Chapter 09

Project Resource Management

erga

Project Management

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PM17 – PMP6 Certification

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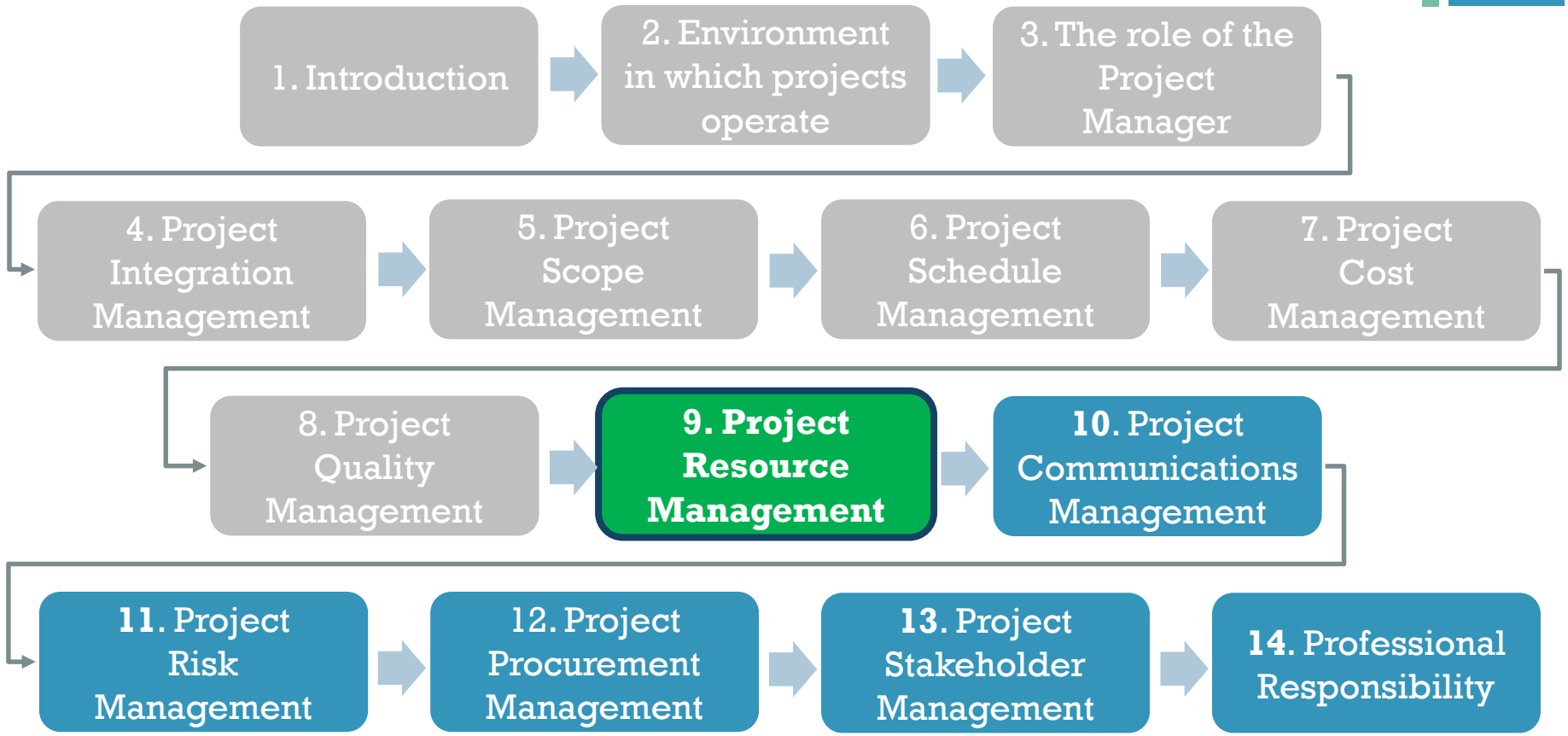
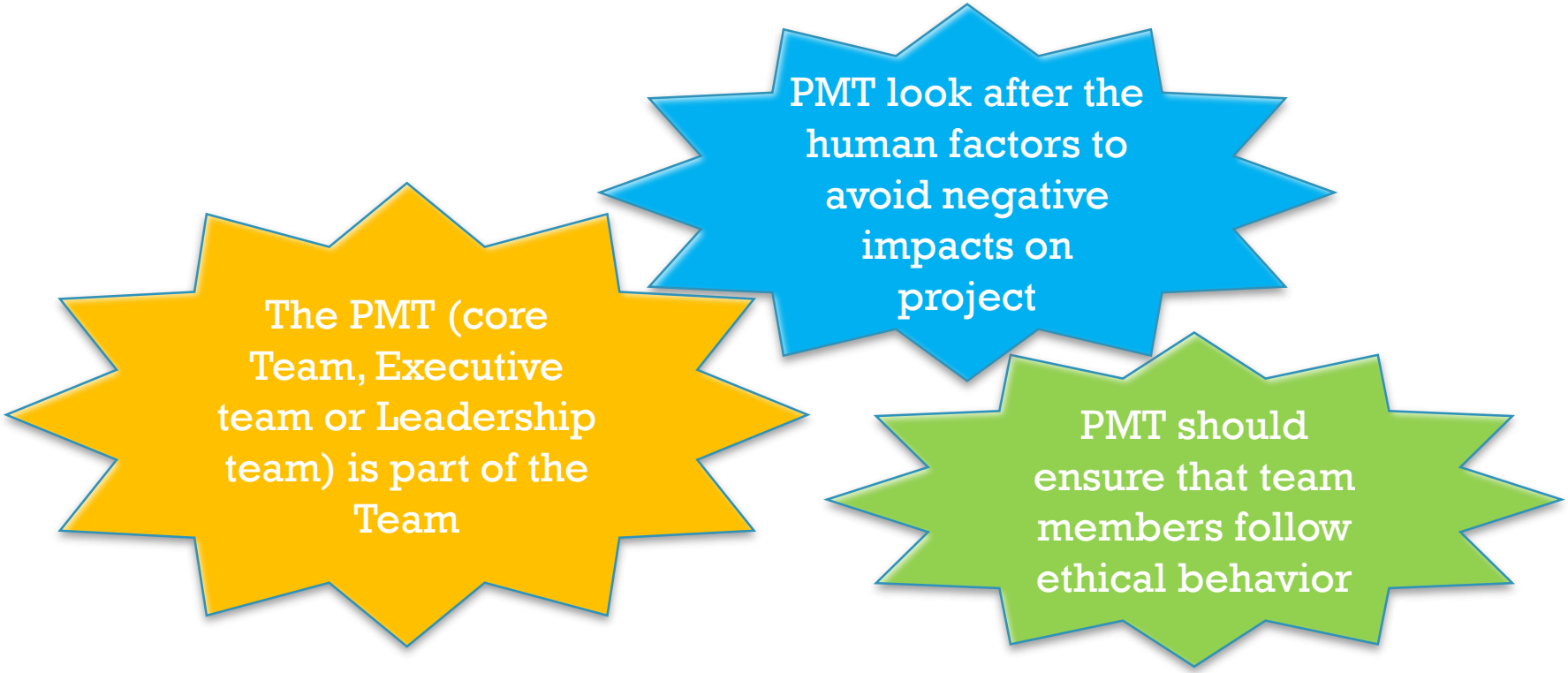
Plan


1. Introduction
2. Environment in which projects operate
3. The role of the Project Manager
4. Project Integration Management
5. Project Scope Management
6. Project Schedule Management
7. Project Cost Management
8. Project Quality Management
9. Project Resource Management
10. Project Communications Management
11. Project Risk Management
12. Project Procurement Management
13. Project Stakeholder Management
14. Professional Responsibility

Plan

Chapter 09- Project Resource Management

- **It includes the processes to identify, acquire, and manage the resources needed for the successful completion of the project.**



Plan

- Chapter 09- Project Resource Management
  - 9.1 Plan Resource Management
  - 9.2 Estimate Activity Resources
  - 9.3 Acquire Resources
  - 9.4 Develop Team
  - 9.5 Manage Team
  - 9.6 Control Resources

	Project Management Process Groups				
Knowledge Areas	Initiating	Planning	Executing	Monitoring & Controlling	Closing
9. Project Resource Management		9.1 Plan Resource Management 9.2 Estimate Activity Resources	9.3 Acquire Resources 9.4 Develop Team 9.5 Manage Team	9.6 Control resources	

Plan

Chapter 09- Project Resource Management

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

Chapter 09- Project Resource Management

The PT consists of individuals with assigned roles and responsibilities who work collectively to achieve a shared project goal. The PM should invest suitable effort in acquiring, managing, motivating, and empowering the PT.

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

Chapter 09- Project Resource Management

The PM should be both leader and manager of the PT and 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,
- Other factors that may alter project performance.

As a leader, the PM is also responsible for proactively developing team skills and competencies while retaining and improving team satisfaction and motivation. The PM should be aware of, and subscribe to, professional and ethical behavior, and ensure that all team members adhere to these behaviors.

Chapter 09- Project Resource Management

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.

For example:

- Failing to secure critical equipment or infrastructure on time may result in delays in the manufacturing of the final product,
- Ordering low-quality material may damage the quality of the product causing a high rate of recalls or rework, and
- Keeping too much inventory may result in high operations costs and reduce the organization's profit. Unacceptably low inventory level, on the other hand, may result in not satisfying customer demand and reduce the organization's profit.

Chapter 09- Project Resource Management

Project management styles are shifting away from a command and control structure for managing projects, toward a more collaborative and supportive management approach that empowers teams by delegating decision making to the team members.
In addition, modern project resource management approaches seek to optimize resource utilization. Trends and emerging practices for Project Resource Management include:

- **Resource management methods**. Due to the scarce nature of critical resources, in some industries, several trends have become popular in the past several years. There is extensive literature about lean management, just-in-time (JIT) manufacturing, Kaizen, total productive maintenance (TPM), theory of constraints (TOC), and other methods. A PM should determine if the performing organization has adopted one or more resource management tools and adapt the project accordingly.
- …

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- …
- **Emotional intelligence (EI)**. The PM should invest in personal EI by improving inbound (self-management and self-awareness) and outbound (relationship management) competencies. Research suggests that PTs that succeed in developing team EI or become an emotionally competent group are more effective.

- **Self-organizing teams**. The increase in using agile approaches mainly for the execution of IT projects has given rise to the self-organizing team, where the team functions with an absence of centralized control. In projects that have self-organizing teams, the PM (who may not be called a PM) role provides the team with the environment and support needed and trusts the team to get the job done. Successful self-organizing teams usually consist of generalized specialists, instead of subject matter experts, who continuously adapt to the changing environment and embrace constructive feedback.
- …

Chapter 09- Project Resource Management

- …
- **Virtual teams/distributed teams.** The globalization of projects has promoted the need for virtual teams that work on the same project, but are not colocated at the same site. The availability of communication technology such as email, audio conferencing, social media, web-based meetings, and video conferencing has made virtual teams feasible. Managing virtual teams has unique advantages, such as being able to use special expertise on a PT even when the expert is not in the same geographic area, incorporating employees who work from home offices, and including people with mobility limitations or disabilities. The challenges of managing virtual teams are mainly in the communication domain, including a possible feeling of isolation, gaps in sharing knowledge and experience between team members, and difficulties in tracking progress and productivity, possible time zone difference and cultural differences.

Chapter 09- Project Resource Management

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?

Chapter 09- Project Resource Management

Projects with high variability benefit from team structures that maximize focus and collaboration, such as self-organizing teams with generalizing specialists.

Collaboration is intended to boost productivity and facilitate innovative problem solving. Collaborative teams may facilitate accelerated integration of distinct work activities, improve communication, increase knowledge sharing, and provide flexibility of work assignments in addition to other advantages.

Although the benefits of collaboration also apply to other project environments, collaborative teams are often critical to the success of projects with a high degree of variability and rapid changes, because there is less time for centralized tasking and decision making.

Planning for physical and human resources is much less predictable in projects with high variability. In these environments, agreements for fast supply and lean methods are critical to controlling costs and achieving the schedule.

9.1 Plan Resource Management

Defining how to estimate, acquire, manage, and use team and physical resources.

- Resources may be within or outside the organization.
- In Projects, *"People are the most important assets & people make the difference…"*

9.1 Plan Resource Management

- Team members commonly complain about the lack of defined roles and responsibilities on a project.
- Making sure roles and responsibilities are clear is called Human Resource Planning.
- Project work often includes more than just completing work packages, it may include assisting with risk and quality activities.

9.1 Plan Resource Management

Inputs	Tools & Techniques	Outputs
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**	**1. Expert Judgment** **2. Data representation** • Hierarchical charts • Responsibility assignment matrix • Text-oriented formats **3. Organizational theory** 4. Meetings	**1. Resource management plan** **2. Team charter** 3. Project documents updates • Assumption log • Risk register

9.1 Plan Resource Management

4. Enterprise Environmental Factors

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

5. Organizational Process Assets

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

9.1 Plan Resource Management

1. Expert judgment

Expertise should be considered from individuals or groups with specialized knowledge or training in the following topics:

- Negotiating for the best resources within the organization;
- Talent management and personnel development;
- Determining the preliminary effort level needed to meet project objectives;
- Determining reporting requirements based on the organizational culture;
- Estimating lead times required for acquisition, based on lessons learned and market conditions;
- Identifying risks associated with resource acquisition, retention, and release plans;
- Complying with applicable government and union regulations;
- Managing sellers and the logistics effort to ensure materials and supplies are available when needed.

9.1 Plan Resource Management

2. Data representation

Various formats exist to document and communicate team member roles and responsibilities. the objective is to ensure that each work package has an unambiguous owner and that all team members have a clear understanding of their roles and responsibilities. A hierarchical format may be used to represent high-level roles, while a text-based format may be better suited to document the detailed responsibilities

- **Hierarchical charts**. The traditional organizational chart structure can be used to show positions and relationships in a graphical, top-down format.
  - **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.

9.1 Plan Resource Management

2. Data representation (cont'd)

- **Organizational breakdown structure (OBS)**. 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 IT or purchasing, can see all of its project responsibilities by looking at its portion of the OBS.
- **Resource breakdown structure (RBS)**. The RBS 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 WBS to allow the work to be planned, monitored, and controlled.

9.1 Plan Resource Management

2. Data representation (cont'd)

- **Responsibility Assignment Matrix (RAM).** A RAM shows the project resources assigned to each work package. It is used to illustrate the connections between work packages, or activities, and PT members. On larger projects, RAMs can be developed at various levels. The matrix format shows all activities associated with one person and all people associated with one activity. This also ensures that there is only one person accountable for any one task to avoid confusion about who is ultimately in charge or has authority for the work.
  - One example of a RAM is a **RACI** (responsible, accountable, consult, and inform) chart. The PM can select other options, such as "lead" and "resource" designations, as appropriate for the project.
  - A RACI chart is a useful tool to use to ensure clear assignment of roles and responsibilities when the team consists of internal and external resources.

9.1 Plan Resource Management

Input → Tools & Techniques → Output

2. Data representation (cont'd)
Responsibility Assignment Matrix using a RACI Format

RACI Chart	Person				
Activity	Ann	Ben	Carlos	Dina	Ed
Define	A	R	I	I	I
Design	I	A	R	C	C
Develop	I	A	R	C	C
Test	A	I	I	R	I

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

9.1 Plan Resource Management

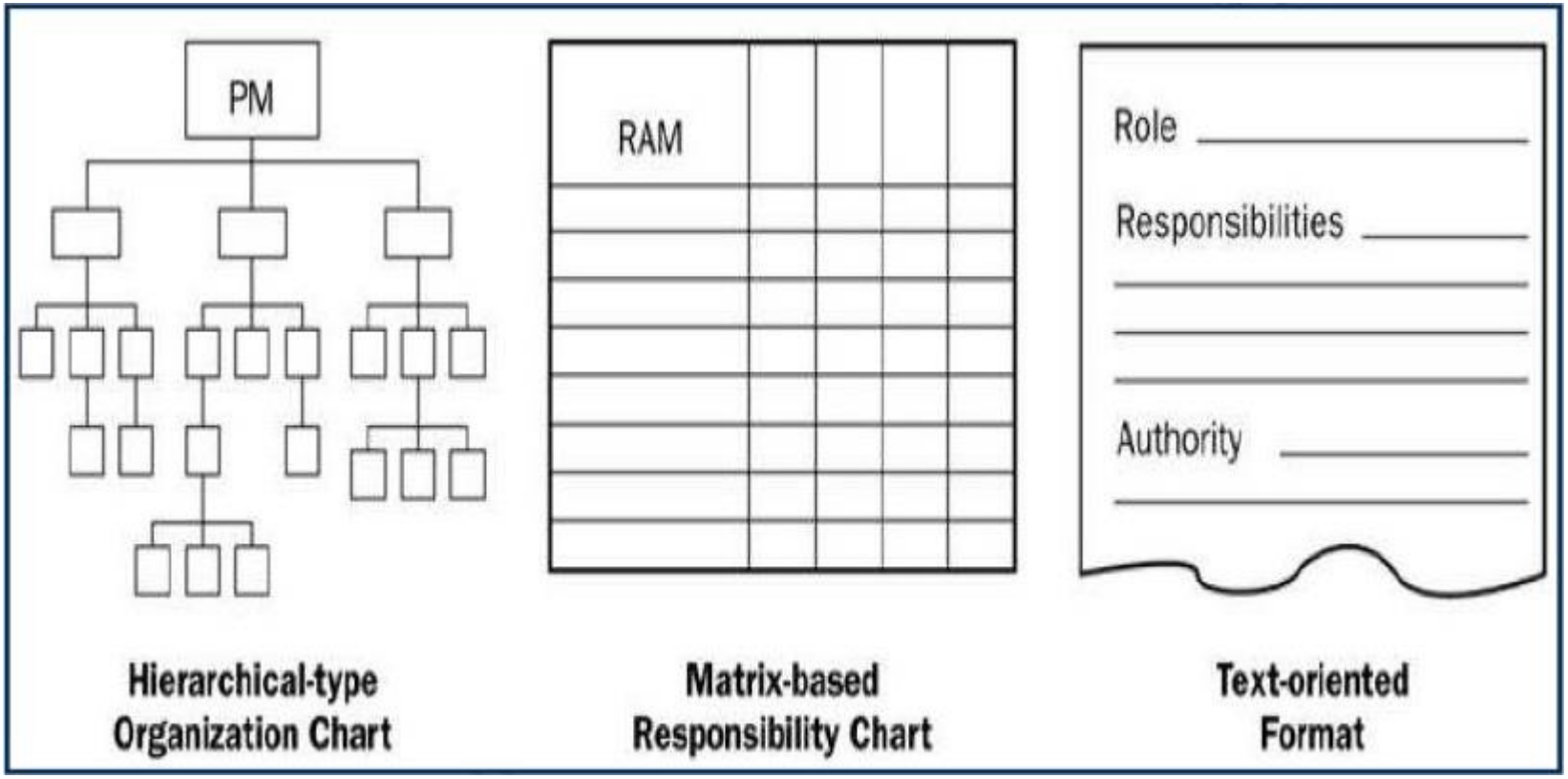
2. Data representation (cont'd)

- **Text-oriented formats.** Team member responsibilities that require detailed descriptions can be specified in text-oriented formats. Usually in outline form, these documents provide information such as responsibilities, authority, competencies, and qualifications.
  - The documents are known by various names including position descriptions and role-responsibility-authority forms.
  - These documents can be used as templates for future projects, especially when the information is updated throughout the current project by applying lessons learned.

9.1 Plan Resource Management

Input → **Tools & Techniques** → Output

2. Data representation (cont'd) (Roles and responsibility Formats)



9.1 Plan Resource Management

3. Organizational theory

Organizational theory provides information regarding the ways that people, teams, and organizational units behave.

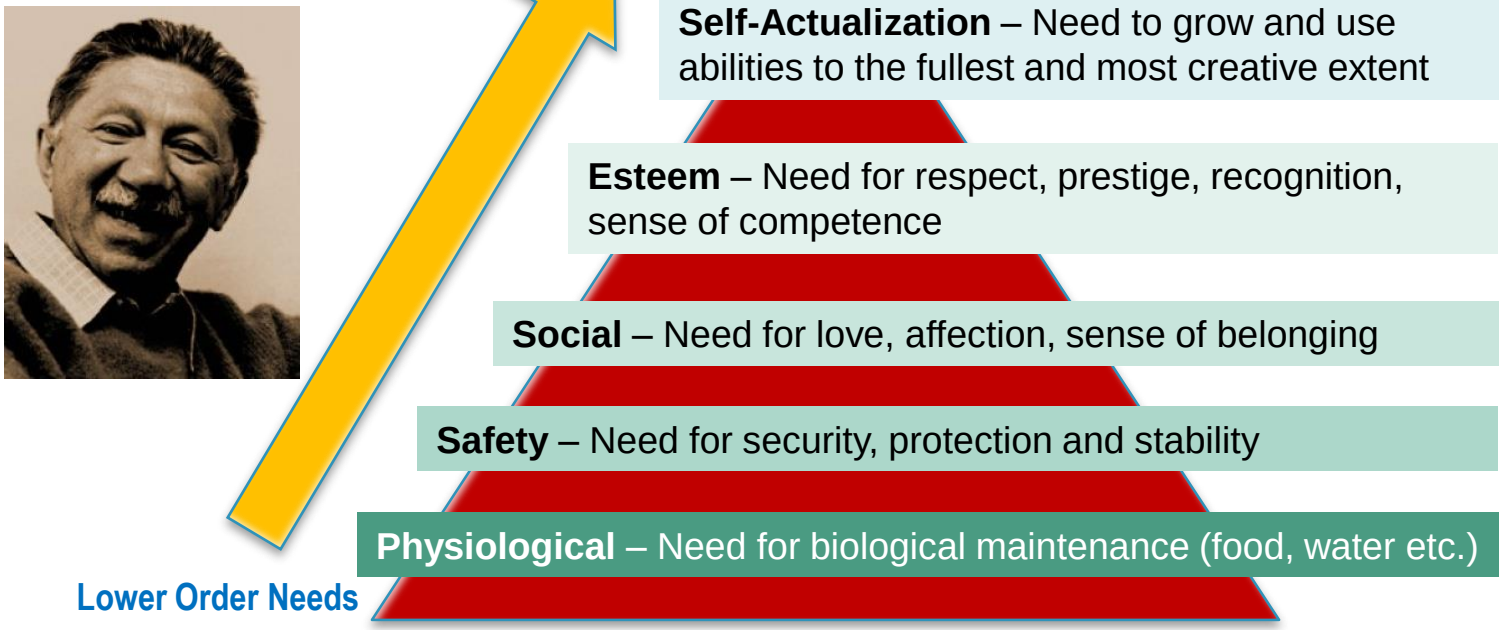
- Applying proven principles shortens the amount of time needed to create the Resources Planning outputs and improves the likelihood that the planning will be effective.

9.1 Plan Resource Management

Input → Tools & Techniques → Output

3. Organizational theory (cont'd)

Motivational Theories: Maslow's Hierarchy of Needs



Psychologist Abraham Maslow first introduced his concept of a hierarchy of needs in his 1943 paper '*A Theory of Human Motivation'* and his subsequent book, *Motivation and Personality*.

9.1 Plan Resource Management

Input → **Tools & Techniques** → Output

3. Organizational theory (cont'd)

Motivational Theories: Herzberg's Theory

Classifies factors into Motivating agents and Hygiene factors.

Motivating Agents:

What motivates people is the work itself, including such things as:

- Responsibility
- Self-actualization
- Professional growth
- Recognition
- Appreciation of work
- Education
- (Other than financial rewards)

Frederick Herzberg performed studies to determine which factors in an employee's work environment caused satisfaction and dissatisfaction. The findings were published in his 1959 book *The Motivation to Work*

9.1 Plan Resource Management

Input → **Tools & Techniques** → Output

3. Organizational theory (cont'd)

Motivational Theories: Herzberg's Theory (cont'd)

Hygiene Factors: Expectation of all workers

Example of Hygiene factors:

- Clean and safe working conditions
- Salary
- Sense of belonging
- relationship at work
- Job security
- Status

(*Poor hygiene factors may destroy motivation but improving them will not improve motivation.*)

9.1 Plan Resource Management

Input → Tools & Techniques → Output

3. Organizational theory (cont'd)

Motivational Theories: Expectancy Theory

Victor Vroom stated that performance and motivation must be linked. He created three variables:

Victor Vroom

Expectancy: is the belief that increased effort will lead to increased performance i.e. if I work harder then this will be better. This is affected by such things as :

- Having the right resources available (e.g. raw materials, time).
- Having the right skills to do the job.
- Having the necessary support to get the job done.

Valence: is the importance the individual places upon the expected outcome. For example, "If I am mainly motivated by money, I might not care about offers of 'compensation' time".

Instrumentality: is the belief that if you perform well, a valued outcome will be received; i.e. "If I do a good job, there is reward or recognition I can receive".

9.1 Plan Resource Management

Input → **Tools & Techniques** → Output

3. Organizational theory (cont'd)

Motivational Theories: Expectancy Theory (Application)

The implication of Vroom's expectancy theory is that people change their **level** of effort according to the value they place on the bonus they receive from the process.

Victor Vroom

So, if someone perceives that any one of these is true:

- My increased effort will not increase my performance.
- My increased performance will not increase my rewards.
- I don't value the rewards on offer.

… then Vroom's expectancy theory suggests that this individual will not be motivated. This means that even if an organization achieves two out of three, that employee would still not be motivated, all three are required for positive motivation.

9.1 Plan Resource Management

Input → Tools & Techniques → Output

3. Organizational theory (cont'd)

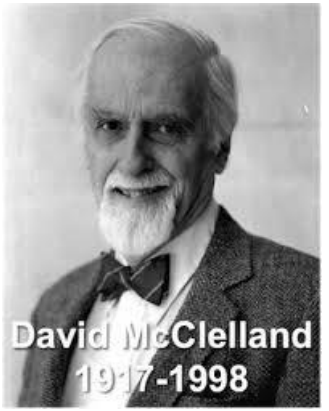
Motivational Theories: McClelland's Achievement Theory

➢n-ach-achievement motivation

The n-ach person is '**achievement motivated**' and therefore seeks achievement, attainment of realistic but challenging goals, and advancement in the job. There is a strong need for feedback as to achievement and progress, and a need for a sense of accomplishment. They prefer either to work alone or with other high achievers.

➢n-pow-authority/power motivation

The n-pow person is 'authority motivated'. This driver produces a need to be influential, effective and to make an impact. There is a strong need to lead and for their ideas to prevail. There is also motivation and need towards increasing personal status and prestige.



➢n-affil-affiliation motivation

The n-affil person is 'affiliation motivated', and has a need for friendly relationships and is motivated towards interaction with other people. They need harmonious relationships with other people and need to feel accepted by other people. These people are team players. They tend to conform to the norms of their work group.

9.1 Plan Resource Management

3. Organizational theory (cont'd)

Motivational Theories: Achievement Theory (comparison)

n-ACH	n-POW	n-AFF
HIGH Must win at any cost Must be on top and Receive credit	HIGH Desires control of every one and everything Exaggerates own position and resources	HIGH Demands blind Loyalty and Harmony Does not tolerate disagreement
LOW Fears Failure Avoids Responsibility	LOW Dependent/Subordinate Minimizes own position and resources	LOW Remains Aloof Maintains social distance

9.1 Plan Resource Management

Input → **Tools & Techniques** → Output

3. Organizational theory (cont'd)

Motivational Theories: McGreogor's Theory of X and Y

This theory states that management assumes there are TWO types of workers, good and bad:

1. **X, the bad**. Management assumes employees are inherently lazy and will avoid work if they can. They inherently dislike work. Because of this, workers need to be closely supervised and comprehensive systems of controls developed. According to this theory, employees will show little ambition and will avoid responsibility whenever they can.
2. **Y, the good**. Management assumes employees may be ambitious and self-motivated and exercise self-control. It is believed that:
   - Employees possess the ability for creative problem solving and their talents are underuse in most organizations.
   - Employees will learn to seek out and accept responsibility and to exercise self-control and self-direction in accomplishing objectives to which they are committed.

Douglas McGregor

9.1 Plan Resource Management

Input → **Tools & Techniques** → Output

3. Organizational theory (cont'd)

Motivational Theories: Ouchi Theory Z

Here, Ouchi describes the art of Japanese management and shows how it can be adapted to American companies.

Theory Z focuses on increasing employee loyalty to the company by:

- Providing a job for life.
- a strong focus on the well-being of the employee, both on and off the job.

Theory Z management tends to promote:

- Stable employment.
- High productivity.
- High employee morale and satisfaction.

Dr. William Ouchi

9.1 Plan Resource Management

Input → **Tools & Techniques** → Output

3. Organizational theory (cont'd)

Motivational Theories: Intrinsic & Extrinsic Motivation

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

Extrinsic motivation causes people to do something for a reward or to avoid a penalty. A behavior that is driven by external rewards such as money, fame, grades, and praise. This type of motivation arises from outside the individual, as opposed to intrinsic motivation, which originates inside of the individual.

For example, some children take piano lessons for intrinsic motivation (they enjoy it) while others take them for extrinsic motivation (to get a reward or avoid punishment)

9.1 Plan Resource Management

Input → **Tools & Techniques** → Output

3. Organizational theory (cont'd)

Motivational Theories (cont'd)

What is: "HALO EFFECT" ?

This can mean, **"You are a great programmer. Therefore, we will make you a PM and also expect you to be great."**

The Halo effect is a cognitive bias in which an observer's overall impression of a person, company, brand or product influences the observer's feelings and thoughts about that entity's character or properties.

"The tendency for an impression created in one area to influence opinion in another area."

9.1 Plan Resource Management

Input → **Tools & Techniques** → Output

3. Organizational theory (cont'd)

Motivational Theories (cont'd)

Perquisites (perks):

Employees receive special awards such as assigned parking spaces, corner offices,…

Fringe Benefits:

An extra benefit supplementing an employee's money wage or salary, for example a company car, private health care, education benefits, insurance, profit sharing.

9.1 Plan Resource Management

Input → **Tools & Techniques** → Output

3. Organizational theory (cont'd)

Situational Leadership

The situational leadership model was developed by Paul Hersey and Ken Blanchard in the 1960s and is sometimes called the '*situational continuum*'.

Paul Hersey

In this model:

- The manager will apply more influence and direction to manage inexperienced employees.
- The manager moves from a directing approach (telling the employee exactly what to do) to a delegating approach (the employee knows the job, does the job, needs very little guidance, and will engage the manager when needed).

Ken Blanchard

9.1 Plan Resource Management

3. Organizational theory (cont'd)

Situational Leadership (cont'd)

Mature/ Capable

Delegating Leaders are still Involved in decisions and problem solving, but control is with the followers. The follower decides when and how the leader will be involved.

Supporting/Participating Leaders pass day-to-day decisions, such as task allocation and processes ,to the followers. The leader facilitates but the control is with the followers.

Coaching/Selling Leaders still define roles and tasks, but seek ideas and suggestions from the followers. Communication is much more two-way.

Directing/ Telling Leaders define the roles and tasks of the 'follower' and supervise them closely. Decisions are made by the leader and announced to the followers

Immature/ Willing to learn

9.1 Plan Resource Management

1. Resource Management Plan

It is the component of the PMP that provides guidance on how project resources should be categorized, allocated, managed, and released. It may be divided between the *team management plan* and *physical resource management plan* according to the specifics of the project. The resource management plan may include:

- **Identification of resources**. Methods for identifying and quantifying team and physical resources needed.
- **Acquiring resources**. Guidance on how to acquire team and physical resources for the project.
- **Project organization charts.** A project organization chart is a graphic display of PT members and their reporting relationships. It can be formal or informal, highly detailed or broadly framed, based on the needs of the project.
- …

9.1 Plan Resource Management

1. Resource Management Plan (cont'd)

- …
- **PT resource management.** Guidance on how PT resources should be defined, staffed, managed, and eventually released.
- **Training.** Training strategies for team members.
- **Team development.** Methods for developing the PT.
- **Resource control.** Methods for ensuring adequate physical resources are available as needed and that the acquisition of physical resources is optimized for project needs. Includes information on managing inventory, equipment, and supplies during throughout the project life cycle.
- **Recognition plan.** Which recognition and rewards will be given to team members, and when they will be given.
- …

9.1 Plan Resource Management

1. Resource Management Plan (cont'd)

- …
- **Roles and responsibilities**:
  - ***Role***. The function assumed by, or assigned to, a person in the project.
  - ***Authority***. The rights to apply project resources, make decisions, sign approvals, accept deliverables, and influence others to carry out the work of the project. Team members operate best when their individual levels of authority match their individual responsibilities.
  - ***Responsibility***. The assigned duties and work that a PT member is expected to perform in order to complete the project's activities.
  - ***Competence***. The skill and capacity required to complete assigned activities within the project constraints. If PT members do not possess required competencies, performance can be jeopardized. When such mismatches are identified, proactive responses such as training, hiring, schedule changes, or scope changes are initiated.

9.1 Plan Resource Management

1. Resource Management Plan (cont'd)

- **Responsibilities of the PM** (Not limited to)
  - ✓ Planning, scheduling, and estimating
  - ✓ Performance, cost, and trend analysis
  - ✓ Progress reporting
  - ✓ Maintaining client / consultant relationship
  - ✓ Integration management (identify, document, communicate, monitor personnel, organizational and system interfaces related to the project etc.)
- **Roles of the PM**
  - ✓ Integrator
  - ✓ Communicator
  - ✓ Leader
  - ✓ Decision Maker
  - ✓ Problem Solver

9.1 Plan Resource Management

1. Resource Management Plan (cont'd)

- **Team Responsibility** (Not limited to)
  - ✓ Identify & involve stakeholders.
  - ✓ Identify requirements.
  - ✓ Identify risks.
  - ✓ Provide time & cost estimates.
  - ✓ Attend Team meetings.
  - ✓ Create WBS.
  - ✓ Conduct Process Improvement.
  - ✓ Recommend changes.
  - ✓ Execute the PMP.
  - ✓ Project management team assists PM in providing management oversight within the project.

9.1 Plan Resource Management

1. Resource Management Plan (cont'd)

- **Project Sponsor's Responsibilities** (Not limited to)
  - ✓ Provide financial resource to the project.
  - ✓ Give the PM authority as outlined in the Project charter.
  - ✓ Determine the priorities between constraints.
  - ✓ Protect & Prevent the Project charter from un-necessary changes.
  - ✓ Provide final approval / acceptance.
  - ✓ Ensure project buy-in throughout the organization.
  - ✓ Provide funding.
  - ✓ Set priorities between projects.
  - ✓ Approve the PMP.

9.1 Plan Resource Management

2. Team Charter

The team charter is a document that establishes the team values, agreements, and operating guidelines for the team. The team charter may include:

- Team values,
- Communication guidelines,
- Decision-making criteria and process,
- Conflict resolution process,
- Meeting guidelines,
- Team agreements.

9.1 Plan Resource Management

2. Team Charter (cont'd)

The ***team charter*** establishes clear expectations regarding acceptable behavior by PT members. Early commitment to clear guidelines decreases misunderstandings and increases productivity. Discussing areas such as codes of conduct, communication, decision making, and meeting etiquette allows team members to discover values that are important to one another.

- The team charter works best when the team develops it, or at least has an opportunity to contribute to it.
- All PT members share responsibility for ensuring the rules documented in the team charter are followed.
- The team charter can be reviewed and updated periodically to ensure a continued understanding of the team ground rules and to orient and integrate new team members.

9.2 Estimate Activity Resources

Estimating team resources and the type and quantities of materials, equipment, and supplies necessary to perform project work.

The term resources in this case does not mean just people; it means all the physical resources required to complete the project.

- People
- Equipment
- Materials

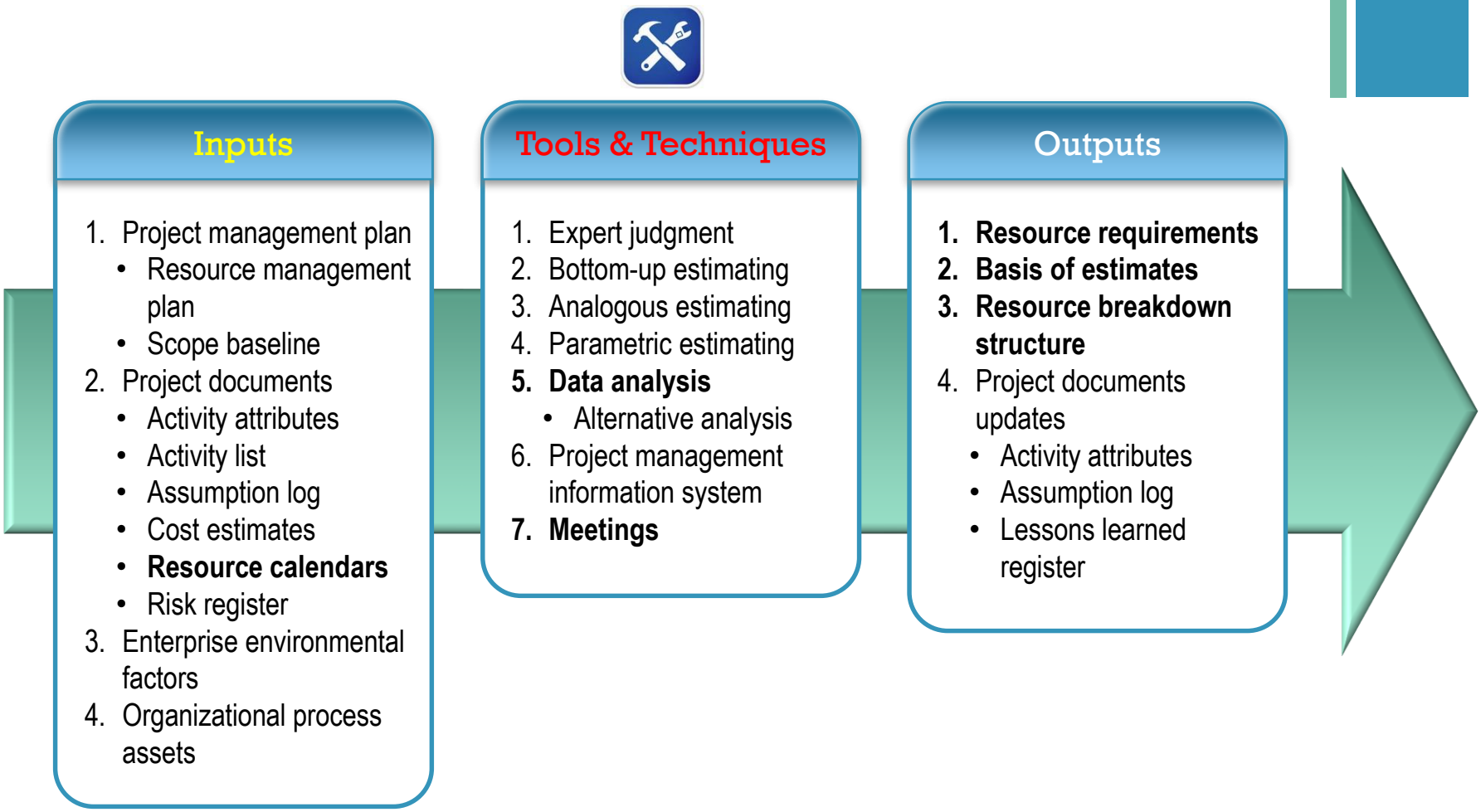
All projects, from the smallest to the largest, require resources.

9.2 Estimate Activity Resources

Exam focus

- Historical information from past projects is a key to improving Estimates.
- "Padding" is not an acceptable project management practice
- Estimating must be kept realistic through the life of the project by re-estimating and reviewing them periodically.
- The PM has a professional responsibility to provide estimates that are as accurate as feasible and to maintain the integrity of those estimates throughout the life of the project

9.2 Estimate Activity Resources



9.2 Estimate Activity Resources

2. Project documents

❖ **Resource Calendars**

A resource calendar identifies the working days, shifts, start and end of normal business hours, weekends, and public holidays when each specific resource is available. Information on which resources (such as team resource, equipment, and material) are potentially available during a planned activity period is used for estimating resource utilization.

- Resource calendars also specify when, and for how long, identified team and physical resources will be available during the project.
- This information may be at the activity or project level.
- This includes consideration of attributes such as resource experience and/or skill level, as well as various geographical locations.

9.2 Estimate Activity Resources

5. Data analysis

It includes **alternatives analysis** used to evaluate identified options in order to select the options or approaches to use to execute and perform the work of the project.

- Many activities have multiple options for accomplishment. They include using various levels of resource capability or skills, different sizes or types of machines, different tools (manual versus automated), and make-rent-or-buy decisions regarding the resources.
- Alternatives analysis assists in providing the best solution to perform the project activities, within the defined constraints.

7. Meetings

The PM may hold planning meetings with functional managers to estimate the resources needed per activity, level of effort (LoE), skill level of the team resources, and the quantity of the materials needed. Participants may include the PM, the sponsor, selected PT members, selected stakeholders, and others as needed.

9.2 Estimate Activity Resources

1. Resource Requirements

Resource requirements identify the types and quantities of resources required for each work package or activity in a work package and can be aggregated to determine the estimated resources for each work package, each WBS branch, and the project as a whole.

- The amount of detail and the level of specificity of the resource requirement descriptions can vary by application area.
- The documentation can include assumptions that were made in determining which types of resources are applied, their availability, and what quantities are needed.

9.2 Estimate Activity Resources

2. Basis of estimates

Supporting detail for resource estimates may include:

- Method used to develop the estimate,
- Resources used to develop the estimate (such as information from previous similar projects),
- Assumptions associated with the estimate,
- Known constraints,
- Range of estimates,
- Confidence level of the estimate, and
- Documentation of identified risks influencing the estimate.

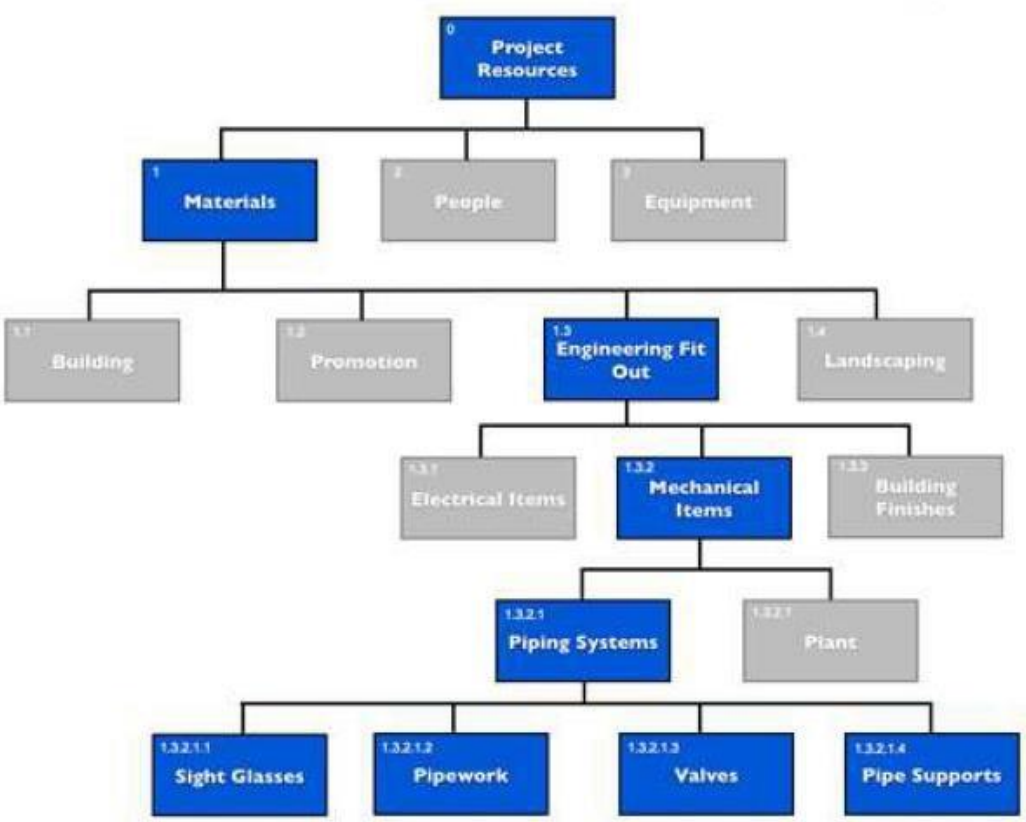
9.2 Estimate Activity Resources

Input → Tools & Techniques → Output

3. Resource Breakdown Structure (RBS)

A **(RBS)** is a hierarchical structure of the identified resources by resource category and resource type.

- Examples of resource **categories** include: labor, material, equipment and supplies, etc.
- Resource **types** may include the skill level, grade level, required certifications, etc.



9.3 Acquire Resources

Obtaining team members, facilities, equipment, materials, supplies, and other resources necessary to complete project work.

- Resources may be within or outside the organization.
- Internal resources are acquired (assigned) from functional or resource managers.
- External resources are acquired through the procurement processes
- In Projects, "***People are the most important assets & people make the difference…***"
- Four types of Team:
  - dedicated
  - part-time
  - partnership
  - Virtual

9.3 Acquire Resources

It is important that the following factors are considered during the process of acquiring the project resources:

- The PM or PT should effectively negotiate and influence others who are in a position to provide the required team and physical resources for the project.
- Failure to acquire the necessary resources for the project may affect project schedules, budgets, customer satisfaction, quality, and risks. Insufficient resources or capabilities decrease the probability of success and, in a worst-case scenario, could result in project cancellation.
- If the team resources are not available due to constraints such as economic factors or assignment to other projects, the PM or PT may be required to assign alternative resources, perhaps with different competencies or costs. Alternative resources are allowed provided there is no violation of legal, regulatory, mandatory, or other specific criteria.

9.3 Acquire Resources

Inputs

1. Project management plan
   - Resource management plan
   - Procurement management plan
2. Project documents
   - Project schedule
   - Resource calendars
   - Resource requirements
   - Stakeholder register
3. Enterprise environmental factors
4. Organizational process assets

Tools & Techniques

1. **Decision making**
   - Multicriteria decision analysis
2. **Interpersonal and team skills**
   - Negotiation
3. **Pre-assignment**
4. **Virtual teams**

Outputs

1. **Physical resource assignments**
2. **PT assignments**
3. Resource calendars
4. Change requests
5. Project management plan updates
   - Resource management plan
   - Cost baseline
6. Project documents updates
7. Enterprise environmental factors updates
8. Organizational process assets updates

9.3 Acquire Resources

1. Decision making

Selection criteria are often used to select physical project resources, or the PT. Using a ***multicriteria decision analysis*** tool, criteria are developed and used to rate or score potential resources (for example, choosing between internal and external team resources). The criteria are weighted according to their relative importance and values can be changed for different types of resources.

Some examples of selection criteria that can be used are:

- **Availability**. Verify that the resource is available to work on the project within the time period needed.
- **Cost**. Verify if the cost of adding the resource is within the prescribed budget.
- **Ability**. Verify that the team member provides the capability needed by the project…

9.3 Acquire Resources

1. Decision making (cont'd)

Some selection criteria that are unique for team resources are:

- **Experience**. Verify that the team member has the relevant experience that will contribute to the project success.
- **Knowledge**. Consider if the team member has relevant knowledge of the customer, similar implemented projects, and nuances of the project environment.
- **Skills**. Determine if the team member has the relevant skills to use a project tool.
- **Attitude**. Determine if the team member has the ability to work with others as a cohesive team.
- **International factors**. Consider team member location, time zone, and communication capabilities.

9.3 Acquire Resources

2. Interpersonal and team skills

Many projects need to negotiate for required resources. The PMT may need to negotiate with:

- **Functional managers**. Ensure that the project receives the best resources possible in the required timeframe and until their responsibilities are complete.
- **Other project management teams** within the performing organization. Appropriately assign or share scarce or specialized resources.
- **External organizations and suppliers**. Provide appropriate, scarce, specialized, qualified, certified, or other specific team or physical resources. Special consideration should be given to external negotiating policies, practices, processes, guidelines, legal, and other such criteria.

9.3 Acquire Resources

3. Pre-assignment

When physical or team resources for a project are determined in advance, they are considered pre-assigned.

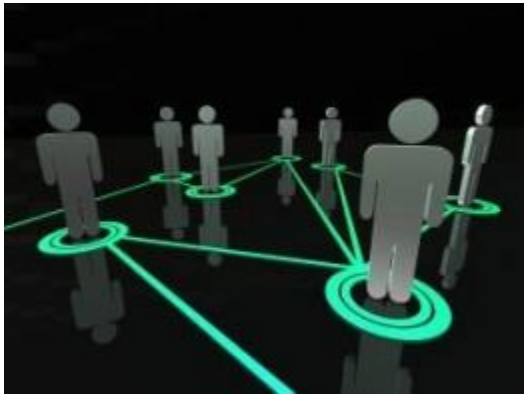
- This situation can occur if the project is the result of specific resources being identified as part of a competitive proposal or if the project is dependent upon the expertise of particular persons.
- Pre-assignment might also include the team members who have already been assigned in *Develop Project Charter* Process or other processes before the initial Resource Management Plan has been completed.

9.3 Acquire Resources

Input → **Tools & Techniques** → Output

4. Virtual Teams

The use of virtual teams creates new possibilities when acquiring team members. A **virtual team** (geographically dispersed team, distributed team, or remote team) usually refers to a group of individuals who work together from different geographic locations and rely on communication technology such as email, video or voice conferencing services in order to collaborate.



- Form teams of people from the same organization who live in widespread geographic areas;
- Add special expertise to a PT even though the expert is not in the same geographic area;
- Incorporate employees who work from home offices;
- Form teams of people who work different shifts, hours, or days;
- Include people with mobility limitations or disabilities;
- Move forward with projects that would have been held or canceled due to travel expenses;
- Save the expense of offices and all physical equipment needed for employees.

9.3 Acquire Resources

1. Physical resource assignments

Documentation of the physical resource assignments records the material, equipment, supplies, locations, and other physical resources that will be used during the project.

2. Project Team assignments

Documentation of team assignments records the team members and their roles and responsibilities for the project. Documentation can include a PT directory and names inserted into the PMP, such as the project organization charts and schedules.

9.4 Develop Team

Improving competencies, team member interaction, and the overall team environment to enhance project performance.

Efforts have greater benefit when conducted early, but should take place throughout the project life cycle.

Improve skills of team members in order to increase their ability to complete project activities

9.4 Develop Team

Inputs

1. Project management plan
   - Resource management plan
2. Project documents
   - Lessons learned register
   - Project schedule
   - PT assignments
   - Resource calendars
   - Team charter
3. Enterprise environmental factors
4. Organizational process assets

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

Outputs

1. **Team performance assessments**
2. Change requests
3. PMP updates
4. Project documents updates
5. Enterprise environmental factors updates
6. Organizational process assets updates

9.4 Develop Team

Input → **Tools & Techniques** → Output

1. Colocation

Colocation (or ***Tight Matrix***) supports working as a team by placing many or all of the most active Team members in the same physical location.

- It can be temporary, such as at strategically important time during the project, or for the entire project duration.
- Colocation strategy can include a meeting room, sometimes called a war room with electronic communication devices, places to post schedule, to enhance communication and a sense of community.

- While colocation is considered a good strategy, the use of virtual teams will reduce the frequency that team members are located together.

9.4 Develop Team

4. Interpersonal and team skills

Interpersonal Skills "soft skills", are crucial and important for team development.

- PM should understand the feelings, sentiments, and emotions of Team members.
- Anticipating their actions, acknowledging their concerns, and following up their issues.
- Focusing on reducing problems and increasing cooperation.

Skills such as empathy*, influence, creativity, and group facilitation are valuable when managing the Team.

Individual development (managerial and technical) is the foundation of a team

* Empathy: the ability to understand and share the feelings of another.

9.4 Develop Team

4. Interpersonal and team skills (cont'd)

Interpersonal and team skills that can be used include:

- **Conflict management**. The PM needs to resolve conflicts in a timely manner and in a constructive way in order to achieve a high-performing team.
- **Influencing**. An influencing skill used in this process is gathering relevant and critical information to address important issues and reach agreements while maintaining mutual trust.
- **Motivation**. Motivation is providing a reason for someone to act. Teams are motivated by empowering them to participate in decision making and encouraging them to work independently.
- **Negotiation**. Negotiation among team members is used to reach consensus on project needs. Negotiation can build trust and harmony among the team members.

9.4 Develop Team

4. Interpersonal and team skills (cont'd)

❖ **Team building**

Team building is conducting activities that enhance the team's social relations and build a collaborative and cooperative working environment. Team building activities can vary from a 5-minute agenda item in a status review meeting to an offsite, professionally facilitated event designed to improve interpersonal relationships.

- The objective of team-building activities is to help individual team members work together effectively. Team-building strategies are particularly valuable when team members operate from remote locations without the benefit of face-to-face contact. Informal communication and activities can help in building trust and establishing good working relationships.

9.4 Develop Team

4. Interpersonal and team skills (cont'd)

❖ **Team building (cont'd)**

- While team building is essential during the initial stages of a project, it should be a continuous process. Changes in a project environment are inevitable, and to manage them effectively, a continuous or renewed team building effort may be applied. The PM should continually monitor team functionality and performance to determine if any actions are needed to prevent or correct various team problems.

9.4 Develop Team

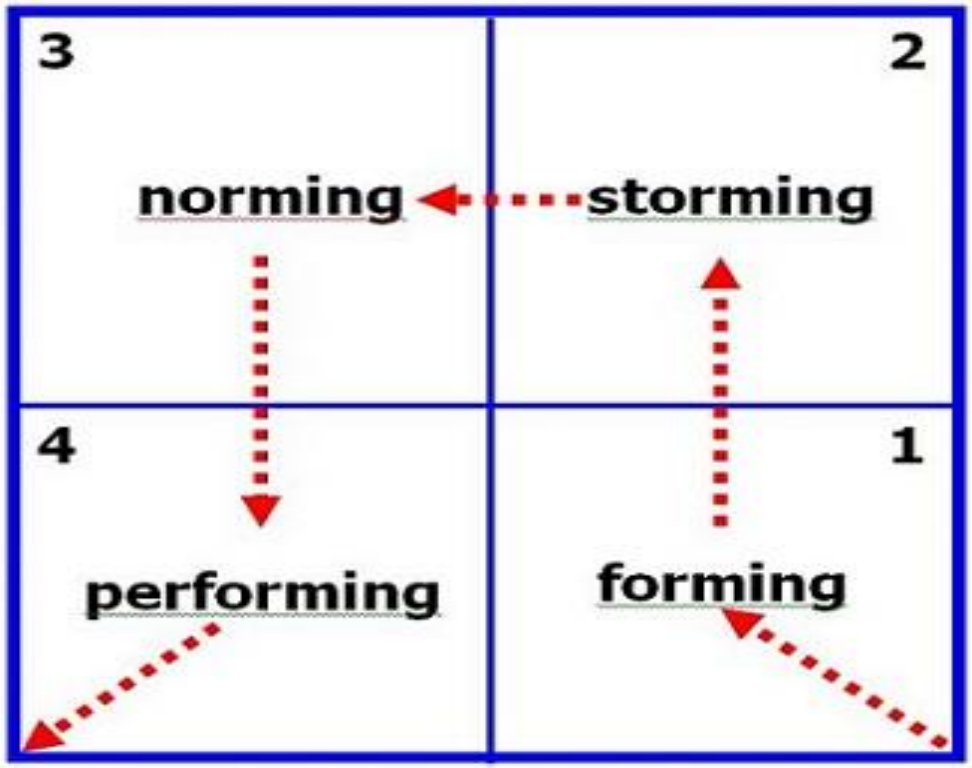
Input → Tools & Techniques → Output

4. Interpersonal and team skills (cont'd)

❖ **Team Building (cont'd)**

Bruce Tuchman's Stages

Bruce Tuchman



5 **ADJOURNING**

9.4 Develop Team

4. Interpersonal and team skills (cont'd)

❖ **Team Building (cont'd)**

One theory (Bruce Tuchman) states that there are 5 stages of development that the teams may go through.
Usually these stages occur in the following order:

a. **Forming**: this phase is where the team meets and learns about the project and what their formal roles and responsibilities are. Team members tend to be independent and not as open in this phase. For more information, refer to the Tuckman ladder of team development
b. **Storming**: During this phase, the team begins to address the project work, technical decisions, and the project management approach. If team members are not collaborative and open to differing ideas and perspectives, the environment can become destructive

9.4 Develop Team

Input → **Tools & Techniques** → Output

4. Interpersonal and team skills (cont'd)

❖ **Team Building (cont'd)**

c. **Norming**: In the Norming phase, team members begin to work together and adjust work habits and behaviors that support the team. The team begins to trust each other.

d. **Performing**: Teams that reach the performing stage function as a well organized unit. They are interdependent and work through issues smoothly and effectively.

e. **Adjourning**: In the adjourning phase, the team completes the work and moves on with the project.

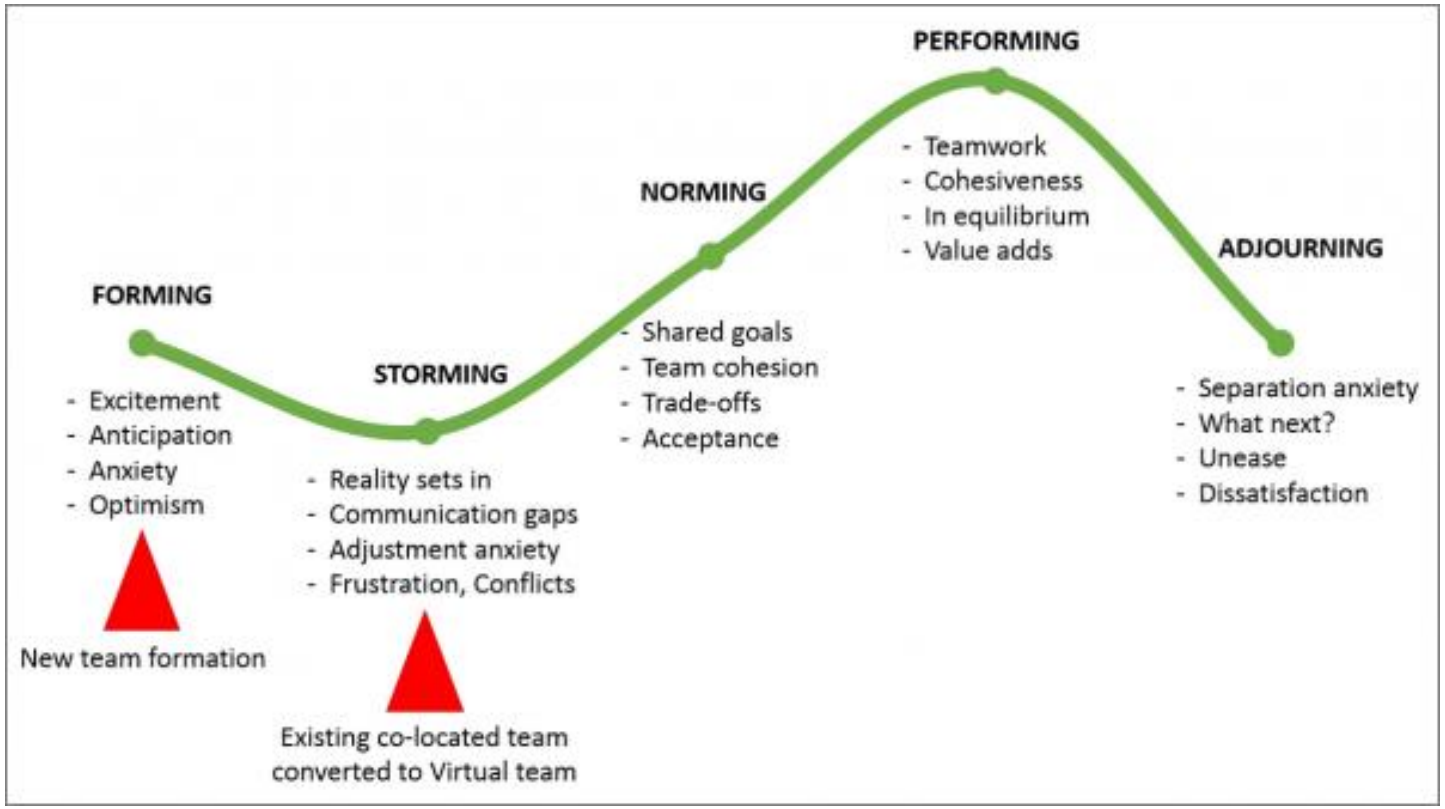
The duration of a particular stage depends upon the team dynamics, team size, and the team leadership. It is recommended to keep the forming, storming period as minimal as possible.

9.4 Develop Team

Input → **Tools & Techniques** → Output

4. Interpersonal and team skills (cont'd)

❖ **Team Building (cont'd)**



9.4 Develop Team

Input → **Tools & Techniques** → Output

4. Interpersonal and team skills (cont'd)

- **Team Building (cont'd)**

Tuckman Stages with Tools

Forming
Team acquaints and establishes ground rules. Formalities are preserved and members are treated as strangers.

Clarify Roles
Build Goals (SMART criteria)
Establish Timeline
Identify/Assign Tasks
Discuss working agreements
Identify Individual Strengths
Tools: Technology to Use, Time Management

Storming
Members start to communicate their feelings but still view themselves as individuals rather than part of the team. They resist control by group leaders and show hostility.

Communicate & Collaborate
Negotiate Ideas
Resolve Conflict
Give Effective Feedback
Escalate Appropriately
Tools: deBono's 6 Thinking Hats; Ask, Speak, Listen; Ladder of Inference; L-Column

Norming
People feel part of the team and realize that they can achieve work if they accept other viewpoints.

Reflect on group process
Experiment (Trial and Error)
Learn/Move beyond Failure
Test Assumptions
Conduct Interim Check-ins
Present Outcomes
Tools: Kolb's Experiential Cycle

Performing
The team works in an open and trusting atmosphere where flexibility is the key and hierarchy is of little importance.

Adjourning
The team conducts an assessment of the year and implements a plan for transitioning roles and recognizing members' contributions.

After Action Review
Share Lessons Learned
Self/Group evaluations

9.4 Develop Team

5. Recognitions and Rewards

- Only desirable behavior should be rewarded. The willingness to work overtime to meet an aggressive schedule objective should be rewarded or recognized; needing to work overtime as a result of poor planning should not be rewarded.
- Win lose (zero sum) rewards that only a limited number of Team members can achieve such as team members of the month, can hurt team cohesiveness.
- Rewarding win behavior that every one can achieve such as turning in progress reports on time, tends to increase support among team members.
- Recognition and reward should consider cultural differences.
- A good strategy for PMs is to give the team recognition throughout the life cycle of the project rather than waiting until the project is completed.

9.4 Develop Team

5. Recognitions and Rewards

❑ Peter Principle

The Peter principle is an observation about a commonly-seen pattern in hierarchical corporate cultures in which employees are promoted based on current performance rather than aptitude for the roles they are being considered for:

Employees continue to be promoted as long as they perform well in their roles; as a result, they rise to their level of incompetence: the point at which they fail to do a good job. That pattern negatively impacts employee productivity and corporate performance because it tends to mean that people end up in positions where they are incapable of doing a good job and that, furthermore, they tend to stay in those positions because -- since they aren't performing well -- they are not promoted. Eventually, as the Peter principle plays out, all positions in an organization could be held by individuals who are incapable of fulfilling their roles.

9.4 Develop Team

6. Training

Includes all activities designed to enhance the competencies of the team members. Training can be formal or informal. Examples of training methods include classroom, online, computer-based, on-the-job training from another team member, mentoring, and coaching.

- If team members lack necessary management or technical skills, such skills can be developed as part of the project work.
- Scheduled training takes place as stated in the resource management plan.
- Unplanned training takes place as a result of observation, conversation, and project performance appraisals conducted during the controlling process of managing the Team.
- Training costs could be included in the project budget or supported by the performing organization if the added skills may be useful for future projects.

9.4 Develop Team

7. Individual and team assessments

It gives both PM and the team chance to assess their individual strength and weakness.

- Various other personnel assessment tools are available like attitudinal surveys, specific assessments and structured interviews ability tests, and focus groups, etc.
- These tools help PMs assess team members' preferences, aspirations, how they process and organize information, how they make decisions, and how they interact with people.

9.4 Develop Team

1. Team performance Assessments

The PMT makes formal or informal assessments of the PT's effectiveness. Effective team development strategies and activities are expected to increase the team's performance, which increases the likelihood of meeting project objectives.

The evaluation of a team's effectiveness include indicators such as:

- Improvements in skills that allow a person to perform assigned activities more effectively.
- Improvement in competencies and sentiments that help the team perform better as a group.
- Reduce staff turnover rate.
- Increased team cohesiveness where team members share the information and experiences openly and help each other improve the overall project performance.

9.5 Manage Team

Tracking team member performance, providing feedback, resolving issues and managing changes to optimize project performance.

9.5 Manage Team

Inputs

1. Project management plan
2. Project documents
   - Issue log
   - Lessons learned register
   - PT assignments
   - Team charter
3. **Work performance reports**
4. **Team performance assessments**
5. **Enterprise environmental factors**
6. Organizational process assets

Tools & Techniques

1. **Interpersonal and team skills**
   - Conflict management
   - Decision making
   - Emotional intelligence
   - Influencing
   - Leadership
2. Project management information system

Outputs

1. Change requests
2. PMP updates
   - Resource management plan
   - Schedule baseline
   - Cost baseline
3. Project documents updates
4. Enterprise environmental factors updates

9.5 Manage Team

3. Work performance reports

WPR are the physical or electronic representation of work performance information intended to generate decisions, actions, or awareness.

- Performance reports that can help with PT management include results from schedule control, cost control, quality control, and scope validation.
- The information from WPR and related forecasts assists in determining future team resource requirements, recognition and rewards, and updates to the *resource management plan.*

9.5 Manage Team

4. Team Performance Assessments

Ongoing formal or informal assessment of the Team's performance. By continually assessing the Team's performance, actions can be taken to resolve issues, modify communication, address conflicts, and improve team interaction.

6. Organizational Process Assets

- Certificates of appreciation,
- newsletters,
- bulletin boards,
- web sites,
- bonus structures,
- other organizational perquisites.

These should be available to the PMT as part of the project management process.

9.5 Manage Team

1. Interpersonal and team skills

❖ Conflict management

Conflict is inevitable in a project environment. Sources of conflict include scarce resources, scheduling priorities, and personal work styles. Team ground rules, group norms, and solid project management practices, like communication planning and role definition, reduce the amount of conflict.

Successful conflict management results in greater productivity and positive working relationships.

- When managed properly, differences of opinion are healthy, and can lead to increased creativity and better decision-making.
- When the differences become a negative factor, Team members are initially responsible for resolving their own conflicts. If conflict escalates, the PM should help facilitate a satisfactory resolution.
- Conflict should be addressed early and usually in private, using a direct, collaborative approach. If disruptive conflict continues increasingly, formal procedure will need to be used, including the possible use of disciplinary actions.

9.5 Manage Team

Input → **Tools & Techniques** → Output

1. Interpersonal and team skills

❖ Conflict management (cont'd)

Many people naturally withdraw from conflict and just hope it will go. Although many of us think conflict is bad, it actually presents opportunity for the project to improve. A PM should be proactive, look for problems and conflicts and then deal with them before their impact on the project expands.

9.5 Manage Team

Input → **Tools & Techniques** → Output

1. Interpersonal and team skills

❖ Conflict management (cont'd)

Negative Conflict can be avoided through the following techniques:

- Informing the team:
  - Exactly where the project is heading towa
  - Project goals and objectives
  - All key decisions
  - Changes
- Clearly assigning tasks without ambiguity or overlapping responsibilities.
- Making work assignments interesting and challenging.

9.5 Manage Team

1. Interpersonal and team skills

❖ Conflict management (cont'd)

The success of PMs in managing their PTs often depends on their ability to resolve conflict. Different PMs may use different conflict resolution methods.

Factors that influence conflict resolution methods include:

- ❖ Importance and intensity of the conflict,
- ❖ Time pressure for resolving the conflict,
- ❖ Relative power of the people involved in the conflict,
- ❖ Importance of maintaining a good relationship,
- ❖ Motivation to resolve conflict on a long-term or short-term basis.

9.5 Manage Team

1. Interpersonal and team skills

❖ **Conflict management (cont'd) - Changing Views of Conflict**

OLD	NEW
Inevitable	Necessary and has benefits
Negative	Foster team growth
Should be avoided	Produces more creative alternatives
Best resolved by avoidance	Best resolved by collaborating
Best resolved by upper management	Best resolved by team members

9.5 Manage Team

1. Interpersonal and team skills

❖ **Conflict management (cont'd) – Sources of conflict**

SEVEN SOURCES OF CONFLICT:

Many PMs think that the main source of conflict on a project is personality differences. They may be surprised to learn that this is rarely the case. It only becomes personal if the root cause of the problem is not resolved. The PMBOK describes seven categories of conflict and lists their actual order of frequency as:

1. **Schedules**
2. **Project priorities**
3. **Resource**
4. **Technical opinions**
5. Administrative Procedures
6. Cost
7. Personality

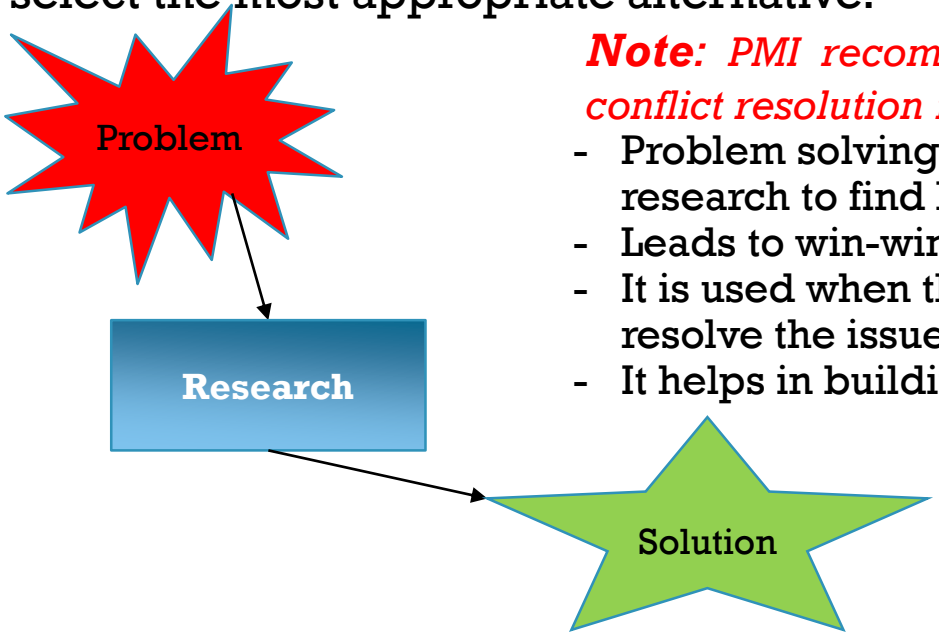
*The **exam** may ask for the top sources of conflict. So it would be useful to memorize the top four. Since many PMs think that number one is personality conflict, you can expect the exam to include questions with that choice.*

9.5 Manage Team

1. Interpersonal and team skills

❖ **Conflict management (cont'd) – Conflict Resolution Techniques**

Problem solving (confronting or Collaborating): the PM addresses conflict directly to get the parties working together to define the problem, collect information, develop and analyze alternative, and select the most appropriate alternative.



***Note**: PMI recommends problem solving as the conflict resolution method of choice*

- Problem solving requests additional analysis & research to find best solutions.
- Leads to win-win situation.
- It is used when there is time to work through and resolve the issue.
- It helps in building relationships and trust.

The conflicting parties meet face-to-face and collaborate to reach an agreement that satisfies the concerns of both parties.

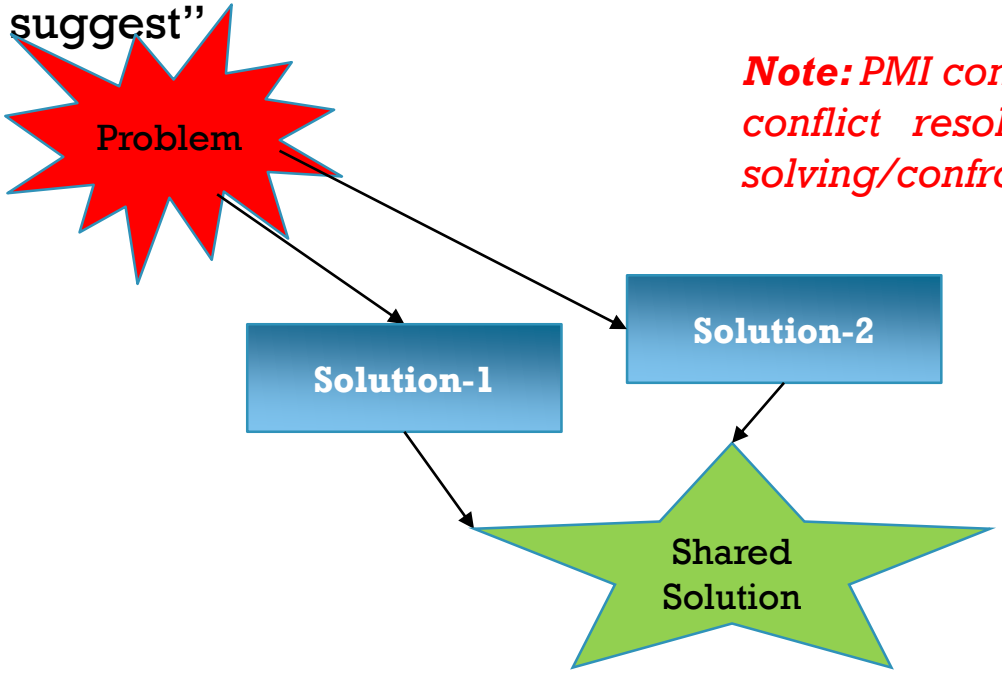
9.5 Manage Team

Input → Tools & Techniques → Output

1. Interpersonal and team skills

❖ **Conflict management (cont'd) – Conflict Resolution Techniques**

Compromising (Reconciling): It consists of bargaining and searching for solution that attempts to bring some degree of satisfaction to both parties. "Let us do a little of what both of you suggest"



Note: *PMI considers this as the second best conflict resolution mode, after problem solving/confrontation.*

-Both parties give up something.
-The decision made merges both sides of the argument.
-Neither party really wins, it is considered as lose-lose situation.
-It may be used to avoid a fight.

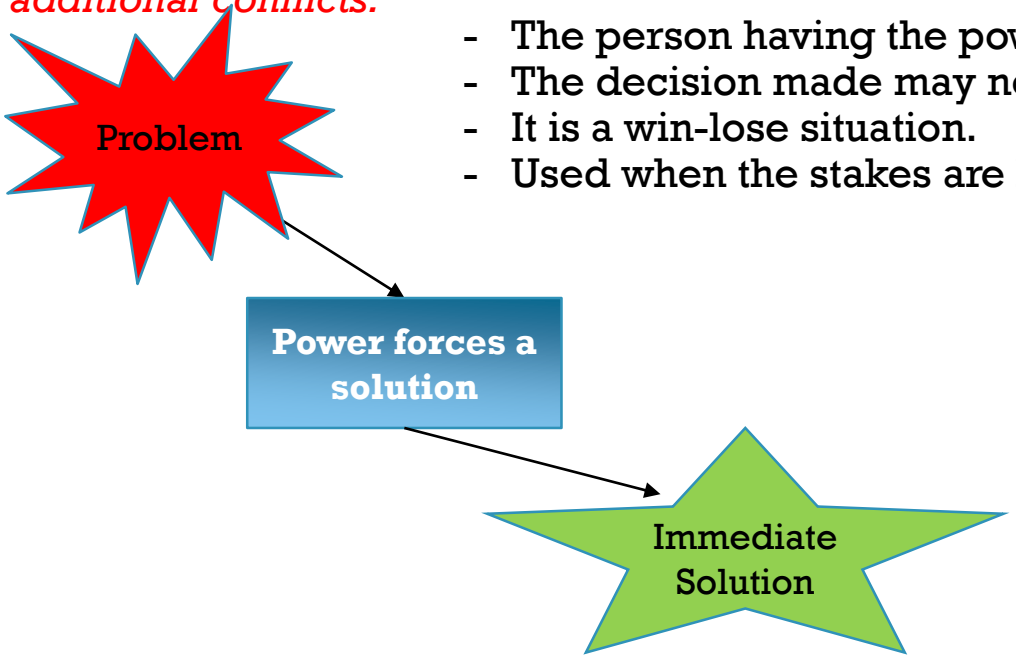
9.5 Manage Team

1. Interpersonal and team skills

❖ **Conflict management (cont'd) – Conflict Resolution Techniques**

Forcing (Directing): Pushing one viewpoint at the expense of another, thus establishing a win-lose situation. "Do it my way…!!!!"

Note: PMI recommends using forcing only as a last resort, because it can cause additional conflicts.



- The person having the power will decide.
- The decision made may not be the best, but is fast.
- It is a win-lose situation.
- Used when the stakes are high and time is short

A party ignores the needs and concerns of the other party. One party wins at the expense of the other party.

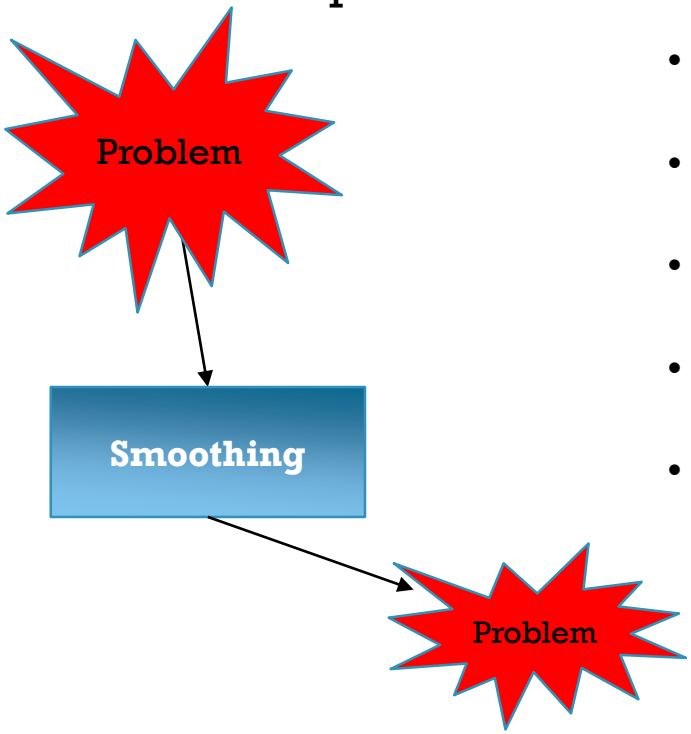
9.5 Manage Team

Input → Tools & Techniques → Output

1. Interpersonal and team skills

❖ **Conflict management (cont'd) – Conflict Resolution Techniques**

Smoothing (Accommodating): Emphasizing agreement rather than difference of opinion. "Let's calm down and get the job done!"



- smooth's out the conflict by minimizing the perceived size of the problem.
- A temporary solution to calm discussions and team relations.
- It is used when the time is short and any other solution can not currently settle the problem.
- Used to maintain team relationships and when the issue is not critical.
- A lose-win situation.

The areas of agreement are emphasized. A party may sacrifice it's own concerns to satisfy the other party's concerns

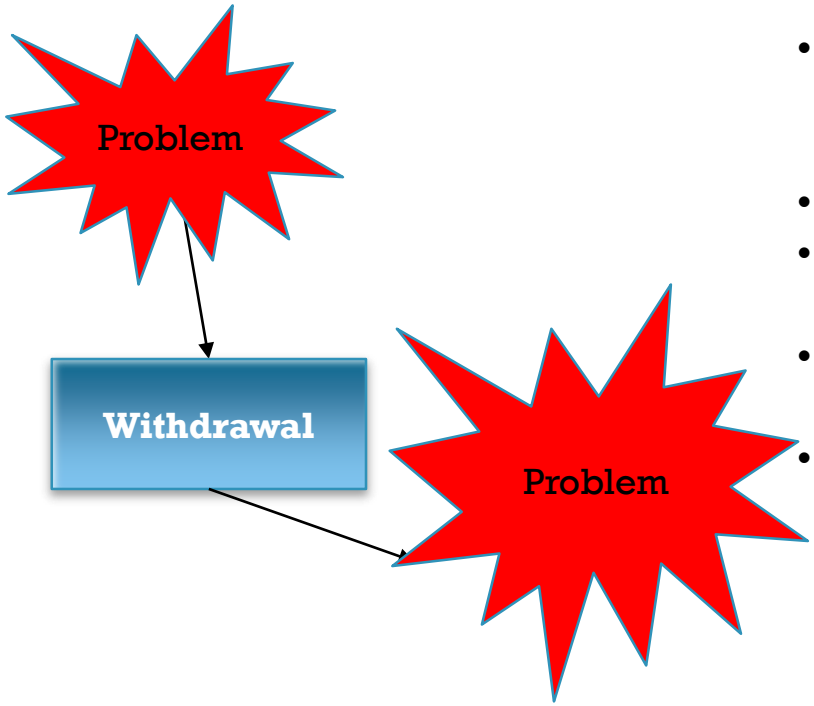
9.5 Manage Team

Input → Tools & Techniques → Output

1. Interpersonal and team skills

❖ **Conflict management (cont'd) – Conflict Resolution Techniques**

Withdrawal (Avoidance): Retreating or postponing a decision on a problem. "Let's deal with this issue next week."



- Viewed as postponing an issue for later or withdrawing from the situation altogether.
- "Worst" Approach to resolve an issue.
- Retreating from actual or potential disagreements and conflict situations.
- It is used only in certain situations such as when a cooling-off period is needed.
- It is a temporary tactic: does not resolve the conflict, only delays it.

9.5 Manage Team

1. Interpersonal and team skills

❖ **Conflict management (cont'd) – Summary**

Method	Explanation	Dynamics
Withdraw/ Avoid	Postponing the issue to be better prepared or to be resolved by others	Neutral/ Neutral
Smooth/ Accommodate	Emphasizing areas of agreement; conceding one's position to the needs of others	Lose/Win
Compromise/ Reconcile	Searching for solutions that bring partial satisfaction to all parties	Lose/Lose
Force/ Direct	Pushing one's viewpoint at the expense of others	Win/Lose
Collaborate/ Problem Solve	Incorporating multiple viewpoints and insights from different perspectives	Win/Win

9.5 Manage Team

Input → **Tools & Techniques** → Output

1. Interpersonal and team skills (cont'd)

❖ Decision making

Decision making, in this context, involves the ability to negotiate and influence the organization and the PMT, rather than the set of tools described in the decision making tool set. Some guidelines for decision making include:

- ❖ Focus on goals to be served,
- ❖ Follow a decision-making process,
- ❖ Study the environmental factors,
- ❖ Analyze available information,
- ❖ Stimulate team creativity,
- ❖ Account for risk.

Effective Decision Making Skills

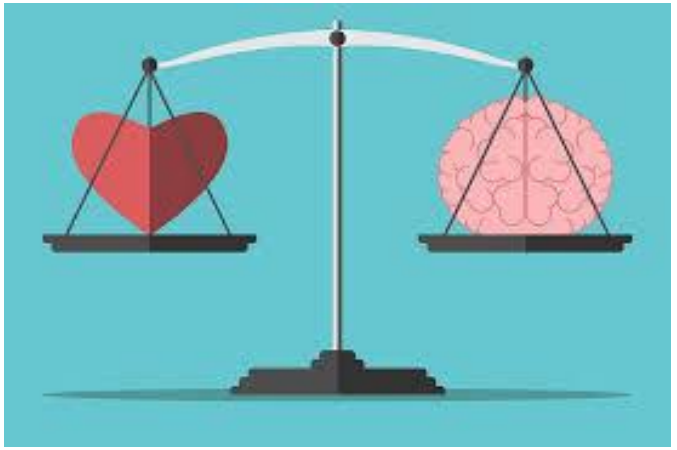
9.5 Manage Team

Input → **Tools & Techniques** → Output

1. Interpersonal and team skills (cont'd)

❖ Emotional intelligence

Emotional intelligence is the ability to identify, assess, and manage the personal emotions of oneself and other people, as well as the collective emotions of groups of people. The team can use emotional intelligence to reduce tension and increase cooperation by identifying, assessing, and controlling the sentiments of PT members, anticipating their actions, acknowledging their concerns, and following up on their issues.



9.5 Manage Team

Input → **Tools & Techniques** → Output

1. Interpersonal and team skills (cont'd)

❖ Influencing

Because PMs often have little or no direct authority over team members in a matrix environment, their ability to influence stakeholders on a timely basis is critical to project success.

Key influencing skills include:

- ❖ Ability to be persuasive;
- ❖ Clearly articulating points and positions;
- ❖ High levels of active and effective listening skills;
- ❖ Awareness of and consideration for, the various perspectives in any situation;
- ❖ Gathering relevant information to address issues and reach agreements while maintaining mutual trust.

Influencing Skills

9.5 Manage Team

Input → Tools & Techniques → Output

1. Interpersonal and team skills (cont'd)

❖ **Leadership**

Successful projects require leaders with strong leadership skills. ***Leadership is the ability to lead a team and inspire them to do their jobs well***. It encompasses a wide range of skills, abilities and actions. Leadership is important through all phases of the project life cycle.

There are multiple leadership theories defining leadership styles that should be used as needed for each situation or team. It is especially important to communicate the vision and inspire the PT to achieve high performance.

Leadership Skills

9.6 Control Resources

Ensuring that he physical resources assigned and allocated to the project are available as planned, as well as monitoring the planned versus actual utilization of resources and taking corrective action as necessary.

9.6 Control Resources

Inputs

1. Project management plan
   - Resource management plan
2. Project documents
   - Issue log
   - Lessons learned register
   - Physical resource assignments
   - Project schedule
   - Resource breakdown structure
   - Resource requirements
   - Risk register
3. Work performance data
4. Agreements
5. Organizational process assets

Tools & Techniques

1. Data analysis
   - Alternatives analysis
   - Cost-benefit analysis
   - Performance reviews
   - Trend analysis
2. **Problem solving**
3. Interpersonal and team skills
   - Negotiation
   - Influencing
4. Project management information system

Outputs

1. Work performance information
2. Change requests
3. PMP updates
   - Resource management plan
   - Schedule baseline
   - Cost baseline
4. Project documents updates

9.6 Control Resources

2. Problem solving

Problem solving may use a set of tools that helps the PM to solve problems that arise during the *control resources* process.

- The problem can come from inside or outside the organization (major supplier that has gone bankrupt or bad weather that has damaged resources).
- The PM should use methodical steps to deal with problem solving, which can include:
  - ✓ **Identify the problem.** Specify the problem.
  - ✓ **Define the problem.** Break it into smaller, manageable problems.
  - ✓ **Investigate.** Collect data.
  - ✓ **Analyze.** Find the root cause of the problem.
  - ✓ **Solve.** Choose the suitable solution from a variety of available ones.
  - ✓ **Check the solution.** Determine if the problem has been fixed.

Thank you

Knowledge area

- You can find the whole Project Management Professional course on Z:\eLibraries\eBooks\Management\PMP 6 Course
- You can also visit www.pmi.org for more information

Please call us for any support