TOPIC 5 PROJECT RESOURCE MANAGEMENT

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LEARNING ASPECTS

1. **Project Resource Management**
2. **Project Resources**
3. **Project Resource Management Process**
4. **Project Resource Management Tools**
   - ***Estimation Techniques***
   - ***Resource breakdown structure***
   - ***Assignment Matrix. RACI***
   - ***Negotiation***

Project Resource Management

Project Resource Management refers to the processes identify, acquire, and manage the resources needed for the successful completion of the project.

These processes help ensure that the right resources will be available to the project manager and project team at the right time and place.

Project Resources

The resources are categorized as;

1. Physical resources
2. Team Resources

Project Physical Resources

These refer to Equipment, materials, facilities and infrastructure.

Physical resource management is concentrated in allocating and using the physical resources (material, equipment, and supplies, facilities) needed for successful completion of the project.

Failing to manage and control resources efficiently is a source of risk for successful project completion.

Project Team Resources

The project team consists of individuals with assigned roles and responsibilities who work collectively to achieve a shared project goal.

The project manager should invest suitable effort in acquiring, managing, motivating, and empowering the project team.

Although specific roles and responsibilities for the project team members are assigned, the involvement of all team members in project planning and decision making is beneficial. Participation of team members adds their expertise to the process and strengthens their commitment to the project.

Project Team Resources

The project manager should be aware of different aspects that influence the team, such as:

- Team environment,
- Geographical locations of team members,
- Communications among stakeholders,
- Internal and external politics,
- Cultural issues and organizational uniqueness, and
- Other factors that may alter project performance.

As a leader, the project manager is also responsible for proactively developing team skills and competencies while retaining and improving team satisfaction and motivation.

The project manager should be aware of, and subscribe to, professional and ethical behavior, and ensure that all team members adhere to these behaviors.

TAILORING CONSIDERATIONS

Because each project is unique, the project manager will need to tailor the way Project Resource Management processes are applied. Considerations for tailoring include but are not limited to:

- **Diversity.** What is the diversity background of the team?
- **Physical location.** What is the physical location of team members and physical resources?
- **Industry-specific resources.** What special resources are needed in the industry?
- **Acquisition of team members.** How will team members be acquired for the project? Are team resources full-time or part-time on the project?
- **Management of team.** How is team development managed for the project? Are there organizational tools to manage team development or will new ones need to be established? Are there team members who have special needs? Will the team need special training to manage diversity?
- **Life cycle approaches.** What life cycle approach will be used on the project?

The Project Resource Management Process

1. Plan Resource Management—The process of defining how to estimate, acquire, manage, and utilize physical and team resources.

2. Estimate Activity Resources—The process of estimating team resources and the type and quantities of material, equipment, and supplies necessary to perform project work.

The Project Resource Management Process

3. Acquire Resources—The process of obtaining team members, facilities, equipment, materials, supplies, and other resources necessary to complete project work.

Important factors are considered during the process of acquiring the project resources:

i. The project manager or project team should effectively negotiate and influence others who are in a position to provide the required team and physical resources for the project.

ii. If the team resources are not available due to constraints, the project manager or project team may be required to assign alternative resources, perhaps with different competencies or costs.

iii. The project manager or project management team will be required to document the impact of the unavailability of required resources.

The Project Resource Management Process

4. Develop Team—The process of improving competencies, team member interaction, and the overall team environment to enhance project performance.

5. Manage Team—The process of tracking team member performance, providing feedback, resolving issues, and managing team changes to optimize project performance.

6. Control Resources—The process of ensuring that the physical resources assigned and allocated to the project are available as planned, as well as monitoring the planned versus actual use of resources, and performing corrective action as necessary.

The key benefit of this process is ensuring that the assigned resources are available to the project at the right time and in the right place and are released when no longer needed. This process is performed throughout the project.

Control Resources process is concerned with physical resources such as equipment, materials, facilities, and infrastructure.

PROJECT RESOURCE MANAGEMENT

TOOLS & TECHNIQUES

Project estimation	***Refers to techniques that help project managers forecast cost, duration, resources and other variables as they relate to a forthcoming project.***

Estimation Techniques

1. Analogous Estimating/ Top-Down Estimating

Analogous estimating uses information regarding resources from a previous similar project as the basis for estimating a future project.

Often used early in the project at high level and usually used early to get rough estimates.

It is used as quick estimating method and can be used when the project manager can only identify a few top levels of the WBS. And is also the least costly of the estimating types.

The disadvantage is the its less precise compared to the other forms.

Estimation Techniques

2. Parametric Estimating

Parametric estimating uses an algorithm or a statistical relationship between historical data and other variables to calculate resource quantities needed for an activity, based on historical data and project parameters.

For example, if an activity needs 4,000 hours of coding and it needs to finish it in 1 year, it will require two people to code (each doing 2,000 hours a year). This technique can produce higher levels of accuracy depending on the sophistication and underlying data built into the model.

Easy to use and repeatable since estimates are based on mathematical , which correlate the present estimate with the past history of resource utilization, having to do with the nature of similar project items.

Estimation Techniques

2. Bottom-up Estimating

A Bottom-up Estimate relies on estimating the resources of individual work items, then adding them up to obtain a project total resource requirement.

Team and physical resources are estimated at the activity level and then aggregated to develop the estimates for work packages and summary project levels.

The most accurate and reliable project estimate. The pre- requisites for this estimation form are; WBS, Activity.

Typically, an in-depth analysis of all project tasks, components, and processes is performed to estimate requirements for the the items including labor and materials.

Estimation Guidelines

Project Estimator should consult with one or more experts in order to validate the calculated estimates against the experience and understanding of experts.

Estimates should be done by people who will be doing the work or those more familiar with the work.

Use Analogous Estimates in combination with Parametric Estimates in decision making for project screening and budgeting.

Estimation techniques used may differ based on;

- Amount of time allocated to estimation,
- The amount of information available at the time of estimation,
- the industry and the complexity.

Responsibility Assignment Matrix- RACI

A responsibility assignment matrix (RAM) is used in linking activities to resources in order to ensure that all work components are assigned to an individual or team.

The coding schemes used in a RACI chart:

Responsible; this is the person or role responsible for performing the task, that is, the actual person doing the work to complete the task.

Accountable; This is the person who is ultimately accountable for the task being done in a satisfactory manner. Essentially, the Accountable person must sign off the work that the Responsible person produces.

Consulted; Those people whose input is used to complete the task. Communication with this group will thus be two-way in nature.

Informed; Those people who are informed as to the status of the task. Communication with this group is thus one-way in nature.

Assignment Matrix RACI

- A RAM shows the project resources assigned to each work package. It is used to illustrate the connections between work packages, or activities, and project team members.
- The responsibility assignment matrix can receive information from scope information, Requirements documentation, Resource management plan and Stakeholder register
- On larger projects, RAMs can be developed at various levels. For example, a high-level RAM can define the responsibilities of a project team, group, or unit within each component of the WBS. Lower-level RAMs are used within the group to designate roles, responsibilities, and levels of authority for specific activities.

Simple RACI Chart

	Persons				
Activity	**Mark**	**Jasmine**	**Paula**	**Daniel**	**Scovia**
Create Charter	I	I	A	I	R
Collect Requirements	I	A	C	R	C
Submit Change Requests	C	R	I	A	C
Develop Test Plan	A	C	I	R	

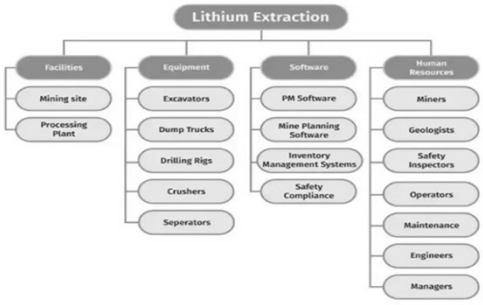
R = Responsible A = Accountable C = Consult I = Inform

Resource breakdown structure

The resource breakdown structure is a hierarchical list of team and physical resources related by category and resource type that is used for planning, managing and controlling project work.

Each descending (lower) level represents an increasingly detailed description of the resource until the information is small enough to be used in conjunction with the work breakdown structure (WBS) to allow the work to be planned, monitored, and controlled.

Resource Breakdown Structure (RBS)



Negotiation.

Negotiation is a discussion aimed at reaching an agreement

The project manager may need to negotiate for additional physical resources, changes in physical resources, or costs associated with the resources.

Procurement negotiation clarifies the structure, rights, and obligations of the parties and other terms of the purchases so that mutual agreement can be reached prior to signing the contract. Final document language reflects all agreements reached.

Negotiation concludes with a signed contract document or other formal agreement that can be executed by both buyer and seller. The negotiation should be led by a member of the procurement team that has the authority to sign contracts. The project manager and other members of the project management team may be present during negotiation to provide assistance as needed.

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