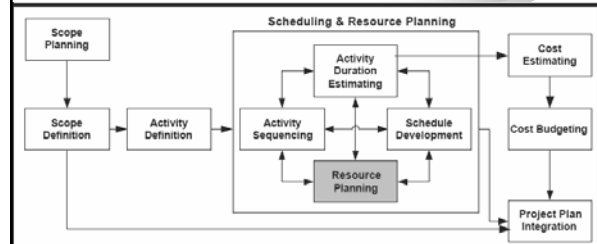*Manajemen Proyek SI*
Resource Planning

Oleh :

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**Sumber : City of Los Angeles – Project Management and Training Division
Information Technology Agency**

Overview of Resource Planning

Overview of … (2)

- Project scheduling and resource planning are inextricably intertwined.
- Every organization has limited resources to perform tasks.
- One of the primary roles of a project manager is to find ways to successfully execute a project within these resource constraints.

Overview of … (3)

Resource planning involves:

- Determining and acquiring the staffing and skills required to perform the work of the project; and
- Identifying and acquiring the non-labor resources such as tools, equipment, hardware, and software that enable the staff to complete the project.

Overview of … (4)

- The successful project manager considers availability of both labor and non-labor resources.
- Appropriation of funding and procurement of equipment, which require long lead-times often drive the critical path of a schedule.
- Therefore, it is important to identify the need for these long lead-time items early in the project.

Overview of … (5)

- After task staffing requirements and durations are entered into the initial schedule, resource loading by week or month is calculated.
- The result could be an impossible staffing plan.
- Time-phased staffing totals by classification may vary in an unacceptable manner, exceeding available resources in some periods and leaving idle resources in others.
- This is where the real art of scheduling comes into play, as the project manager adjusts task dependencies, priorities and staffing levels to come up with a schedule that has a realistic and smooth staffing plan.

Determining the Size of the Team

- The optimal size of a project team is driven by two principal factors.
  - the total number of tasks to be performed, and
  - the effort needed to perform the tasks.
- In developing the schedule and assigning the resources, the project manager determines the optimal mix of staff for activities.
- Large teams require a significant amount of coordination.

Determining ... (2)

- Adding more people to an activity creates the need for additional communication and may also increase the need for equipment or tools.
- In fact, a smaller team sometimes can accomplish much more than a larger one in a shorter period of time.
- The effectiveness of a team also depends on the personalities of the team members and communication and organizational skills of the project manager.
- If a large team is necessary, the project team may be divided into groups of 3 to 4 people. The groups should be formed based on tasks instead of functional skills.

Determining Required Skills

- Finding available staff with the skills required to perform tasks is critical to a project's success.
- The skills of the people performing the work are directly related to the time needed to perform a task.
- It is helpful in the planning process to develop a list of skills required, first for execution of the project, and then for execution of each task.
- This skill list may then be used to determine the type of personnel required for the task.

Determining Required Skills (2)

- The project manager should realistically assess the skills of the available people on the project because skill level has a major impact on the project schedule.
- Availability of staff with certain specialized skills and experience is usually critical to the project success.
- Necessary skills can also be acquired during the project by training but it will take additional time.
- If existing staff do not have the required skills for the project, the project manager should acquire the necessary skilled staff via contractual services.

Identifying Required Non-Labor Assets

- All project teams need some tools to successfully complete the tasks assigned to them.
- In order to schedule resources, the project manager must ensure that both people and necessary equipment are available to support the project.

Identifying Required Non-Labor Assets (2)

- The need for adequate workspace is often overlooked when planning a project.
- Ideally, the team should be placed in contiguous space to facilitate interaction and communication.
- Having everyone working in close proximity enhances team spirit and increases the chance for project success.
- While this may not always be feasible, it is a worthy goal for which to strive.

Identifying
Required Non-Labor Assets (3)

- In addition to workspace, equipment for the team should be included in the plan.
- Ensuring the availability of equipment at critical points in the project is extremely important in planning a successful project.
- Efficiency and morale are negatively affected by unavailability of equipment needed to perform a task.

Define Resource Profiles

- A staffing plan needs to be developed for every project.
- The staffing plan identifies when staff is brought onto and removed from the project team.
- For small projects, this may be simply stated as assigning three full time people to the project throughout its six-month duration.
- For large projects, the problem is much more complex, and the creation of a detailed plan is a requirement.

Define Resource Profiles (2)

Define Resource Profiles (3)

- The figure shows the number of people required each month for a project.
- Resource loading needs to be done by skill classification. In the example, analysts are viewed separately from programmers.
- Projects are usually dependent on the availability of a few key individuals with special functional or technical skills. In that case, resource loading may need to be done by individual for those key people.

Define Resource Profiles (4)

- The graphic representation of staffing plan helps point out peaks and valleys in staffing that can cause serious project management problems.
- The project manager should explore various staffing alternatives to find ways to maintain a relatively consistent staffing level.
- Particular attention should also be paid to releasing resources when they are no longer needed on the project.

Document Staffing Assumptions

- Documenting the staffing assumptions made in resource allocation is necessary to ensure the success of the project.
- Without clear documentation of these assumptions, later changes in staffing can be difficult and risky.

Document Staffing … (2)

- If, for example, a key person with a special technical skill was assumed to be available in the plan, the assumption must be documented.
- Later, if for some reason that resource is unavailable to perform the task, the project manager can immediately recognize the risk and make necessary decisions.
- Without documentation of the assumption, the project manager may fail to realize the risk and consequently subject the project to serious problems.

Document Risks

- As described earlier, assessment and documentation of risks are very important.
- Potential risks can then be mitigated in several ways such as:
  - Add time to those tasks where resources are known to be a problem.
  - Add time to the schedule if staff are not familiar with new technology being used.
  - Where a skill shortage is identified, add time and resources for staff acquisition and training. By recognizing resource shortfalls and providing necessary training, a project manager mitigates some level of risk.

Review Schedule and Resources Continually

- Despite a project manager's best efforts, project schedules and resource allocations have to be reviewed and adjusted continually as the project progresses and circumstances change.
- Early detection of problems will hopefully allow timely resource or schedule changes without affecting the overall project schedule and cost.
- If a change in the master schedule or the overall project cost is required, this must be processed using a formal change control with appropriate management and stakeholder approvals.

Resource Loading Updates

- Updating the project resource plan is an important tracking event because shifts in this plan can cause performance, cost, and schedule problems.
- The staffing plan showing the number of personnel, by type, that were required on the project was developed as part of the planning process.
- As part of tracking, this information is compared monthly on a planned versus actual basis.
- Periodically, the project manager also validates whether these planned resources are still sufficient to complete the task on schedule and within budget given changing conditions.

Resource Loading Updates (2)

- Updating resource loading and staffing profiles helps the project manager adjust to these changing conditions by refining the estimated effort to complete the project, validating the continuing need for resources and identifying problems early in the project.
- By identifying and analyzing discrepancies, the project team can determine if adequate resources are being applied to the project and can get early indications that the project is falling behind schedule or is more complex than initially estimated.

Resource Loading

POSITION	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
SW Mgr	1	1	1	1	1	1	1	1	1	1	1	1
Sr. SW Eng.	1	1	1	1	1	1	1	1	1	1	1	1
SW Analyst	1	1	1	1	1	0.5	0.5	0.5	0.5	0.5	1	1
Programmer			2	2	3	3	3	3	3	3	3	2
Config. Mgr			0.5	1	1	1	1	1	1	1	1	1
Tech Writer	0.5	1	1	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Support	0.25	0.5	0.5	1	1	0.25	0.25	0.25	0.25	1	0.5	
PLANNED	3.75	4.5	7	8	8.5	7.25	7.25	7.25	7.25	7.25	8.5	7

POSITION	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
SW Mgr	1	1	1									
Sr. SW Eng.	1	1	1									
SW Analyst	1	1	1									
Programmer			2									
Config Mgr			1									
Tech Writer	0.5	1	1									
Support	0.25	0.25	0.5									
ACTUAL	3.75	4.25	7.5	0	0	0	0	0	0	0	0	0

Staffing Profile
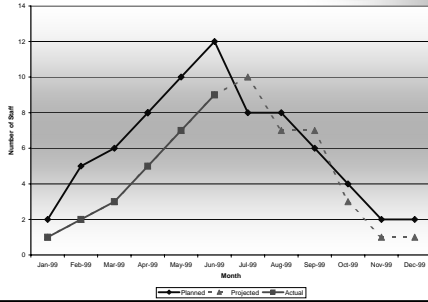
Staffing Profile
Actual versus Planned