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FEATURED PAPER

Human Resource Management in a Project

By Sujit Mishra

Definition

The *Human resource management* includes the processes required to coordinate the human resources on a project. Such processes include those needed to plan, obtain, orient, assign, and release staff over the life of the project.

Functions

- *Development of Human resource plan*
- *Acquiring staff*
- *Measuring the Performance of staff*
- *Release of staff at the end*

Introduction

As we know that people are an important part of a project's success. The projects are resource constrained. The management of the human resources on a project has a major impact on the project's success or failure. Of course, this article has taken a general view, human resource processes are strongly influenced by the human resource policies and procedures of the delivery organization. Much has been written about dealing with people in the operations of an ongoing enterprise; leading, communicating, delegating, motivating, team building, recruiting, appraising, etc. Much of that knowledge is directly applicable to leading and managing people in a project environment and the project manager should be familiar with it.

However, the project manager must also be sensitive to the unique needs of the project environment and as to how this general knowledge is applied in a different way than in the operational environment of the ongoing enterprise.

- The temporary nature of projects means that personal and organizational relationships generally will also be temporary and, quite often, new. Staff-related project management processes must address these transient relationships.
- Both the nature and number of people involved in a project change as the project moves through its life cycle. For example initially there will be limited number of staff in the project and as we move along we induct more staff into the project. Staff management processes must recognize and address these changing needs.

- Human resource management activities are often split between project management and other managers within the performing organization. The scope of responsibility of the project manager may lie somewhere between:
  - An extended responsibility, including the selection of sourcing organizations, obtaining staff and performance assessment.
  - A limited responsibility focused on coordination with the permanent roles outside the project such as the functional manager, the resource deployment manager and/or the people development manager .

All the parties must understand and carefully adhere to the division of responsibilities that is in force. All the processes here must be carefully interpreted based on the actual distribution of responsibilities between the project manager and the other roles. In some companies there may be a two managers for a team member – one the project manager who takes care of the day-to-day work of the team member and provides feedback to others, second a people manager who takes care of the people development aspects of the team member like promotion, salary hike, career needs/interest. Ideally to my view a team member should have only one Manager who should take care of everything (Project management and people management) and should have no more than 14 people directly reporting to him. Again it depends on many factors – company policies, location, style of functioning and project needs

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Development of Human Resource Plan

Process(es)

- *Create human resource plan*
- *Expand human resource plan*
- *Define project team structure*

Introduction

A “human resource category” (for example, consultant, programmer, etc.) is a way of classifying skills that is useful in matching resource requirements to particular people when developing the human resource plan for a project. The *Human resource plan* contains for each human resource category, information such as:

- The number of staff required.
- Costing information and assumptions.
- When the staff are needed and for how long.
- Any special skills required over and above those that people in the category would normally be expected to have, as well as the required level of proficiency and the relative importance of these skills.

- Training requirements needed specifically for the project, for example in a new technology.
- Office and materiel requirements
- Plans for team-building activities.(Motivation management)

The following column shows a sample portion of the *Human resource plan for a* project.

- Human resource category
- Number of staff
- Cost assumptions
- When needed
- Till what date the staff is needed
- Special skills, if any
- Special needs, if any
- Training needs, if any
- Office and material equipment

The *Human resource plan* supports staff planning, staff acquisition, allocating resources to staff, and supervising project specific training activities. A summary *Human resource plan* is created for the entire project and managed by the project manager.

The formality with which the *Human resource plan* is created and documented is a reflection of the size and complexity of the project. Typically, small projects do not require a formal plan. On the other hand, large, multiyear, multilevel projects with many participants may require multiple formal plans. The HRM plan is based on the project schedule.

The *Project management schedule* includes a summary of the effort by human resource category (expressed in person hours, person days, etc.) that will be required to perform defined work units, as well as the time frames during which the work units will be performed. For example, the *Project management schedule* might indicate that 2000 hours of application programmer skills are needed between 2 February and 31 December.

The *Human resource plan* uses the requirement for human resources to develop a plan for staff acquisition. There is usually iteration between the development of the *Project management schedule* and the *Human resource plan* as “reality” is applied during development of the *Human resource plan during the different phases of the project.* For example, for a very large project, it may be known that it is impossible to obtain the 200 programmers specified in the *Project management schedule* during a particular time period. Therefore, the *Project management schedule* will need to be changed to reflect this.

The *Human resource plan* may be revised when changes in the *Project management schedule* for a project organizational unit result in a change in staffing requirements. Also, the results of recruiting activities could impact the *Human resource plan*

Creation of human resource plan

Introduction
This process may be used at several levels in the project organization.
Each project organizational unit that has a responsibility for staffing, controlling and allocating staff related resources may create a *Human resource plan*.

Steps

- Review the *Project definition*, the *Organizational breakdown structure (OBS)*, and the *Technical environment plan* to understand the situation for which the *Human resource plan* will be created
- Review the project documentation describing procedures for recruiting and staffing to determine the human resource categories to be used and expected utilization factor for the project.

Estimates are usually focused on project productive work and do not account for the overheads that, to some extent, depend on the constituency. The utilization factor is used to take overhead due to meetings, administration tasks etc. into account. Care should be taken to keep the scope of the utilization factor consistent with what is defined as "availability" in the *Human resource plan*.

Identify special skills that may be needed, beyond those defined for the human resource category.
- For example, language-specific programming skills may be required for people in the "programmer" class.
- For each human resource category in the *Project management schedule*, validate the number of resources needed.
- Identify training requirements and add the training effort to the effort defined in the *Project management schedule* for each human resource category.
- Validate the number of available resources used in the *Project management schedule* and adjust as necessary.

Here is an example of validation:
- The effort defined in the *Project management schedule* is 980 person days and the training effort required is 20 person days. The total effort, therefore, is 980 + 20 = 1000 person days.

- The utilization factor for the performing organization is 75% (or 0.75).
- The adjusted effort is 1000 / 0.75 = 1333 person days.
- The required elapsed time is 195 days (9 months).
- The number of staff becomes 1333 / 195 = 7 (approximately).
- Human resource category description should be developed to have an understanding of the resources that are needed.
- Judge how feasible it will be to obtain the required resources in the required time frame, based on this understanding of the human resource category and the work to be performed. Consider:
    - The feasibility of acquiring the required numbers of people from the organization or vendors.
    - The feasibility of providing them with all the facilities such as technical environment items, and workspace and of getting them up to speed.
    - Pl note the minimum duration of the work given the total effort. For example, if one person can write a 100 page document in 20 days, it does not mean that 5 people can write the same document in 4 days.

If necessary, revise the number of resources required by reworking the *Project management schedule* to arrive at an acceptable staffing level. Identify cost assumptions for the human resource category. Make initial determinations of where resources will be sourced.

- Internally in the organization
- Through an external source.

- For internally-sourced resources, identify the desired skill level.
- For externally-sourced resources, estimate a cost range for the human resource category.
- Establish office and materiel needs for each human resource category.
- Identify the specific office and materiel needs for each human resource category.
- Review the physical office space that is to be provided, and determine whether the space meets the anticipated needs of the team in terms of capacity and the physical work environment.
- Ensure that there is a balance between individual work space and group space for team meetings and work sessions.
- Finalize office and materiel requirements such as Desktop, network etc for each human resource category, negotiating with the sponsor as required. Pl define what is to be provided by the customer and what will be provided by the organization.

Identify any team-building activities that are already under consideration in this stage of planning. Develop an initial list of those that are considered critical to the development of the team such as providing for effective communications. (For example, establishing a “war room”)

Outline the steps in team building for the project such as: develop the plan, conduct a kickoff meeting. Assess the cost associated with the key activities and add this to the Cost *plan*.

Include the sponsor, contractors, customer staff, in team-building activities when appropriate. Consider cost and the sensitivity of information shared as such activities when deciding who can be included. Consolidate *Human resource plans* from each project organizational unit to create the top-level *Human resource plan* for the entire project. Identify potential staffing conflicts or difficulties.

Rework individual project organizational unit plans as required in order to smooth and balance staffing across all levels within the project.

Expand human resource plan

The *Human resource plan* may need to be expanded each time the *Project management schedule* is expanded, typically during *Starting* and at the end of each phase. Changes to staffing requirements based on actual recruiting efforts may be handled in the *Staff schedule* but may also have to be reflected in the *Project management schedule*.

Steps

Review the *Project management schedule* to determine what changes have occurred. Changes can occur in the human resource category definitions, number of resources per category, total effort, duration, and specific dates. It depends on the phase of the project like concept, plan, develop, qualify and rollout.

Update the *Human resource plan* to reflect changes in human resource category definitions and/or number of resources per category.

Evaluate the effect of the changes on staff acquisition plans.

For example, it might be possible to improve project productivity by recruiting fewer but more experienced people than initially planned. But again it depends on the cost as moiré experienced resource will cost higher than less experienced resource. There should be a perfect mix of experienced and fresher in the team to balance the cost of the project.

Ideally the senior and critical resources should be shared across multiple projects and used in a project for critical activities like design/architecture, planning, review and less experienced resources should be used for coding, Unit testing and documentation.

Determine the impact of changes on required resources for each human resource category.
If the total effort or duration has changed, recalculate required resources and update *Human resource plan* to reflect the change.

If dates have changed, update the *Human resource plan* to reflect the revised time frames.
If changes have an immediate or near-term effect, raise the appropriate *Change requests*. Actions may include obtaining additional staff, and/or redeploying or releasing current staff based on changed requirements.

Review the initial set of team building activities and look for areas that need to be expanded with more detail and/or for new team building activities to plan as a result of changes to the *Project management schedule* or changes to the project environment.

Document the team building activities in the *Human resource plan*. This includes the activity, the schedule, and person responsible for coordination or implementation. Includes activities such as:

- Team building exercises: site meetings, news letters, extended offsite meeting, sponsor feedback/recognition events,
- Communications: collocation, team “war room”, involving team members in planning or establishing ground rules
- Career: 1x1 with the team members, Quarterly career review(QCR)
- Training: specific skill enhancements, expanding individual knowledge and capabilities
- Business area specific activities might include: team satisfaction survey, individual interviews.

Define Project team structure

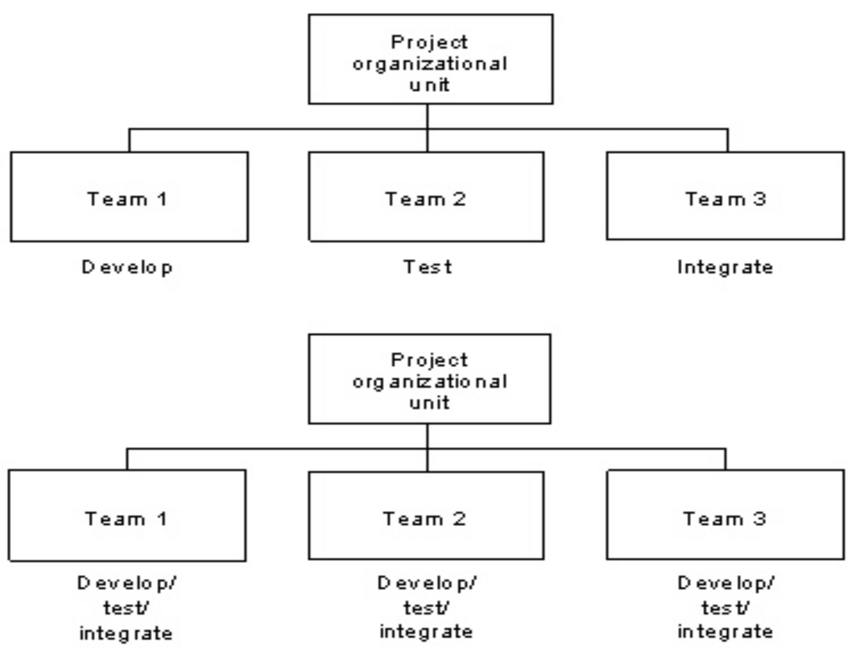
The purpose of this process is to define an effective team structure for a project organizational unit. The team structure defines the roles, responsibilities and relationships of the people managing and working within a project organizational unit. An appropriate team structure will help to optimize the efforts of the team and the success of the project. An inappropriate one can undercut the efforts of a hard working group of people and impede their success.

This process is performed during *Plan phase*. Often, it is carried out by the functional managers/Senior management responsible for the people who will staff the project. The project manager should influence the functional managers to ensure that the team structure meets the requirements of the project.

The first consideration in organizing a team is the objective of the team.

Has the team been asked to explore possibilities and alternatives? Is the team charged with solving a complex, poorly defined problem? This is often the case with study projects or when implementing a new technology.

Broadly, there are two different organizational approaches: In the normal approach, each team is responsible for a specific set of activities and the work products move between the teams according to a predefined work flow. The team members all have similar skills.
In the multidisciplinary approach, each team is responsible for completing some of the work products. The team members have different skills and, possibly, are multi-skilled.



Certain project approaches favor certain team structures. For example, rapid application development (RAD) works best with multidisciplinary teams.

It is necessary to have a team structure so that all the members of the project understand their roles and their working and reporting relationships. However, all team structures introduce some measure of inflexibility. It is important to understand that there is no “right” team structure for a project and that usually it depends on the organizational requirements and needs of the project.

Steps
Review the *Project definition* to understand the overall project objectives and context.
Review the *Organizational breakdown structure (OBS)* and the *Work breakdown structure (WBS)* to understand what the project organizational unit that is being structured must accomplish.

Determine the appropriate team model for the unit by considering the broad objective(s) of the unit and, if applicable, the work patterns that have been selected. Note that several models may apply if the project organizational unit has several objectives.
Plan the number of team(s) within the project organizational unit and how the responsibilities of the organizational unit will be split between the teams. Consider how the teams will be managed within the organizational unit. Estimate the size of each team and determine the skills that each team will require. The “right” number of people in a team depends on factors such as the nature of the work.

Consider carefully how skills that are known to be expensive and/or in short supply should best be deployed. Document the roles and responsibilities of each of the teams within the project organizational unit in the *OBS*.

Acquiring staff

This function includes processes to:

- Identify potential sources (external/department in the organization) of project staff.
- Define skill and activity descriptions that can be used by recruiters and resource managers to obtain staff from appropriate sourcing organizations.
- Select staff for the project.

Finding the:

- right people,
- with appropriate skills,
- available when needed,
- for the right duration,
- within planned costs

can be a daunting and time-consuming challenge. Let us look at the process below.

Staff acquisition processes are performed throughout the project, not just at project initiation. New phases of the project may require that additional staff or staff with different skills be found.

Determine and activate sourcing

Steps
Understand how the responsibilities for in this area are divided between the project manager and any other manager(s) and then either execute, or contribute to the execution of, the following steps. Review the Human resource plan to understand the staffing requirements.

Focus on information such as human resource categories, numbers of staff needed, when needed, special skills, and cost.

Review the Agreement to understand what staff the client has agreed to provide and to determine if there are any constraints in the Agreement related to staffing.

Examples of constraints include:
- The sponsor will not pay travel and living expenses.
- Only specific staff providers may be used.
- Determine if any internal arrangements have been made between organization to supply staff for the project, and then review those Agreements .
- Review the project documentation describing procedures for recruiting and staffing to understand the policies and procedures that apply to the project.

Depending on the number of staff needed and their projected availability, the use of multiple sources may be required.

Evaluate and select people

Steps

Review the project documentation or business area guidelines regarding the staffing and recruiting procedures.

Review the staffing requisitions to understand the requirements for each human resource category.

Review each candidate's resume.

Compare the resume to the staffing requisition to determine if the candidate should be considered for the position.

Identify the interview team. Generally it consists of senior people who are trained in taking interview.

Define questions and general needs as to how an interview can be taken. It may be necessary and/or desirable for more than one person to interview the candidate. This may be helpful or necessary in order to:

- Determine the level of technical or specialized skill that the candidate possesses.
- Gain the perspective of more than one person when making the staffing decision.

Additionally, it is also useful for the candidate to get a perspective on the project from more than one person so that he/she can make an informed decision about how well suited he/she is for the project.

Conduct candidate interviews. Follow standard policies and procedures in conducting interviews. Provide the candidate with an overview of the project. More detailed information will be given later on if the individual is selected and comes on board. Provide the candidate with a view of the potential positions he/she might fill in the project. Provide the candidate with any special considerations such as: special terms and conditions, travel and living arrangements etc. Complete an interview evaluation for each interview conducted.

Characteristics to consider in evaluating the candidate include, but are not limited to:

- Skills and skill level. Does the individual have the required skills to perform the work at the level needed to meet project schedules?
- Previous experience. Has the individual done similar or related work before? Has the individual done it well?
- Personal interests. Is the individual interested in working on the project?
- Personal characteristics. Will the individual work well with the rest of the team, the project manager, and, if applicable, the sponsor?
- Availability. Is the individual available in the required time frame at the required location(s)?
- Cost. Are the costs consistent with those contained in the *Human resource plan*?

Ensure that the interviews and evaluations are conducted in a thoroughly professional manner and that there can no suggestion that any candidate has been treated unfairly. Review the interview evaluations. Determine if candidate meets the requirements and should be brought onto the project.

Contact the sourcing organizations and provide feedback on selections. The DOU should include a description of the work to be done, the time frames, and the estimated effort and cost. For staff sourced by staff providers, ensure the appropriate supplier *Agreements* are in place.

Update the actual number of staff in the *Human resource plan*.

Measuring the performance of staff

This includes processes to:

- Set objectives for the team.
- Assess the performance of the team members.
- Enhance the individual and team performance.

The individuals in the project team and the project team as a whole have objectives that are broader and more long term than the day to day execution of the assigned tasks.

It is the responsibility of project management to ensure that a balance is achieved between the often conflicting interests of the task, the individual, and the team. The project manager and the functional managers must cooperate if an acceptable balance is to be achieved. Set performance expectations and measurements The purpose of this process is to develop a set of objectives for the project team and then to assist the team members and their functional managers in setting individual objectives.

Steps

Based on the constituency's personnel policies and procedures and the *Agreement* with the sponsor, develop a broad set of objectives for the project team.

Objectives may cover items such as:

- Client satisfaction
- Quality
- Achievement of milestones
- Productivity and efficiency
- Teamwork

Ensure that the objectives measurable and that some of them are planned to be achieved during the course of the project.

Discuss the team objectives and the individual Commitments with the functional managers concerned.

Each individual should have a set of objectives that , when achieved, will make a balanced contribution to both to the project objectives and to his/her functional manager's objectives;

Assess performance

Performance assessment is the responsibility of the team member's functional manager. The project manager provides the functional manager with input based on the individual's contribution to the project.

Steps

Analyze the team member's *Individual status reports* to formulate a picture of his/her overall performance on the project. Look at reported actuals against estimates. Review causes and identify trends, where deviations were reported. Was the person consistently on time or late? Were the individuals completion estimates reasonably accurate? What were the reasons? Consider the team member's contribution to the team. Did the effort expended result in value to the project? Did he/she contribute at team meetings? Did he/she help others? Did he/she come up with good ideas? Did he/she report potential problems in a timely manner? Did he/she support team decisions? Did he/she work with limited supervision?

If appropriate, consider the team member's relationship with the sponsor. Did he/she gain the respect of the sponsor? Was he/she responsive to the sponsor's needs? Did he/she establish good rapport with the sponsor?

Provide suggestions for improvement in performance. Identify development suggestions.

Review the assessment with the individual's functional manager.

Develop team charter

This process describes steps that the project manager can execute to create a *Team charter*, the purpose of which is to establish a common set of ground rules for the operation of the project team. Much of the information for the *Team charter* such as shared objectives, is developed jointly with the team members, and once presented, it is accepted as a condition of the team membership. While the *Team charter* is developed at the project level, a POU within the project could also have a *Team charter.*

Team charters are intended to set expectations for the success of the project and to encourage an environment for high-performance teams. High-performance teams possess a number of definable characteristics.

- Sense of purpose - Team members have a common purpose and set ambitious goals and milestones to accomplish their purpose.
- Trust and mutual respect - Team members trust, respect and care about each other. They have effective relationships with each other.
- Effective working procedures - High quality work is completed on time using procedures that support risk taking, innovation and challenging the old way.
- Building on differences - Synergy comes from the different skills, experience and strengths of the team members. Different points of view are the source for creating balanced solutions and for learning from each other.
- Flexibility and adaptability - The team seeks and perceive changes as a desirable opportunity to rethink, learn and improve the team efficiency.

Steps

Define a shared “team” mission or goal.

Work with the team or key team members (if at the beginning of Starting) to define a team vision or goal that is supportive of the project’s goals, the project team objectives, and presents a challenge that motivates the team.

Be sure the team vision is something that the team can rally around and totally support.
Create a sense of team identity.

Work with the team to define ways in which a sense of specific identity can be created. Ideas include: team name, team events, team rewards etc.

Develop a set of expectations that will be adopted by each team member and the team as a whole as representative of the team’s code of behavior.

Work with the team to select a set of behaviors such as timeliness, commitment, availability, and others that are appropriate and important to the team.

For each of the behaviors, decide on the specific expectation that the team is willing to adopt and uphold.
Define a results-driven team structure.

Elements of a results-driven team structure include:

- Clearly defined roles, responsibilities and accountabilities
- Effective communication system that allows the free flow of information
- Means of self-monitoring for individual performance

Document the *Team charter*

Collect the information developed in the team meetings and document the results in the *Team charter*.

Assemble and document the rules of engagement for the project. These include the processes for decision making, meeting protocols and others and can be reused from previous projects and customized.

Review the *Team charter* with the team members and gain commitment.

Present the *Team charter* to the team in the “kick off” meeting or at the time when a new team member joins the team.

Ensure that the team members, particularly the new members, understand the *Team charter* contents and are willing to commit their support.

Develop team management

This process may be used at several levels in the project organization. Each person managing a project organizational unit has responsibility for a project team and therefore, must develop team management. Team management concepts and skills are commonly addressed in the body of literature written about general management of the operations of an ongoing enterprise. These same concepts, however, are applicable to the project manager of a POU in managing the project team and are presented in this process as a set of steps for establishing and maintaining effective team management.

Steps

Integrate the team.

Provide a view of both the project itself and the way it fits into the overall plan for the organization.

Coordinate the efforts of all of the team interfaces with other project organizational units (POUs) and those within the team.

Develop the team communication channels. Outline the channels for communication including with upper management, within the team, the project, and with other stakeholders. Determine what type of information needs to be passed on. Decide what types of messages to send and who should send them.

Establish leadership of the team. An important aspect of managing the team is demonstrating leadership of the team. Demonstrate ability in problem-solving. Guide team members that are from different functional areas. Coordinate the team to show leadership capabilities.

Make decisions. Make key decisions in a timely manner for such areas as resources, costs, schedule tradeoffs, changes in scope, direction or characteristics of the project.

Build a supportive atmosphere for the team. Provide a climate where team members can work together. Seek to avoid unrest and negative forms of conflict.

Decide on the best approach to motivate individual team members.

Resolve conflicts. It is normal that conflicts arise inside the team. Take care to resolve them before they impact the team's performance. Listen to the parties individually. Solicit input from other team members who are not directly involved in the conflict. Resolve the conflict. Try to achieve a jointly developed solution (win/win) or a compromise rather than a win/lose situation.

Release of Staff at the end

This includes processes to debrief and release the staff from the project. The prime purpose of the processes is to ensure that: The members of the project team can move to their next assignments in an orderly way. When an individual leaves in mid-project, there is little or no impact on the project costs or time scales.

Plan staff release

The purpose of this process is to plan the release of members of the project team who are coming towards the end of their assignments. It is usual for staff to leave the project throughout its course and not just at the end.

Steps

Review the *Staff schedule* to determine which assignments are coming to an end. Plan the release of each team member with the objective of minimizing the disruption to the project while ensuring that the commitments made to staff providers are kept. Compare the latest *Individual status report* with the *Operational schedule* to determine if there is any work outstanding.

If appropriate, review the *Human resource plan* to determine if the individual might be redeployed somewhere else within the project. Notify the team member's organization (external staff provider) of the pending release. If required, provide the staff provider concerned with the required notice (often one month).

It may be desirable to negotiate a change in the planned finish date. At a meeting with each individual:

- Discuss any work that is outstanding.
- If required, agree how and to whom any uncompleted work and other responsibilities are to be handed over.
- If appropriate, discuss any opportunities for reassignment within the project that might be open to the individual.
- Allow the team member the opportunity to provide personal opinions about what was done well and what could have been improved.

If required, raise *Action control documents* to address points identified during the meeting and update the *Staff schedule*.

Release staff

The project manager has a final meeting with the team member to ensure that the work is complete, any hand over has been carried out and the office and materiel allocated to the individual has been returned.

Steps

Plan the final meeting with the departing team member.

Hold the meeting.

Check that:

- All the work packages are complete.
- If necessary, all responsibilities have been handed over as planned.

Collect any project documentation and working papers that are in the possession of the departing team member. Pay particular attention to those documents that are subject to the project's confidentiality rules.
Recover portable items, such as identification badges and keys.

Try to ensure that the team member leaves with a positive attitude about the project and the delivery organization.

Ensure that all relevant files held on personal computers etc. are moved to the project libraries and that all access to the technical environment is revoked.

Reallocate the office and materiel to another team member, if needed, or notify the relevant provider about the return of office and materiel.

Update the *Asset inventory* to show that the office and materiel has been returned or reallocated.

Update the *Staff schedule* and *Human resource plan* to show that the individual is no longer a member of the project team.

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1) Tom DeMarco and Timothy Lister. *Peopleware: Productive Projects and Teams*. New York: Dorset House Publishing Co., 1987

2) Author's experience in multiple countries and IT MNCs

Sujit Mishra

Author

Sujit Mishra, a certified PMP, has over 15 years of Experience in the Industry. He has a superior record of delivering simultaneous large-scale, mission-critical projects on time and under budget with impressive results. Sujit has received many awards for delivering several large projects and programs on-cost, on-time and with superior customer experience. He has worked in many international locations and gained experience in their ways of managing projects. Based on his practical experience in project management he has written a book entitled "Software project management Success - How to effectively manage Large and complex IT projects". He was a Faculty member in the PMI, Bangalore chapter and has published many articles in International journals.