Understanding Project Management

Introduction to Project management

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Project management

Outline of the lecture

- **Definition of a project management**

- **The project manager-line manager interface**

- **Definition of the project**

- **Classification of projects**

- **Differing views of project management**

Definition of a project management

In order to understand project management, one must begin with the definition of a project.

A project can be considered to be any series of activities and tasks that:

- Have a specific objective to be completed within certain specifications

- Have defined start and end dates

- Have funding limits (if applicable)

- Consume human and nonhuman resources (i.e., money, people, equipment)

- Are multifunctional (i.e., cut across several functional lines)

Definition of a project management

Project management, on the other hand, involves project planning and project monitoring and includes such items as:

- Project planning
- Definition of work requirements
- Definition of quantity and quality of work
- Definition of resources needed
- Project monitoring
- Tracking progress
- Comparing actual outcome to predicted outcome
- Analyzing impact
- Making adjustments

Definition of a project management

Successful project management can then be defined as having achieved the project objectives:

- Within time

- Within cost

- At the desired performance/technology level

- While utilizing the assigned resources effectively and efficiently

- Accepted by the customer

The potential benefits from project management are:

- Identification of functional responsibilities to ensure that all activities are accounted for, regardless of personnel turnover
- Minimizing the need for continuous reporting
- Identification of time limits for scheduling
- Identification of a methodology for trade-off analysis
- Measurement of accomplishment against plans
- Early identification of problems so that corrective action may follow
- Improved estimating capability for future planning
- Knowing when objectives cannot be met or will be exceeded

Definition of a project management

Unfortunately, the benefits cannot be achieved without overcoming obstacles such as:

- Project complexity

- Customer's special requirements and scope changes

- Organizational restructuring

- Project risks

- Changes in technology

- Forward planning and pricing

Definition of a project management

- Project management is designed to make better use of existing resource by getting work to flow horizontally as well as vertically within the company.

- This approach does not really destroy the vertical, bureaucratic flow of work but simply requires that line organizations talk to one another horizontally so work will be accomplished more smoothly throughout the organization.

- The vertical flow of work is still the responsibility of the line managers.

- The horizontal flow of work is the responsibility of the project managers, and their primary effort is to communicate and coordinate activities horizontally between the line organizations.

Definition of a project management

MANAGEMENT GAPS + FUNCTIONAL GAPS: DEPARTMENTIZATION = OPERATIONAL ISLANDS
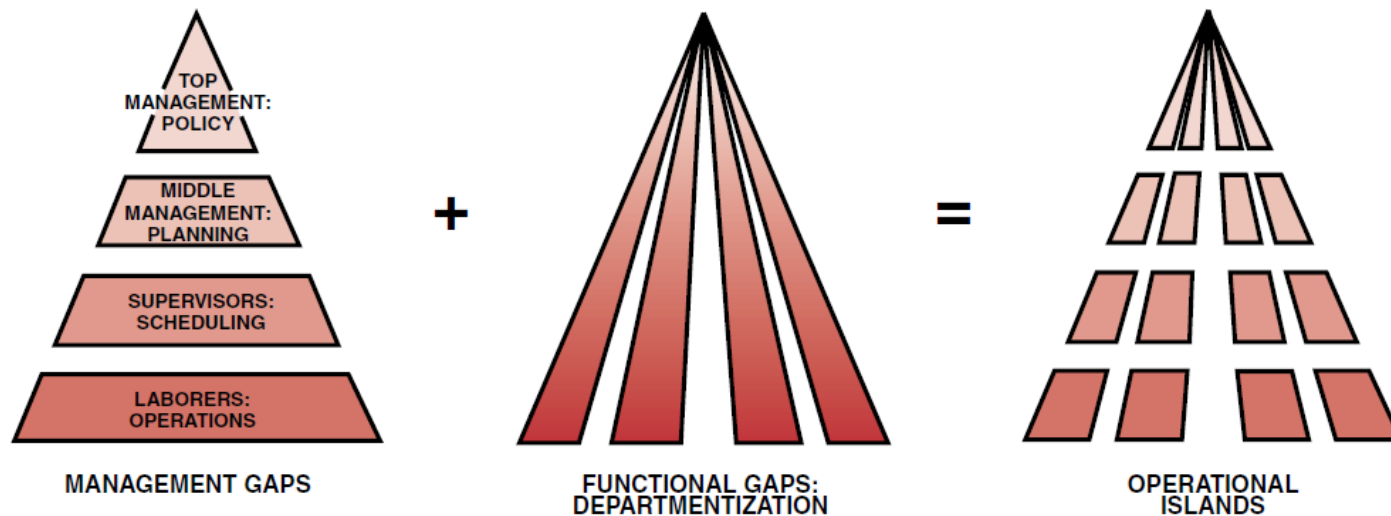
Source: Kerzner, H. 2017. Project Management

Why are systems necessary?

- How many companies are structured?

- There are always "class or prestige" gaps between various levels of management.

- There are also functional gaps between working units of the organization.

Definition of a project management

The following would be an overview definition of project management:

- **Project management is the planning, organizing, directing, and controlling of company resources for a relatively short-term objective that has been established to complete specific goals and objectives.**

- **Furthermore, project management utilizes the systems approach to management by having functional personnel (the vertical hierarchy) assigned to a specific project (the horizontal hierarchy).**

Definition of a project management

The above definition requires further comment. Classical management is usually considered to have five functions or principles:

- Planning

- Organizing

- Staffing

- Controlling

- Directing

Definition of a project management

What is meant by a "relatively" short-term project?

- Not all industries have the same definition for a short-term project.

- In engineering, the project might be for six months or two years; in construction, three to five years; in nuclear components, ten years; and in insurance, two weeks.

- Long-term projects, which consume Resources full-time, are usually set up as a separate division (if large enough) or simply as a line organization.

Definition of a project management
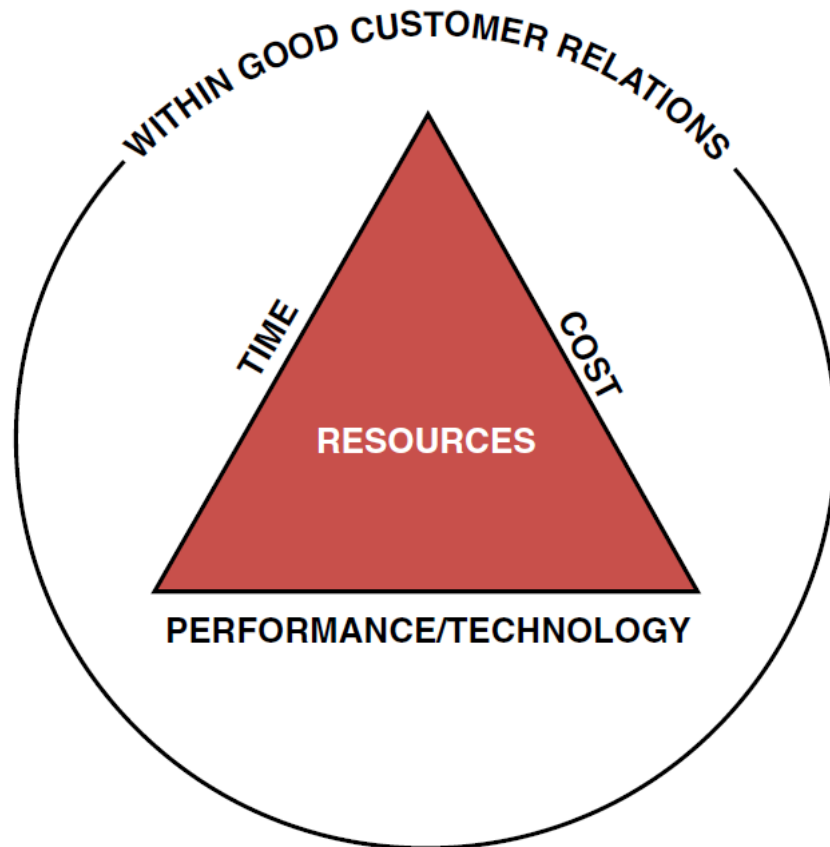
Source: Kerzner, H. 2017. Project Management

A pictorial representation of project management

- The objective of the figure is to show that project management is designed to manage or control company Resources on a given activity, within time, within cost, and within performance.

- Time, cost, and performance are the constraints on the project. If the project is to be accomplished for an outside customer, then the project has a fourth constraint: good customer relations.

Defining project success

Today, the definition of project success has been modified to include completion:

- Within the allocated time period
- Within the budgeted cost
- At the proper performance or specification level
- With acceptance by the customer/user
- With minimum or mutually agreed upon scope changes
- Without disturbing the main work flow of the organization
- Without changing the corporate culture

The project manager-line manager interface

We have stated that the project manager must control company resources within time, cost, and performance.

Most companies have six resources:

- Money

- Manpower

- Equipment

- Facilities

- Materials

- Information/technology

The project manager-line manager interface

- Actually, the project manager does not control any of these resources directly, except perhaps money (i.e., the project budget).

- Resources are controlled by the line managers, functional managers, or, as they are often called, resources managers.

- Project managers must, therefore, negotiate with line managers for all project resources.

- When we say that project managers control project resources, we really mean that they control those Resources (which are temporarily loaned to them) through **line managers**.

The project manager-line manager interface

It should become obvious at this point that successful project management is strongly dependent on:

- A good daily working relationship between the project manager and those line managers who directly assign resources to projects

- The ability of functional employees to report vertically to line managers at the same time that they report horizontally to one or more project managers

- These two items **become critical**. In the first item, functional employees who are assigned to a project manager still take technical direction from their line managers. Second, employees who report to multiple managers will always favour the manager who controls their purse strings.

Defining the project manager´s role

The project manager is responsible for coordinating and integrating activities across multiple, functional lines. The integration activities performed by the project manager include:

- Integrating the activities necessary to develop a project plan

- Integrating the activities necessary to execute the plan

- Integrating the activities necessary to make changes to the plan

Definition of a project management
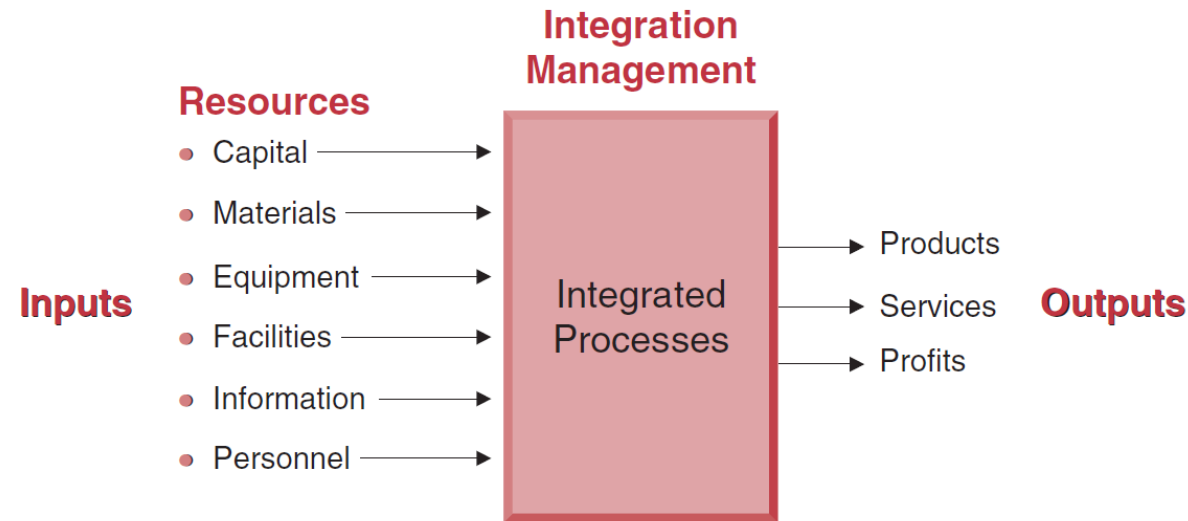
Source: Kerzner, H. 2017. Project Management

Integrative responsiblities

- The project manager must convert the inputs (i.e., resources) into outputs of products, services, and ultimately profits.

- The project manager needs strong communicative and interpersonal skills, must become familiar with the operations of each line organization, and must have knowledge of the technology being used.

Defining the project manager´s role

- Project managers may have increasing responsibility, but very little authority. This lack of authority can force them to "negotiate" with upper-level management as well as functional management for control of company resources.

- In the project environment, everything seems to revolve about the project manager. Although the project organization is a specialized, task-oriented entity, it cannot exist apart from the traditional structure of the organization. The project manager, therefore, must walk the fence between the two organizations. The term interface management is often used for this role, which can be described as managing relationships:
  - Within the project team
  - Between the project team and the functional organizations
  - Between the project team and senior management
  - Between the project team and the customer's organization, whether an internal or external organization

Definition of the project

Project is a temporary endeavor undertaken to create a unique product, service, or result.

- Unique product, service, or result. Projects are undertaken to fulfil objectives by producing deliverables.

- An objective is defined as an outcome toward which work is to be directed, a strategic position to be attained, a purpose to be achieved, a result to be obtained, a product to be produced, or a service to be performed.

- A deliverable is defined as any unique and verifiable product, result, or capability to perform a service that is required to be produced to complete a process, phase, or project. Deliverables may be tangible or intangible.

Definition of the project

Fulfilment of project objectives may produce one or more of the following deliverables:

- A **unique product** that can be either a component of another item, an enhancement or correction to an item, or a new end item in itself (e.g., the correction of a defect in an end item);

- A **unique service** or a capability to perform a service (e.g., a business function that supports production or distribution);

- A **unique result**, such as an outcome or document (e.g., a research project that develops knowledge that can be used to determine whether a trend exists or a new process will benefit society); and

- A unique combination of one or more products, services, or results (e.g., a software application, its associated documentation, and help desk services).

Definition of the project

Examples of projects include but are not limited to:

- Developing a new pharmaceutical compound for market,
- Expanding a tour guide service,
- Merging two organizations,
- Improving a business process within an organization,
- Acquiring and installing a new computer hardware system for use in an organization,
- Exploring for oil in a region,
- Modifying a computer software program used in an organization,
- Conducting research to develop a new manufacturing process, and
- Constructing a building.

Definition of the project

- Temporary endeavour. The temporary nature of projects indicates that a project has a definite beginning and end. Temporary does not necessarily mean a project has a short duration. The end of the project is reached when one or more of the following is true:

- The project's objectives have been achieved;

- The objectives will not or cannot be met;

- Funding is exhausted or no longer available for allocation to the project;

- The need for the project no longer exists (e.g., the customer no longer wants the project completed, a change in strategy or priority ends the project, the organizational management provides direction to end the project);

- The human or physical resources are no longer available; or

- The project is terminated for legal cause or convenience

Classification of projects

The principles of project management can be applied to any type of project and to any industry.

- The relative degree of importance of these principles can vary from project to project and industry to industry.

- For those industries that are project-driven, such as aerospace and large construction, the high dollar value of the projects mandates a much more rigorous project management approach.

- For non–project-driven industries, projects may be managed more informally than formally, especially if no immediate profit is involved.

Classification of projects

Type of Project/Industry

	In-house R&D	Small Construction	Large Construction	Aerospace/ Defense	MIS	Engineering
Need for interpersonal skills	Low	Low	High	High	High	Low
Importance of organizational structure	Low	Low	Low	Low	High	Low
Time management difficulties	Low	Low	High	High	High	Low
Number of meetings	Excessive	Low	Excessive	Excessive	High	Medium
Project manager's supervisor	Middle management	Top management	Top management	Top management	Middle management	Middle management
Project sponsor present	Yes	No	Yes	Yes	No	No
Conflict intensity	Low	Low	High	High	High	Low
Cost control level	Low	Low	High	High	Low	Low
Level of planning/scheduling	Milestones only	Milestones only	Detailed plan	Detailed plan	Milestones only	Milestones only

Source: Kerzner, H. 2017. Project Management

Difference in classification of project/characteristics

- There are the important differences withhin type of the projects.

Differing views of project management

- Many companies, especially those with project-driven organizations, have differing views of project management.

- Some people view project management as an excellent means to achieving objectives, while others view it as a threat. In project-driven organizations, there are three career paths that lead to executive management:

  – Through project management

  – Through project engineering

  – Through line management

Differing views of project management

- In project-driven organizations, the fast-track position is in project management, whereas in a non–project-driven organization, it would be line management.

- Even though line managers support the project management approach, they resent the project manager because of his promotions and top-level visibility.

- Executives may dislike project managers because more authority and control must be delegated. However, once executives realize that it is a sound business practice, it becomes important.

- With this kind of encouragement, the organization can become a live thing—sensitive to problems and able to move in on them with much more speed and understanding tha would be normally expected in a large operation.

Differing views of project management

- In the project environment, cause-and-effect relationships are almost always readily apparent.

- Good project management will examine the effect in order to better understand the cause and possibly prevent it from occurring again.

Effects:

1. Late completion of activities
2. Cost overruns
3. Substandard performance
4. High turnover in project staff
5. High turnover in functional staff
6. Two functional departments performing the same activities on one project

Differing views of project management

Causes:

- Top management not recognizing this activity as a project
- Too many projects going on at one time
- Impossible schedule commitments
- No functional input into the planning phase
- No one person responsible for the total project
- Poor control of design changes
- Poor control of customer changes
- Poor understanding of the project manager's job
- Wrong person assigned as project manager
- No integrated planning and control
- Company resources are overcommitted
- Unrealistic planning and scheduling
- No project cost accounting ability
- Conflicting project priorities
- Poorly organized project office

- As jobs become vacant, executives pressure line managers to accomplish the same amount of work with fewer resources, either by improving efficiency or by upgrading performance requirements to a higher position on the learning curve.

- Because people costs are more inflationary than the cost of equipment or facilities, executives are funding more and more capital equipment projects in an attempt to increase or improve productivity without increasing labour.

- Almost all of today's executives are in agreement that the solution to the majority of corporate problems involves obtaining better control and use of existing corporate resources, looking internally rather than externally for the solution. As part of the attempt to achieve an internal solution, executives are taking a hard look at the ways corporate activities are managed. Project management is one of the techniques under consideration.