

Project Resources Management



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Project Resources Management

Project Resources Management

- Project Resource Management includes the processes to 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 Management Processes

- **Plan Resource Management** : The process of defining how to estimate, acquire, manage, and utilize physical and team resources.
- **Estimate Activity Resources**: The process of estimating team resources and the type and quantities of material, equipment, and supplies necessary to perform project work.
- **Acquire Resources** : The process of obtaining team members, facilities, equipment, materials, supplies, and other resources necessary to complete project work.
- **Develop Team** : The process of improving competencies, team member interaction, and the overall team environment to enhance project performance.
- **Manage Team**: The process of tracking team member performance, providing feedback, resolving issues, and managing team changes to optimize project performance.
- **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.

Project Resources Management Overview

Project Resource Management Overview

9.1 Plan Resource Management

- .1 Inputs
 - .1 Project charter
 - .2 Project management plan
 - .3 Project documents
 - .4 Enterprise environmental factors
 - .5 Organizational process assets
- .2 Tools & Techniques
 - .1 Expert judgment
 - .2 Data representation
 - .3 Organizational theory
 - .4 Meetings
- .3 Outputs
 - .1 Resource management plan
 - .2 Team charter
 - .3 Project documents updates

9.4 Develop Team

- .1 Inputs
 - .1 Project management plan
 - .2 Project documents
 - .3 Enterprise environmental factors
 - .4 Organizational process assets
- .2 Tools & Techniques
 - .1 Colocation
 - .2 Virtual teams
 - .3 Communication technology
 - .4 Interpersonal and team skills
 - .5 Recognition and rewards
 - .6 Training
 - .7 Individual and team assessments
 - .8 Meetings
- .3 Outputs
 - .1 Team performance assessments
 - .2 Change requests
 - .3 Project management plan updates
 - .4 Project documents updates
 - .5 Enterprise environmental factors updates
 - .6 Organizational process assets updates

9.2 Estimate Activity Resources

- .1 Inputs
 - .1 Project management plan
 - .2 Project documents
 - .3 Enterprise environmental factors
 - .4 Organizational process assets
- .2 Tools & Techniques
 - .1 Expert judgment
 - .2 Bottom-up estimating
 - .3 Analogous estimating
 - .4 Parametric estimating
 - .5 Data analysis
 - .6 Project management information system
 - .7 Meetings
- .3 Outputs
 - .1 Resource requirements
 - .2 Basis of estimates
 - .3 Resource breakdown structure
 - .4 Project documents updates

9.5 Manage Team

- 1 Inputs
 - .1 Project management plan
 - .2 Project documents
 - .3 Work performance reports
 - .4 Team performance assessments
 - .5 Enterprise environmental factors
 - .6 Organizational process assets
- .2 Tools & Techniques
 - .1 Interpersonal and team skills
 - .2 Project management information system
- .3 Outputs
 - .1 Change requests
 - .2 Project management plan updates
 - .3 Project documents updates
 - .4 Enterprise environmental factors updates

9.3 Acquire Resources

- 1 Inputs
 - .1 Project management plan
 - .2 Project documents
 - .3 Enterprise environmental factors
 - .4 Organizational process assets
- .2 Tools & Techniques
 - .1 Decision making
 - .2 Interpersonal and team skills
 - .3 Pre-assignment
 - .4 Virtual teams
- .3 Outputs
 - .1 Physical resource assignments
 - .2 Project team assignments
 - .3 Resource calendars
 - .4 Change requests
 - .5 Project management plan updates
 - .6 Project documents updates
 - .7 Enterprise environmental factors updates
 - .8 Organizational process assets updates

9.6 Control Resources

- .1 Inputs
 - .1 Project management plan
 - .2 Project documents
 - .3 Work performance data
 - .4 Agreements
 - .5 Organizational process assets
- .2 Tools & Techniques
 - .1 Data analysis
 - .2 Problem solving
 - .3 Interpersonal and team skills
 - .4 Project management information system
- .3 Outputs
 - .1 Work performance information
 - .2 Change requests
 - .3 Project management plan updates
 - .4 Project documents updates

Project Risk Management

There is a distinction between the skills and competencies needed for the project manager to manage team resources versus physical resources

- Physical resources include equipment, materials, facilities, and infrastructure.
- Team resources or personnel refer to the human resources. Personnel may have varied skill sets, may be assigned full- or part-time, and may be added or removed from the project team as the project progresses.

There is some overlap between Project Resource Management and Project Stakeholder Management

Key Concepts

- 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.*
- Participation of team members during planning adds their expertise to the process and strengthens their commitment to the project.
- In addition to activities such as initiating, planning, executing, monitoring and controlling, and closing the various project phases, the project manager is responsible for the team formation as an effective group
- The project manager should be both leader and manager of the project team and is 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

Key Concepts

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,
- Organizational change management,
- Internal and external politics,
- Cultural issues and organizational uniqueness, and
- Other factors that may alter project performance.

Key Concepts

- Physical resource management is concentrated in allocating and using the physical resources (material, equipment, and supplies, for example) needed for successful completion of the project in an efficient and effective way.
- In order to do that, organizations should have data on resource demands (now and in the reasonable future), resource configurations that will be required to meet those demands, and the supply of resources.
- Failing to manage and control resources efficiently is a source of risk for successful project completion

Importance of Resource Management

- Most project managers agree that managing human resources effectively is one of the toughest challenges they face.
- Managing people is a vital component of project resource management

Proactive organizations are addressing human resource needs:

- Improving benefits
- Redefining work hours and incentives
- Finding future workers
- Investing in Training / skills development

Global issues

- In 2013, Yahoo's CEO issued a memo stating that employees could no longer work from home, causing quite a stir throughout the world.
- Diebold's CEO took the opposite approach and started recruiting employees who wanted to work from home, luring the best and brightest workers from Yahoo and other companies cutting back on telecommuting
- The *Huffington Post* believes that telecommuting has won, and even Yahoo has softened its stance

Managing and Leading People

Psychologists and management theorists have devoted much research and thought to the field leading people at work.

- Motivation theories
- Influence and power
- Effectiveness
- Emotional intelligence
- Leadership

Motivation Theories

- **Intrinsic motivation** causes people to participate in an activity for their own enjoyment

Example: some people love to read, write, or play an instrument because it makes them feel good

- **Extrinsic motivation** causes people to do something for a reward or to avoid a penalty

Example: some young children would prefer not to play an instrument, but they do because they receive a reward or avoid a punishment for doing so

Maslow's Hierarchy of Needs

Abraham Maslow argued that humans possess unique qualities that enable them to make independent choices, thus giving them control of their destiny

Developed a hierarchy of needs; states that people's behaviors are guided or motivated by a sequence of needs

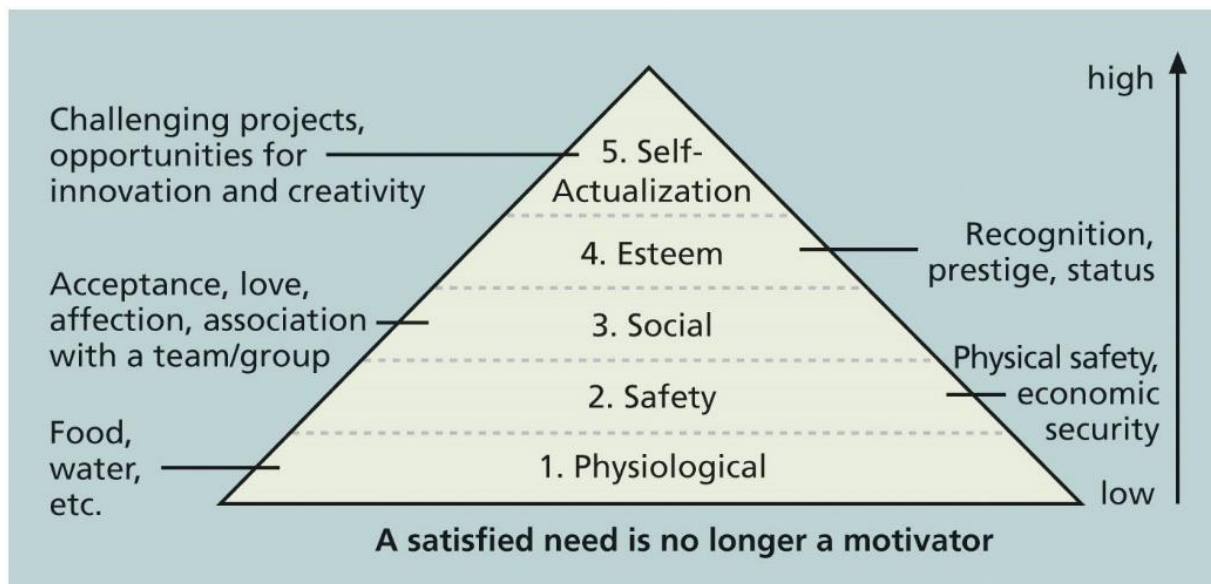


FIGURE 9-2 Maslow's hierarchy of needs

Herzberg's Motivational – Hygiene Theory

Frederick Herzberg distinguished between motivational factors and hygiene factors

- **Motivational factors:** factors that cause job satisfaction
- **Hygiene factors:** could cause job dissatisfaction

Hygiene Factors	Motivators
Larger salaries	Achievement
More supervision	Recognition
More attractive work environment	Work itself
Computer or other required equipment	Responsibility
Health benefits	Advancement
Training	Growth

Examples of Herzberg's hygiene factors and motivators

RSA Animate used a whiteboard drawing technique to summarize key points from Pink's book in a YouTube video called "Drive: The surprising truth about what motivates us"

Pink suggests that managers focus on motivators

Autonomy

Mastery

Purpose

<https://www.youtube.com/watch?v=Ulx5d6nhqz>

McClelland's Acquired-Needs Theory

Specific needs are acquired or learned over time and shaped by life experiences.

- **Achievement (nAch):** achievers like challenging projects with achievable goals and regular feedback
- **Affiliation (nAff):** people with high nAff desire harmonious relationships and need to feel accepted by others, so managers should try to create a cooperative work environment for them
- **Power: (nPow):** people with a need for power desire either personal power (not good) or institutional power (good for the organization)

McGregor's Theory X and Y

Douglas McGregor popularized the human relations approach to management in the 1960s.

- **Theory X:** assumes workers dislike and avoid work, so managers must use coercion, threats and various control schemes to get workers to meet objectives.
- **Theory Y:** assumes individuals consider work as natural as play or rest and enjoy the satisfaction of esteem and self-actualization needs.
- **Theory Z:** introduced in 1981 by **William Ouchi** and is based on the Japanese approach to motivating workers, emphasizing trust, quality, collective decision making, and cultural values

Influence and Power

Thamhain and Wilemon: ways to have influence on projects:

- Authority: legitimate hierarchical right to issue orders
- Assignment: ability to influence a worker's later work assignments
- Budget: ability to authorize others' use of discretionary funds
- Promotion: ability to improve a worker's position
- Money: ability to increase a worker's pay and benefits
- Penalty: ability to cause punishment
- Work challenge: ability to assign work that capitalizes on a worker's enjoyment of doing a particular task
- Expertise: perceived special knowledge that others deem important
- Friendship: ability to establish friendly personal relationships between the project manager and others

Ways to influence:

- Project managers who use work challenges and expertise to influence people projects are more likely to succeed
- Projects are more likely to fail when project managers rely too heavily on authority, money, or penalty

Influence and Power

Power is the potential ability to influence behavior to get people to do things they would not otherwise do

Power is much stronger than influence, because it is often used to force people to change their behavior.

Types of power:

- Coercive
- Legitimate
- Expert
- Reward
- Referent

Covey on Improving Effectiveness

Project managers can apply Covey's seven habits to improve effectiveness on projects.

- Be proactive
- Begin with the end in mind
- Put first things first
- Think win/win
- Seek first to understand, then to be understood
- Synergize
- Sharpen the saw

Covey on Improving Effectiveness

- Good project managers are empathic listeners
 - They listen with the intent to understand
- Before you can communicate with others, you have to have rapport
 - Relation of harmony, conformity, accord, or affinity
- Mirroring is the matching of certain behaviors of the other person
 - A technique to help establish rapport
- PM's need to develop empathic listening and other people skills to improve relationships with users and other stakeholders

Advice to PM's

Start using empathy more effectively

- Put aside your viewpoint
- Validate the other person's perspective
- Examine your attitude
- Listen to the entire message that the other person is trying to communicate
- Ask what the other person would do

Emotional Intelligence

Howard Gardner's book *Frames of Mind: The Theory of Multiple Intelligences* introduced the concept of using more than one way to think of and measure human intelligence

Gardner suggested the need to develop both interpersonal intelligence (capacity to understand the motivations, intentions, and desires of others) and intrapersonal intelligence (capacity to understand oneself, one's feelings, and motivations)

Emotional intelligence (EI) is knowing and managing one's own emotions and understanding the emotions of others for improved performance

There is no one best way to be a leader

- Most experts agree that the best leaders are able to adapt their style to needs of the situation
- It is important to understand and pay attention to concepts of motivation, influence, power, effectiveness, emotional intelligence, and leadership in all project processes

PMI introduced the PMI Talent Triangle[®] in 2015 to emphasize the need for more than technical skills for project managers.

The Talent Triangle[®] includes:

- Technical project management
- Strategic and business management
- Leadership

RM Plan and Team Charter

- Involves identifying and documenting project *resources, roles, responsibilities, skills, and reporting relationships*
- Can be separated into a *human resource management plan and a physical resource management plan*
- Contents include:
 - Project organizational charts
 - Responsibility assignment matrixes
 - Staffing management plan and resource histograms
 - Team charters

Resources Management plan

Plan Resource Management

Inputs

- .1 Project charter
- .2 Project management plan
 - Quality management plan
 - Scope baseline
- .3 Project documents
 - Project schedule
 - Requirements documentation
 - Risk register
 - Stakeholder register
- .4 Enterprise environmental factors
- .5 Organizational process assets

Tools & Techniques

- .1 Expert judgment
- .2 Data representation
 - Hierarchical charts
 - Responsibility assignment matrix
 - Text-oriented formats
- .3 Organizational theory
- .4 Meetings

Outputs

- .1 Resource management plan
- .2 Team charter
- .3 Project documents updates
 - Assumption log
 - Risk register

- Resource planning is used to determine and identify an approach to ensure that sufficient resources are available for the successful completion of the project.
- Project resources may include team members, supplies, materials, equipment, services and facilities.
- Effective resource planning should consider and plan for the availability of, or competition for scarce resources.

EEF and OPAs

The EEF's that can influence the Plan Resource Management include but are not limited to:

- Organizational culture and structure,
- Geographic distribution of facilities and resources,
- Existing resources competencies and availability, and
- Marketplace conditions.

The OPA's that can influence the Plan Resource Management include but are not limited to:

- Human resource policies and procedures,
- Physical resource management policies and procedures,
- Safety policies,
- Security policies,
- Templates for the resource management plan, and
- Historical information for similar projects.

Tools and Techniques

- *Work breakdown structures (WBS)*. The WBS is designed to show how project deliverables are broken down into work packages and provide a way of showing high-level areas of responsibility.
- *Organizational breakdown structure (OBS)*. While the WBS shows a breakdown of project deliverables, an OBS is arranged according to an organization's existing departments, units, or teams, with the project activities or work packages listed under each department. An operational department, such as information technology or purchasing, can see all of its project responsibilities by looking at its portion of the OBS.
- *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.

Developing the Resource Management Plan and Team Charter (2 of 6)

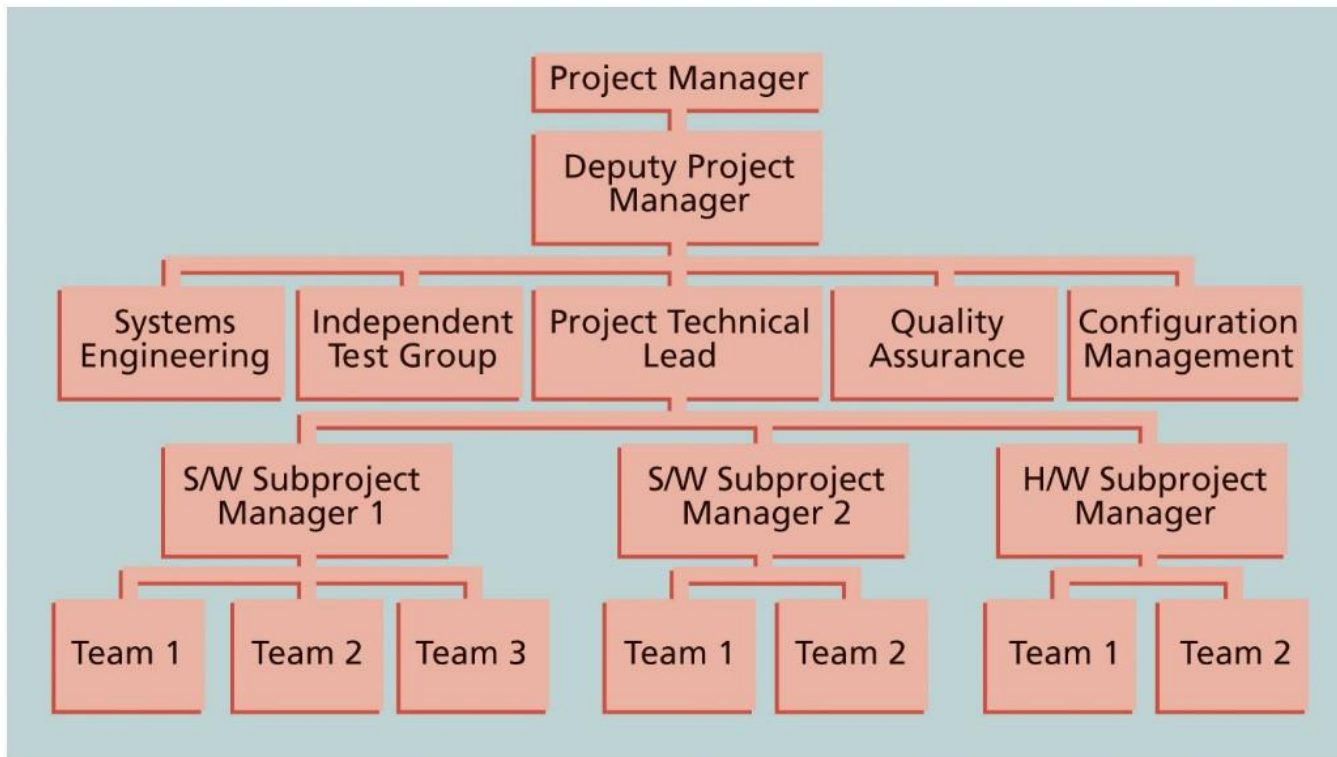


FIGURE 9-3 Sample organizational chart for a large IT project

Developing the Resource Management Plan and Team Charter (3 of 6)

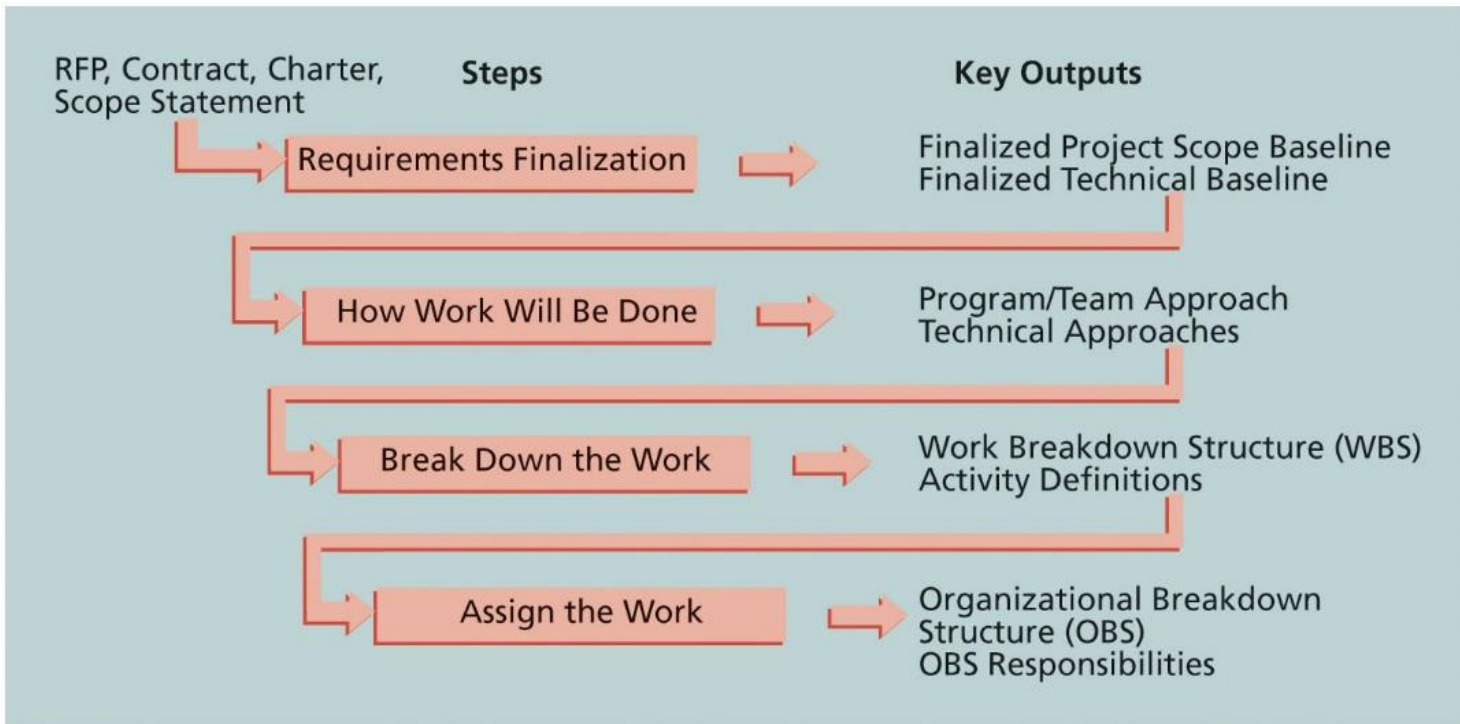


FIGURE 9-4 Work definition and assignment process

Developing the Resource Management Plan and Team Charter (4 of 6)

WBS activities →

OBS units ↓

	1.1.1	1.1.2	1.1.3	1.1.4	1.1.5	1.1.6	1.1.7	1.1.8
Systems Engineering	R	R P					R	
Software Development			R P					
Hardware Development				R P				
Test Engineering	P							
Quality Assurance					R P			
Configuration Management						R P		
Integrated Logistics Support							P	
Training								R P

R = Responsible organizational unit
P = Performing organizational unit

FIGURE 9-5 Sample responsibility assignment matrix (RAM)

Developing the Resource Management Plan and Team Charter

	Car Owner	Shop Owner	Mechanic	Parts Supplier
Pay for parts and services	A, R	C		
Determine parts and services needed	C		A, R	C
Supply parts		C	C	A, R
Install parts	I	A	R	

Sample RACI chart

Developing the Resource Management Plan and Team Charter (6 of 6)

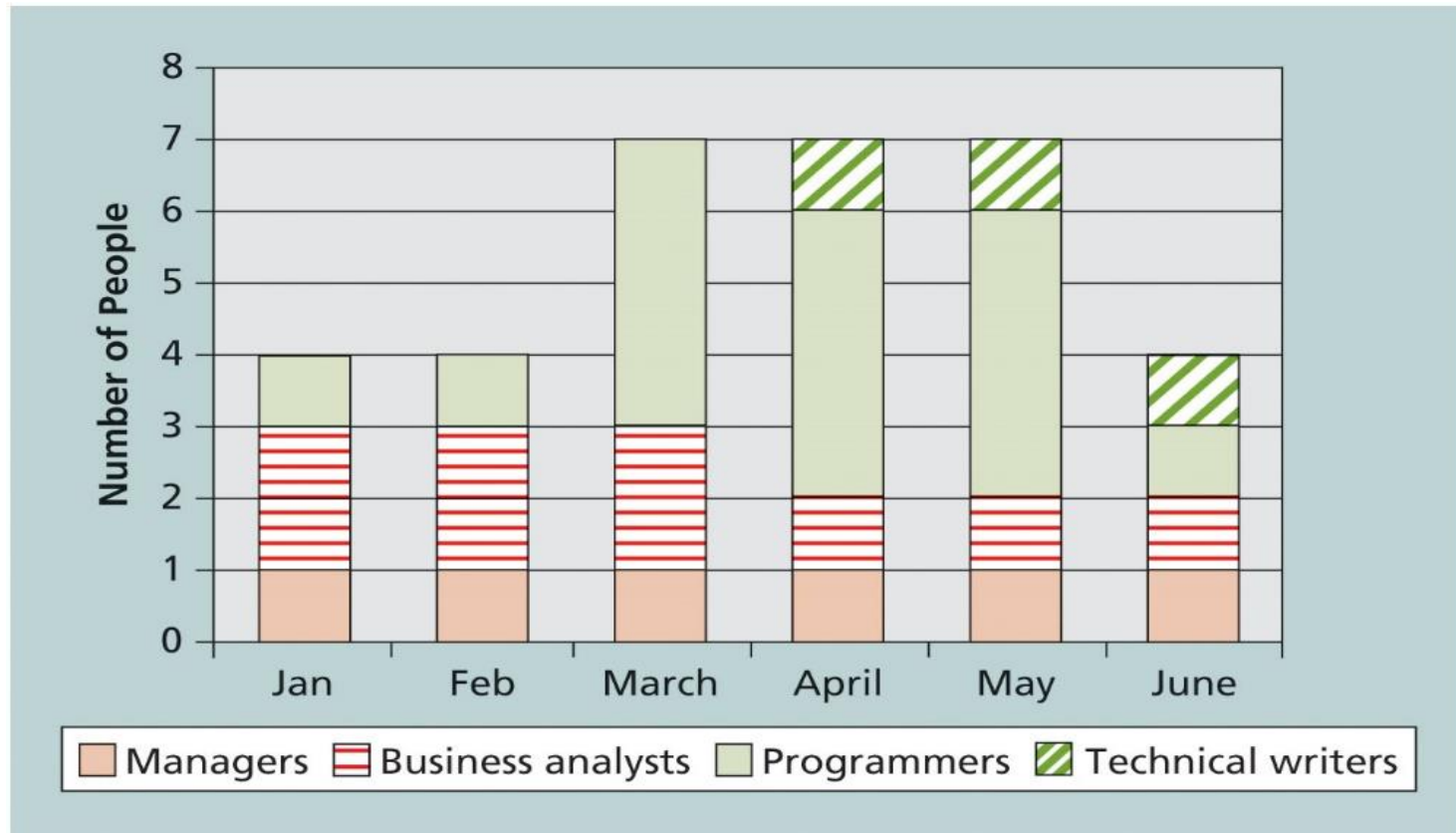


FIGURE 9-6 Sample resource histogram

Estimating Activity Resources

Tools that can assist in resource estimating

Expert judgment

Various estimating approaches

Data analysis

Project management software

Meetings

Resource Assignment

After developing resource requirements, project managers must work with other people in their organizations to assign them to their projects or to acquire additional human or physical resources needed for the project

Organizations that do a good job of staff acquisition have good staffing plans

It is very important to consider the needs of individuals and the organization when making recruiting and retention decisions

Best Practice

Best practices can be applied to include the best places for people to work

Fortune Magazine lists the “100 Best Companies to Work For” in the United States every year, with Google taking the honors for the eighth time in 2017

Working Mothers Magazine lists the best companies in the U.S. for women based on benefits for working families

The *Times online* provides the Sunday Times list of the “100 Best Companies to Work For,” a key benchmark against which U.K. companies can judge their performance as employers

Resource Loading (1 of 2)

Resource loading refers to the number of individual resources an existing schedule requires during specific time periods

Helps project managers develop a general understanding of the demands a project will make on the organization's resources and individual people's schedules

Overallocation means more resources than available are assigned to perform work at a given time

Resource Loading (2 of 2)

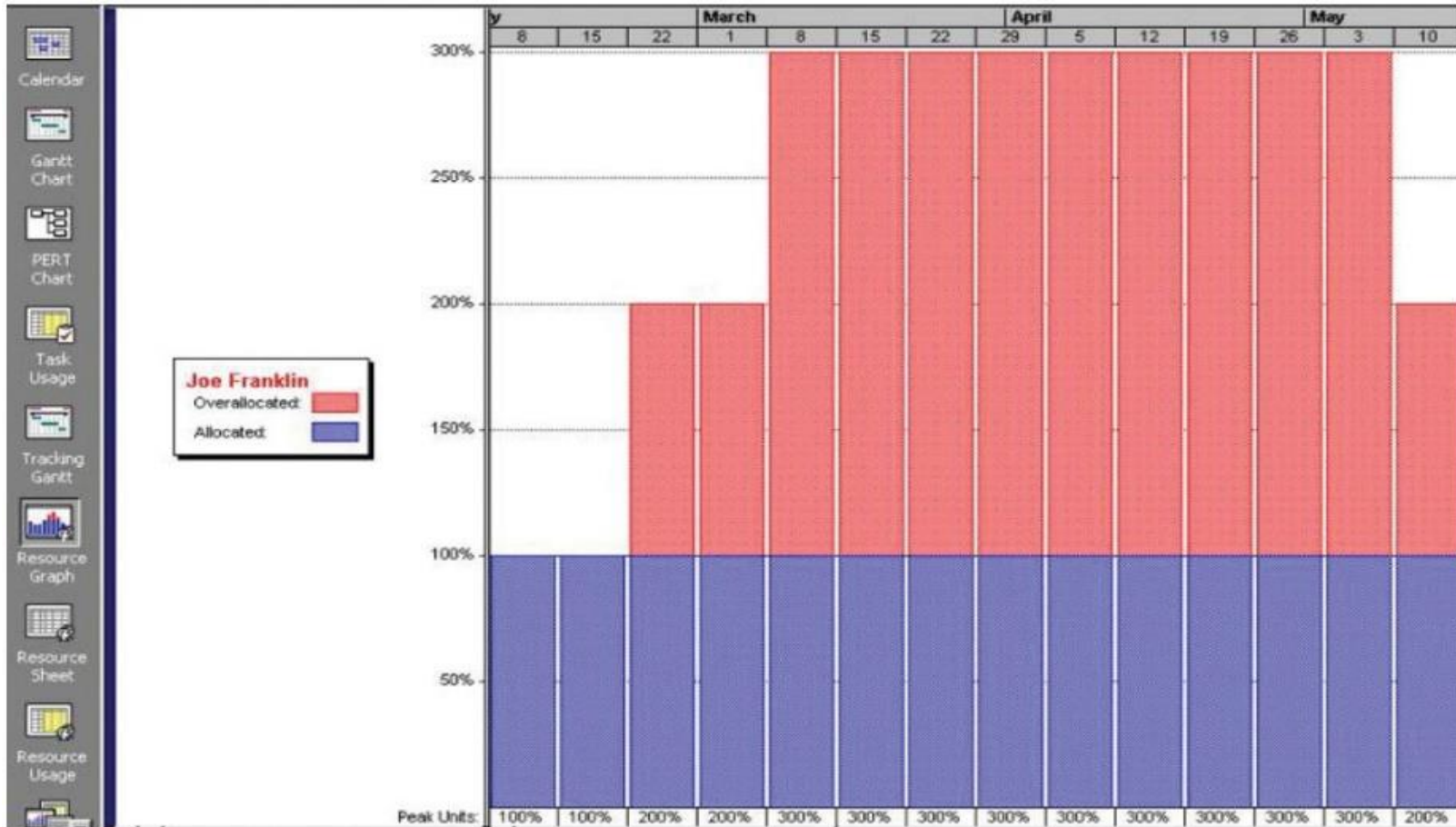


FIGURE 9-7 Sample histogram showing an overallocated person

Resource Leveling

Resource leveling is a technique for resolving resource conflicts by delaying tasks

Main purpose is to create a smoother distribution of resource usage

Benefits of resource leveling

- When resources are used on a more constant basis, they require less management
- May enable project managers to use a just-in-time inventory type of policy for using subcontractors or other expensive resources
- Results in fewer problems for project personnel and accounting department
- Often improves morale

The Social Styles Profile

- **Drivers** are proactive and task-oriented. They are firmly rooted in the present, and they strive for action. Adjectives to describe drivers include pushy, severe, tough, dominating, harsh, strong-willed, independent, practical, decisive, and efficient.
- **Expressive** are proactive and people-oriented. They are future-oriented and use their intuition to look for fresh perspectives on the world around them. Adjectives to describe expressive include manipulating, excitable, undisciplined, reacting, egotistical, ambitious, stimulating, wacky, enthusiastic, dramatic, and friendly.
- **Analytical** are reactive and task-oriented. They are past-oriented and strong thinkers. Adjectives to describe analytical include critical, indecisive, stuffy, picky, moralistic, industrious, persistent, serious, expecting, and orderly.
- **Amiables** are reactive and people-oriented. They think in terms of the present, past, or future depending on the situation, and they strongly value relationships. Adjectives to describe amiable include conforming, unsure, ingratiating, dependent, awkward, supportive, respectful, willing, dependable, and agreeable.

The Social Styles Profile

Psychologist David Merrill, who helped develop the Wilson Learning Social Styles Profile, describes people as falling into four approximate behavioral profiles, or zones, based on their assertiveness and responsiveness:

People are perceived as behaving primarily in one of four zones, based on their assertiveness and responsiveness

- Drivers
- Expressives
- Analyticals
- Amiables

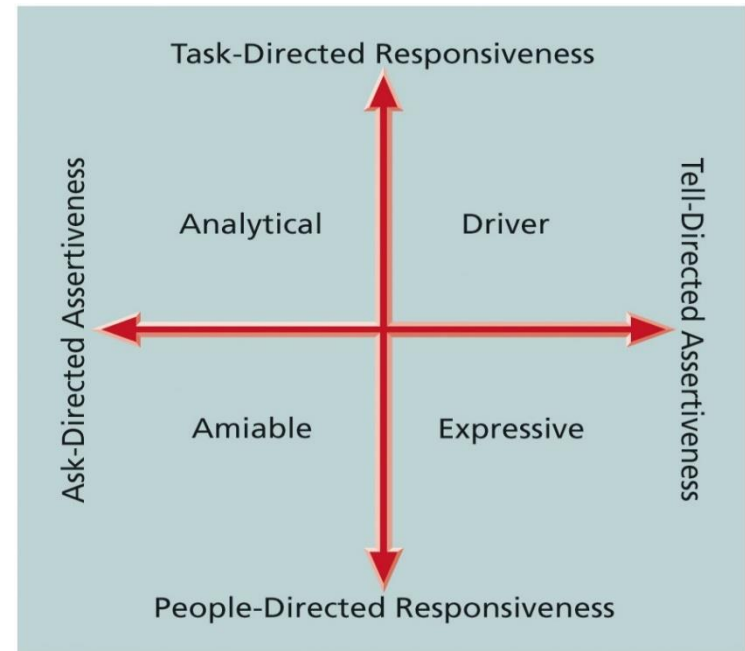


FIGURE 9-9 Social styles

shows these four social styles and their two main determinants: assertiveness and responsiveness. To determine your level of assertiveness, ask if you are more likely to tell people what to do or ask them what should be done. To determine your responsiveness to tasks, ask whether you focus on the task itself or on the people involved in performing the task.

DISC Profile

The DISC Profile is based on the 1928 work of psychologist William Moulton Marston.

Four-dimensional model of normal behavior

- Dominance
- Influence
- Steadiness
- Compliance

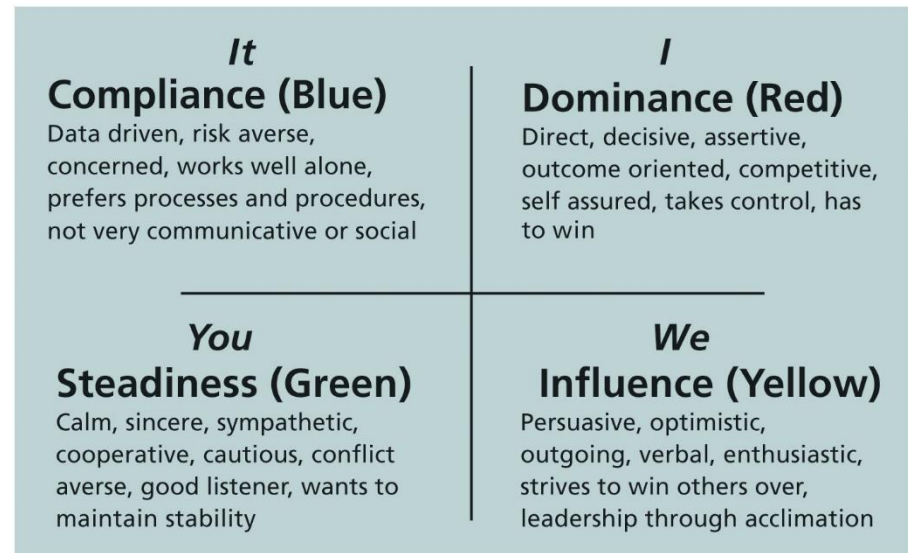


FIGURE 9-10 The DISC profile

The DISC Profile reveals people's behavioral tendencies under certain situations. For example, it reveals how you tend to behave under stress, in conflict, when communicating, and when avoiding certain activities.

DISC Profile

- *Dominance*: Represented by red and emphasizing “I,” dominance traits include being direct, decisive, assertive, outcome-oriented, competitive, self-assured, controlling, and wanting to win.
- *Influence*: Represented by yellow and emphasizing “We,” influence traits include being persuasive, optimistic, outgoing, verbal, enthusiastic, striving to win others over, and practicing leadership through acclimation.
- *Steadiness*: Represented by green and emphasizing “You,” steadiness traits include being calm, sincere, cautious, conflict averse, a good listener, and wanting to maintain stability.
- *Compliance*: Represented by blue and emphasizing “It,” compliance traits include being data driven, risk averse, concerned, working well alone, preferring processes and procedures, and not being very communicative or social.

Reward and Recognition Systems

Team-based reward and recognition systems can promote teamwork

Focus on rewarding teams for achieving specific goals

If management rewards teamwork, they will promote or reinforce the philosophy that people work more effectively in teams

Project managers must continually assess their team's performance

When they find areas in which individuals or the entire team can improve, it's their job to find the best way to develop their people and improve performance

Managing the Project Team

- Project managers must lead their teams in performing various project activities
- After assessing team performance and related information, the project manager must make several decisions
 - Changes to be requested
 - Corrective or preventive actions
 - Updates needed

Tools and Techniques

Several tools and techniques are available to assist in managing project teams :

- Interpersonal and team skills
- Project management information systems
- Conflict management

Tools and Techniques

Conflict handling modes:

- **Confrontation:** directly face a conflict using a problem-solving approach
- **Compromise:** use a give-and-take approach
- **Smoothing:** de-emphasize areas of difference and emphasize areas of agreement
- **Forcing:** win-lose approach
- **Withdrawal:** retreat or withdraw from an actual or potential disagreement
- **Collaborating:** decision makers incorporate different viewpoints and insights to develop consensus and commitment

Inputs on Managing Teams

- Five dysfunctions of teams
 - Absence of trust
 - Fear of conflict
 - Lack of commitment
 - Avoidance of accountability
 - Inattention to results

Inputs on Managing Teams

- General advice
 - Be patient and kind with your team
 - Fix the problem instead of blaming people
 - Establish regular, effective meetings
 - Allow time for teams to go through the basic team-building stages
 - Limit the size of work teams to three to seven members
 - Plan some social activities to help project team members and other stakeholders get to know each other better
 - Stress team identity
 - Nurture team members and encourage them to help each other
 - Acknowledge individual and group accomplishments
 - Take additional actions to work with virtual team members

Controlling Resources

- Ensuring physical resources assigned to the project are available as planned
 - Also involves monitoring the planned versus actual resources utilization and taking corrective actions as needed

Using Software to Assist in Resource Management

- Software can help in producing a simple responsibility assignment matrix or resource histograms
- Software includes several features related to human resource management
 - Assigning and tracking resources
 - Leveling resources
 - Resource usage reports
 - Overallocated resource reports
 - To-do lists

Considerations for Agile/Adaptive Environments

- Teams are important on all types of projects, as is collaboration, problem solving, and knowledge sharing
 - On agile projects, team members are usually fully dedicated to a single team.
 - Relationships are based on trust, and collaboration is continuously improved using regular feedback

Thank You