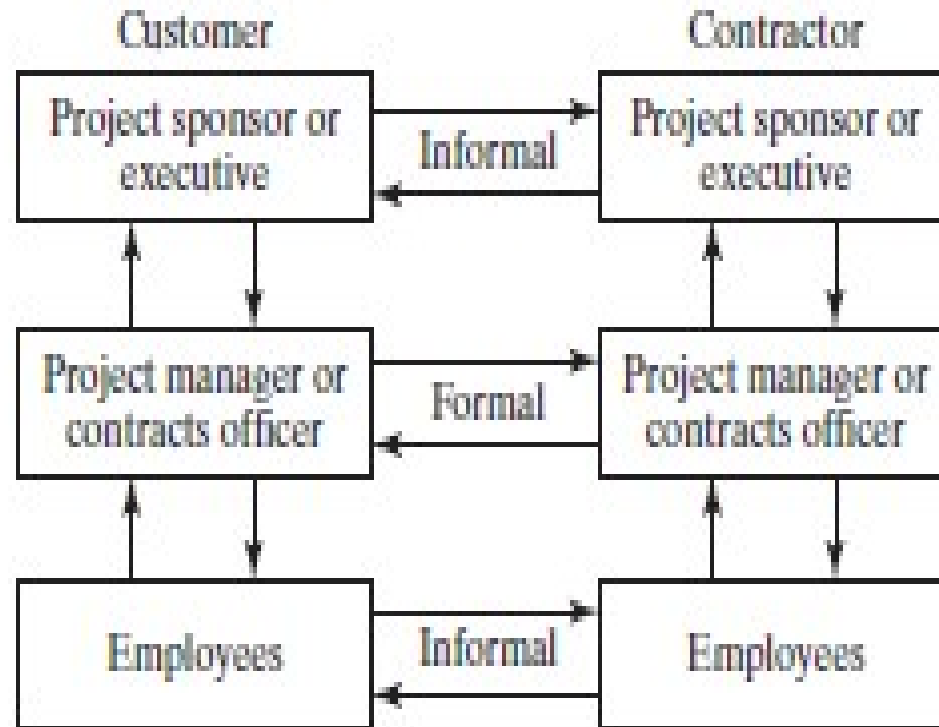


Figure 15-6 Customer (client) communications. (From David I. Cleland and Harold Kerzner, *Engineering Team Management*, Van Nostrand Reinhold Company, Inc., New York, 1986, pp. 63–64.)

Early Learning Path

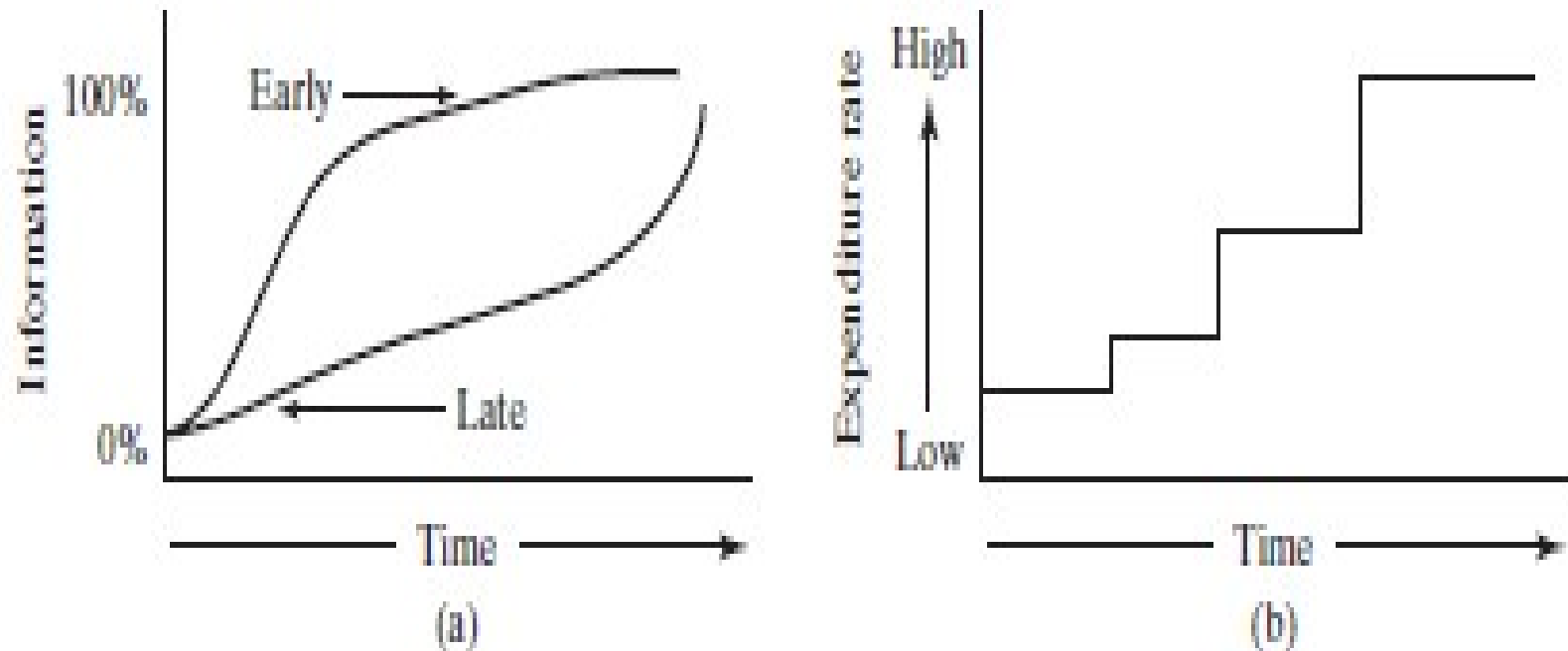


Figure 15-7 (a) Learning paths; (b) expenditure rate versus time. (From Jack Balderston, Philip Birnbaum, Richard Goodman, and Michael Stahl, *Modern Management Techniques in Engineering and R&D*, Van Nostrand Reinhold Company, Inc., New York, 1984, pp. 135–149.)

Types of Contracts

Fixed Price Contract

- Firm fixed price contract
 - Contractor alone enjoy profit or suffers loss
- Fixed price with escalation contract
 - Increment in price of Labour and material cost within the project life is addressed
- Fixed –price , re-determinable contract
 - Adjustable to actual cost later
- Fixed- price incentive contract
 - Contractor and buyer share saving within a certain range, but establish a maximum cost for the buyer above which the contractor bears the total risks

Cost Type Contract

- Cost plus incentive fee contract
 - Estimate the target cost and incentive
 - Within a specified range about the target, contractor and buyer share added costs or savings in an agreed ratio
- Cost plus fixed – fee
 - Buyer requires to pay all costs, plus an agreed upon fee
- Time & material contracts
- Letter contract

Types of Contracts in Project

Turnkey Contract

- Project executing responsibilities over contractor
- Hand over “key” of the completed project

Lump sum Contract

- The contractor executes the complete project for an agreed sum of money

Cost- Plus Contract

- Actual cost plus materials plus certain percentage above the cost

Piecework Contract

- Given for small works at a specified rate. E.g. Earth excavation

Labour Contract

- Supply of labour only

Sub Contract

- Main Contractor entrusts specified works to subcontractor