

Scope and Schedule Management in Multiple Projects

Learning Objectives

- Familiarize upon processes involved in Project Scope and Schedule Management
- Understand the inputs necessary to determine the Project Context and Schedule
- Familiarize upon the tools and technique to monitor and control Project Scope and Project Schedule

Scope Management

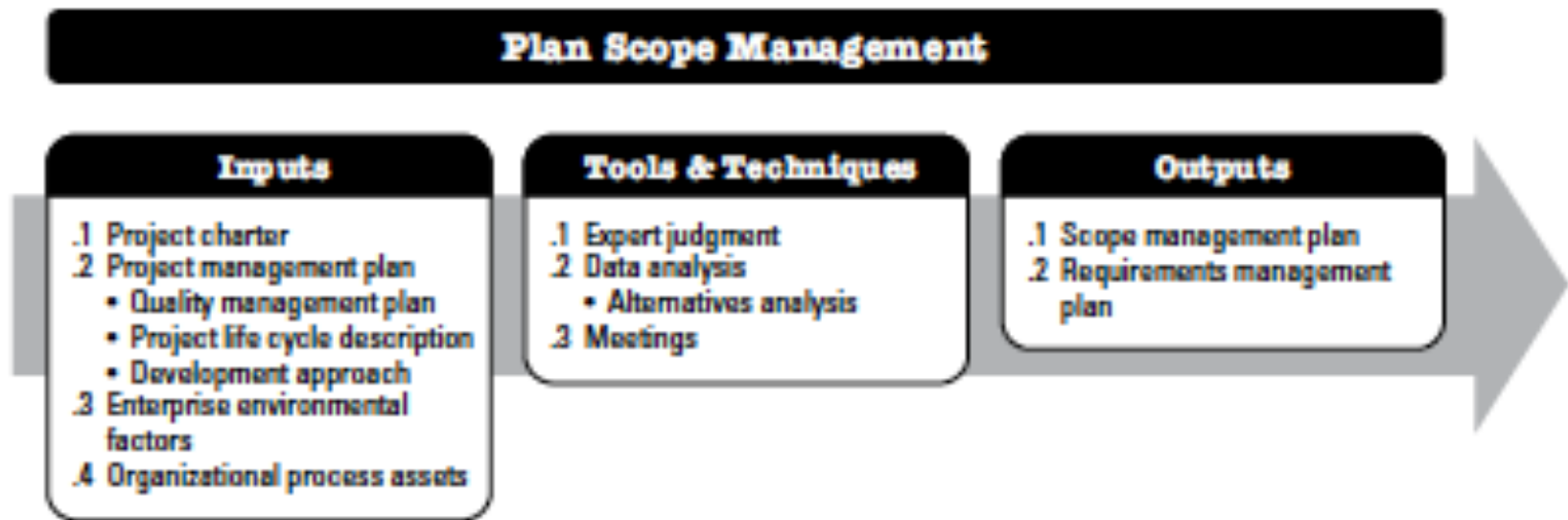
- It is the process of defining what work is required and then ensuring that all of that work is done
- The processes involved in scope management;
 - Plan Scope Management --- Done in Planning
 - Collect Requirements --- Done in Planning
 - Define Scope --- Done in Planning
 - Create WBS --- Done in Planning
 - Validate scope --- Done in M & C
 - Control Scope --- Done in M & C

Product and Project Scope

- Product scope are the product deliverables with their associated features and functions
 - Or these can also be defined as the requirements that relate to the product, service or result of the project
- Project scope is the work project team will do to deliver the product of the project; it encompasses the product scope and also includes meetings, reports etc
 - To determine the project scope has been successfully completed, the work accomplished is measured against the scope baseline

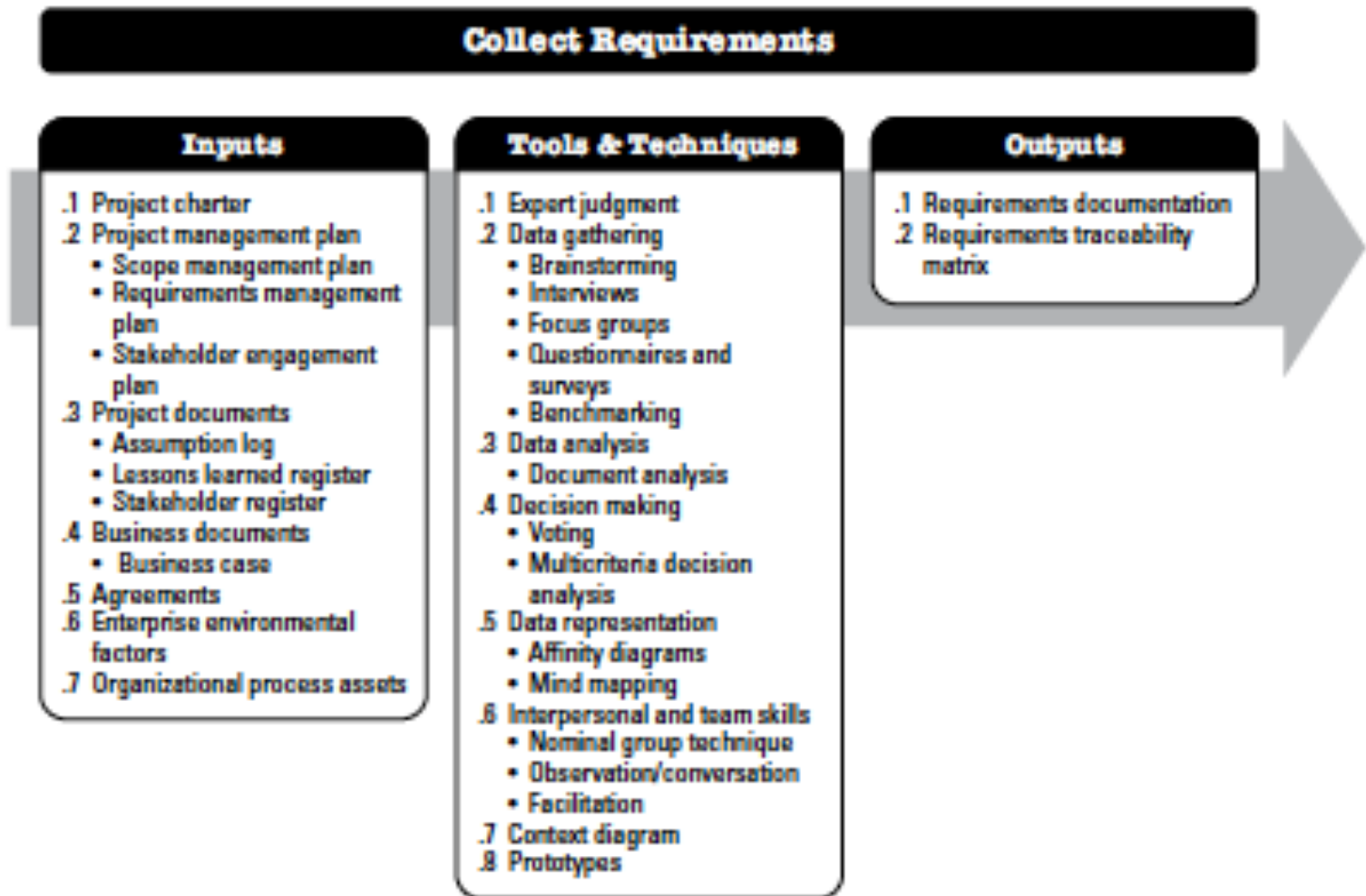
Plan Scope Management

- It provides guidance and direction on how scope will be managed throughout the project



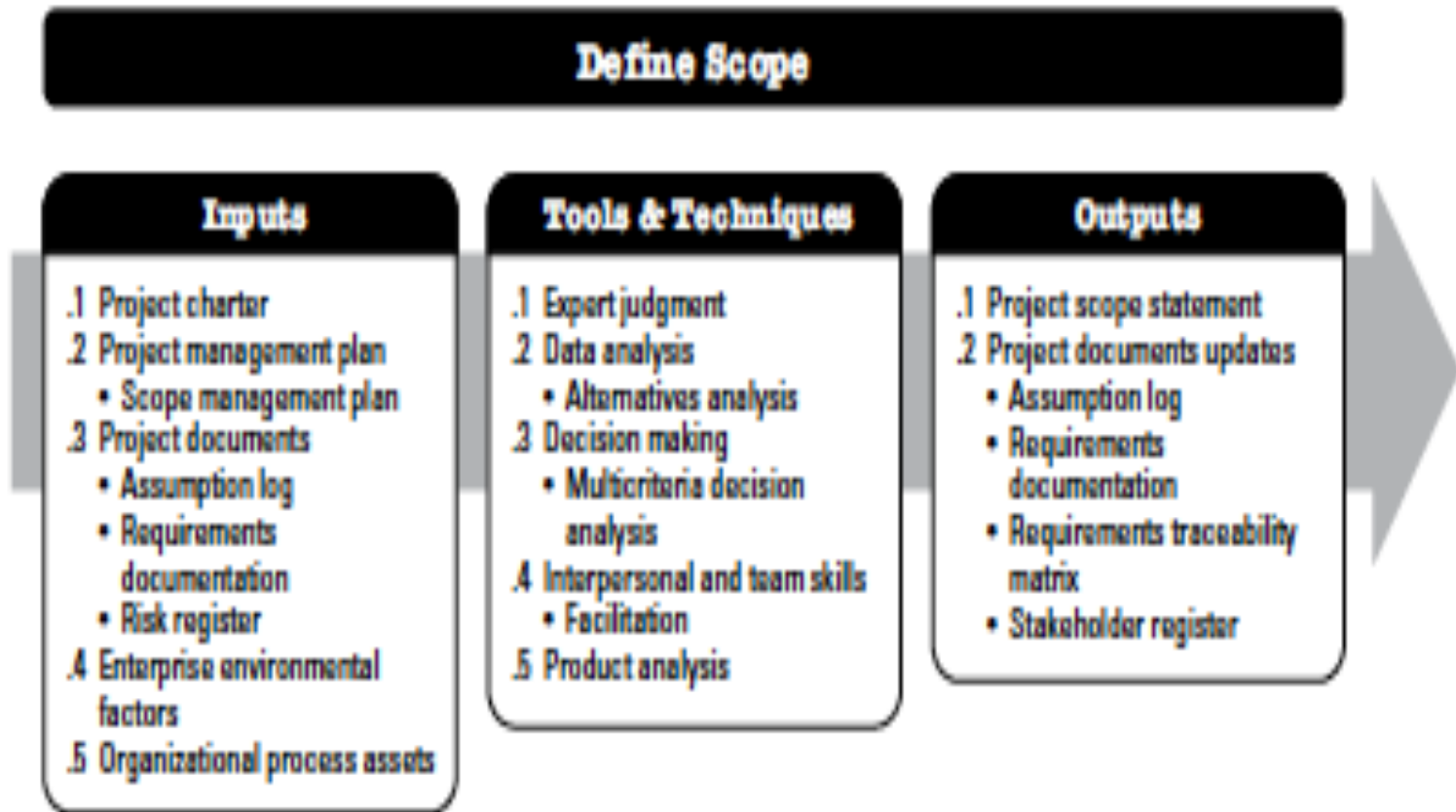
Collect Requirements

- It provides guidance the basis for defining the product scope and project scope



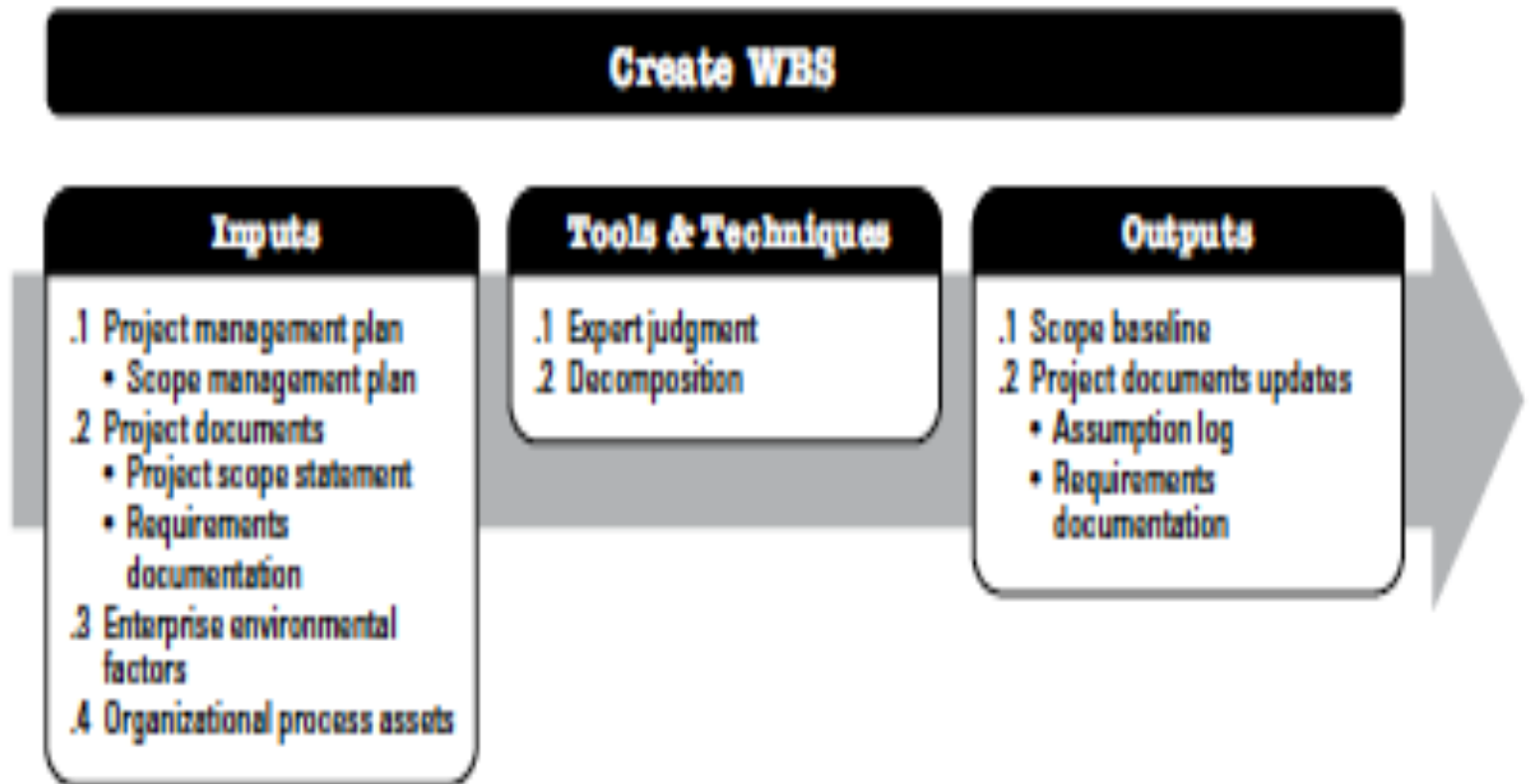
Define Scope

- It is process of developing a detailed description
- It describes the product, service, or result boundaries and acceptance criteria



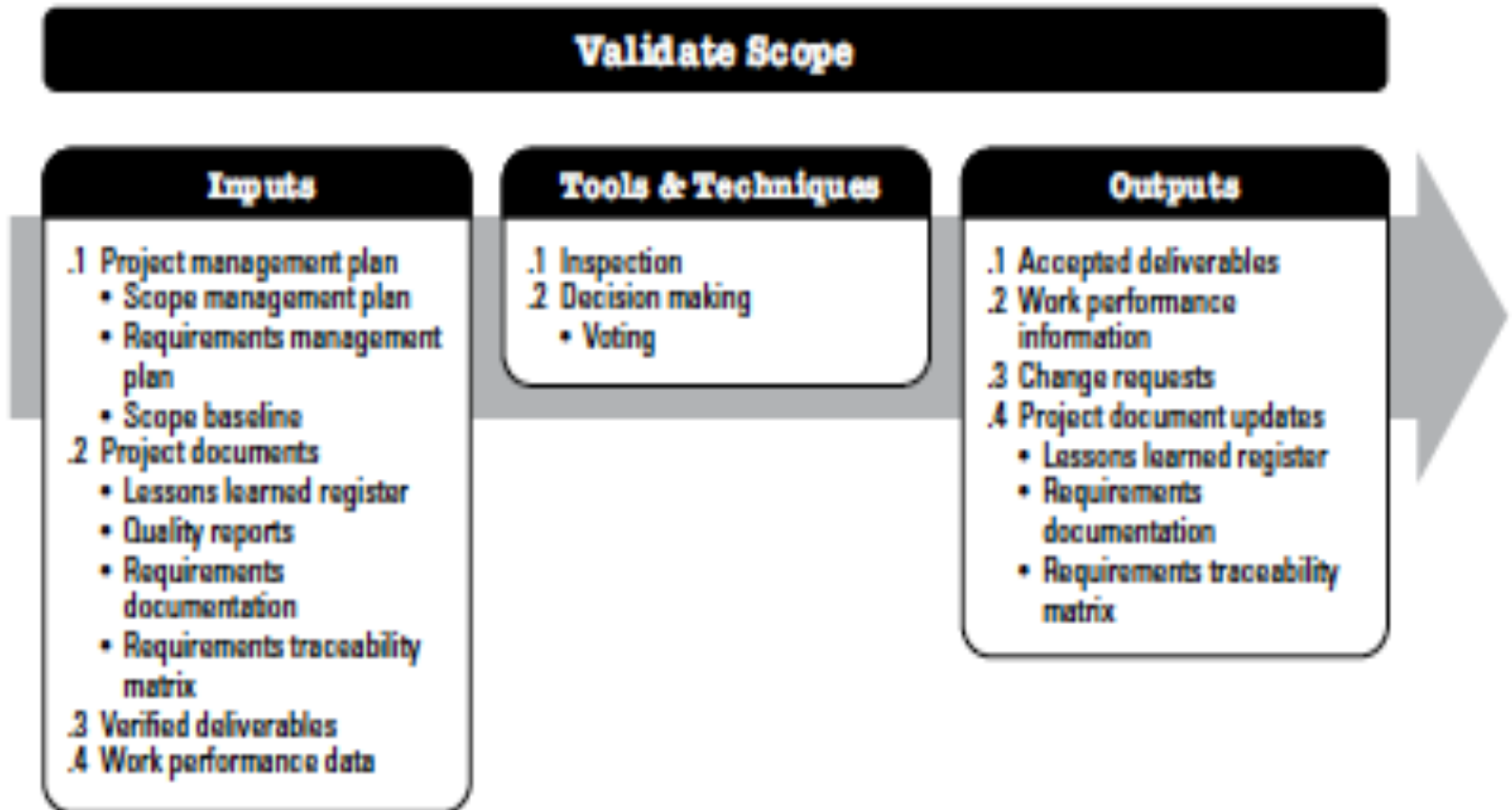
Create WBS

- A process of subdividing deliverables and work into smaller, more manageable components
- Provides a framework of what has to be delivered



Validate Scope

- Process of formalizing acceptance of deliverables
- It brings objectivity to the acceptance process



Project Schedule Management

- It includes following processes required to manage the timely completion of the Project
 - Plan Schedule Management : Policies, procedures and documentation for planning, developing, managing and controlling the project schedule
 - Define Activities: Process of identifying and documenting relationships among the project activities
 - Sequence activities
 - Estimate activity duration
 - Develop Schedule
 - Control Schedule

Project Schedule Management Overview

6.1 Plan Schedule Management

- 1 Inputs
 - 1 Project charter
 - 2 Project management plan
 - 3 Enterprise environmental factors
 - 4 Organizational process assets
- 2 Tools & Techniques
 - 1 Expert judgment
 - 2 Data analysis
 - 3 Meetings
- 3 Outputs
 - 1 Schedule management plan

6.4 Estimate Activity Durations

- 1 Inputs
 - 1 Project management plan
 - 2 Project documents
 - 3 Enterprise environmental factors
 - 4 Organizational process assets
- 2 Tools & Techniques
 - 1 Expert judgment
 - 2 Analogous estimating
 - 3 Parametric estimating
 - 4 Three-point estimating
 - 5 Bottom-up estimating
 - 6 Data analysis
 - 7 Decision making
 - 8 Meetings
- 3 Outputs
 - 1 Duration estimates
 - 2 Basis of estimates
 - 3 Project documents updates

6.2 Define Activities

- 1 Inputs
 - 1 Project management plan
 - 2 Enterprise environmental factors
 - 3 Organizational process assets
- 2 Tools & Techniques
 - 1 Expert judgment
 - 2 Decomposition
 - 3 Rolling wave planning
 - 4 Meetings
- 3 Outputs
 - 1 Activity list
 - 2 Activity attributes
 - 3 Milestone list
 - 4 Change requests
 - 5 Project management plan updates

6.5 Develop Schedule

- 1 Inputs
 - 1 Project management plan
 - 2 Project documents
 - 3 Agreements
 - 4 Enterprise environmental factors
 - 5 Organizational process assets
- 2 Tools & Techniques
 - 1 Schedule network analysis
 - 2 Critical path method
 - 3 Resource optimization
 - 4 Data analysis
 - 5 Leads and lags
 - 6 Schedule compression
 - 7 Project management information system
 - 8 Agile release planning
- 3 Outputs
 - 1 Schedule baseline
 - 2 Project schedule
 - 3 Schedule data
 - 4 Project calendars
 - 5 Change requests
 - 6 Project management plan updates
 - 7 Project documents updates

6.3 Sequence Activities

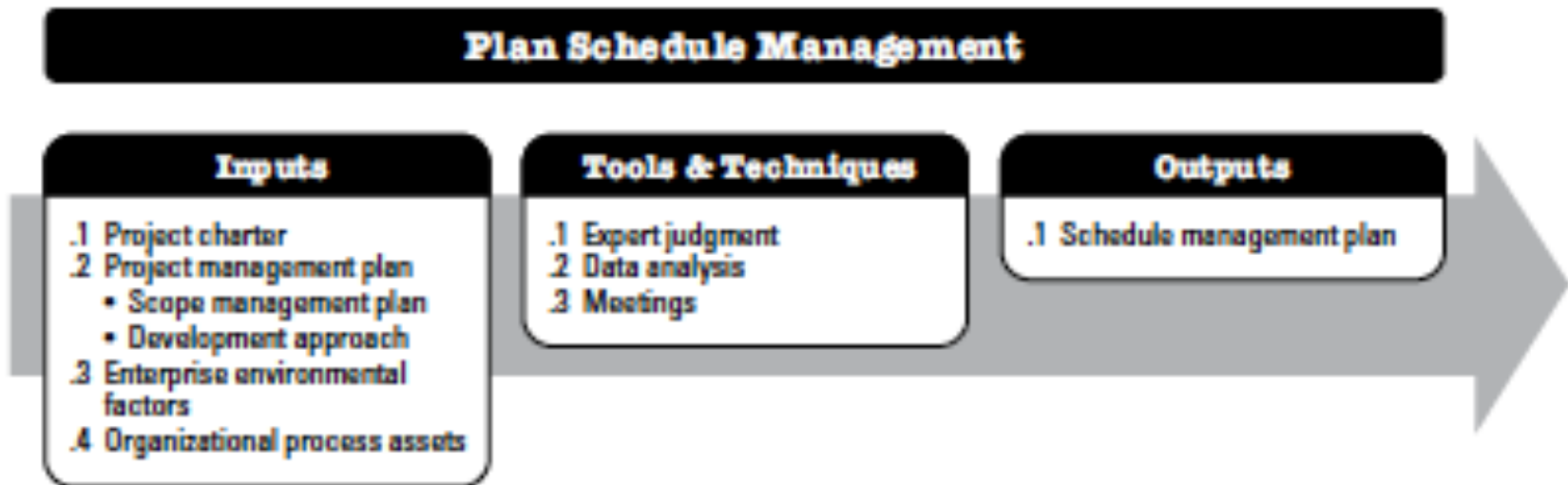
- 1 Inputs
 - 1 Project management plan
 - 2 Project documents
 - 3 Enterprise environmental factors
 - 4 Organizational process assets
- 2 Tools & Techniques
 - 1 Precedence diagramming method
 - 2 Dependency determination and integration
 - 3 Leads and lags
 - 4 Project management information system
- 3 Outputs
 - 1 Project schedule network diagrams
 - 2 Project documents updates

6.6 Control Schedule

- 1 Inputs
 - 1 Project management plan
 - 2 Project documents
 - 3 Work performance data
 - 4 Organizational process assets
- 2 Tools & Techniques
 - 1 Data analysis
 - 2 Critical path method
 - 3 Project management information system
 - 4 Resource optimization
 - 5 Leads and lags
 - 6 Schedule compression
- 3 Outputs
 - 1 Work performance information
 - 2 Schedule forecasts
 - 3 Change requests
 - 4 Project management plan updates
 - 5 Project documents updates

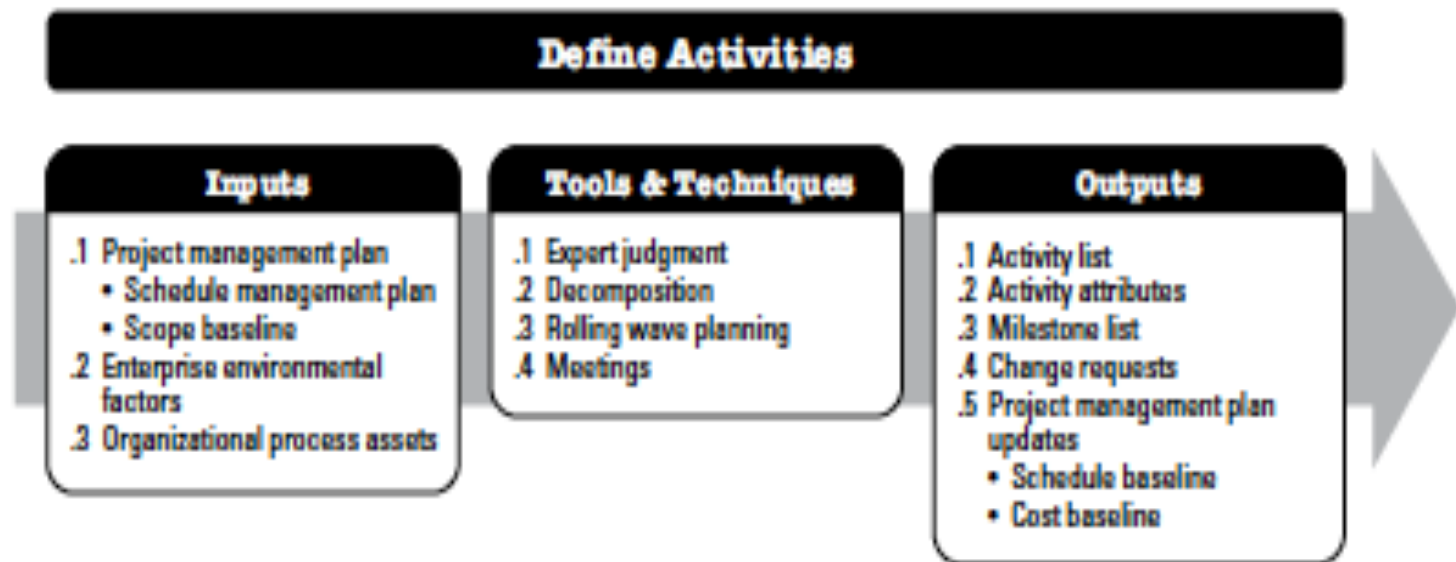
Plan Schedule Management

- It provides guidance and direction on how the project schedule will be managed throughout the project



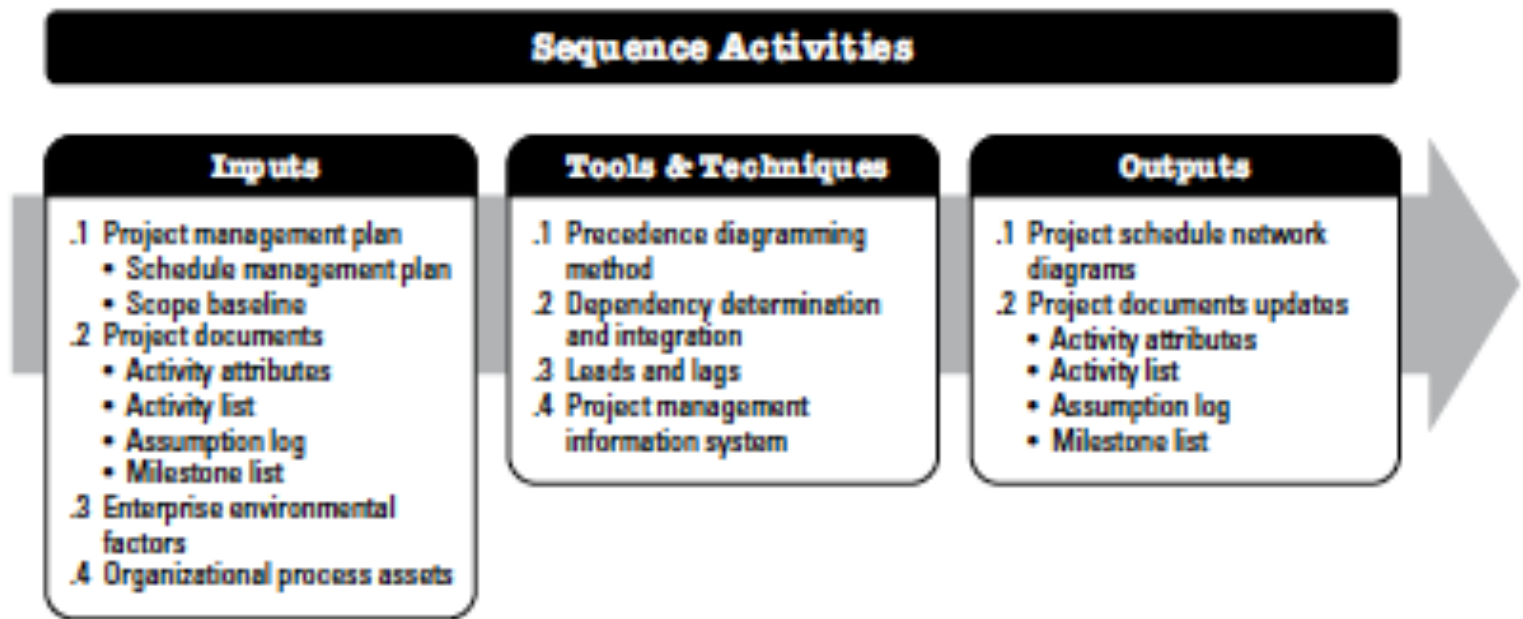
Define Activities

- It decomposes work packages into schedule activities that provide a basis for estimating, scheduling, executing, monitoring and controlling the project work

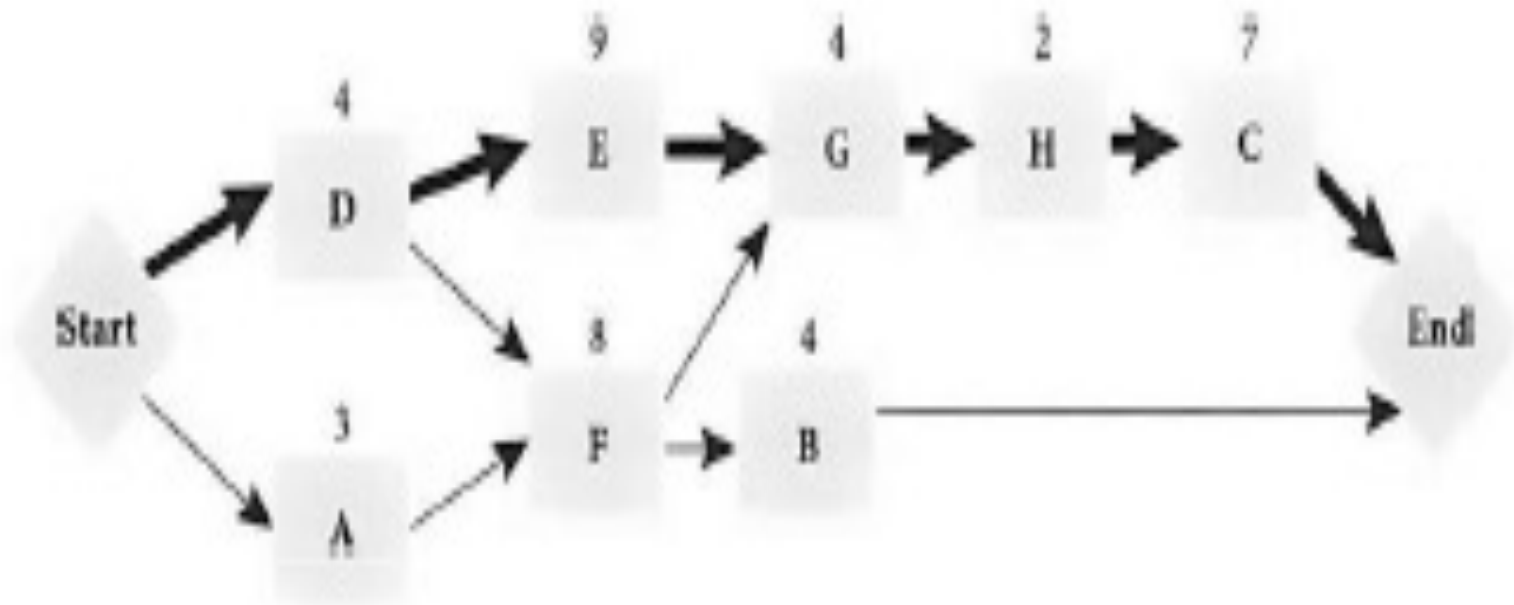


Sequence Activities

- It defines the logical sequence of work to obtain the greatest efficiency given all project constraints



Project Network Diagram



Forward Pass

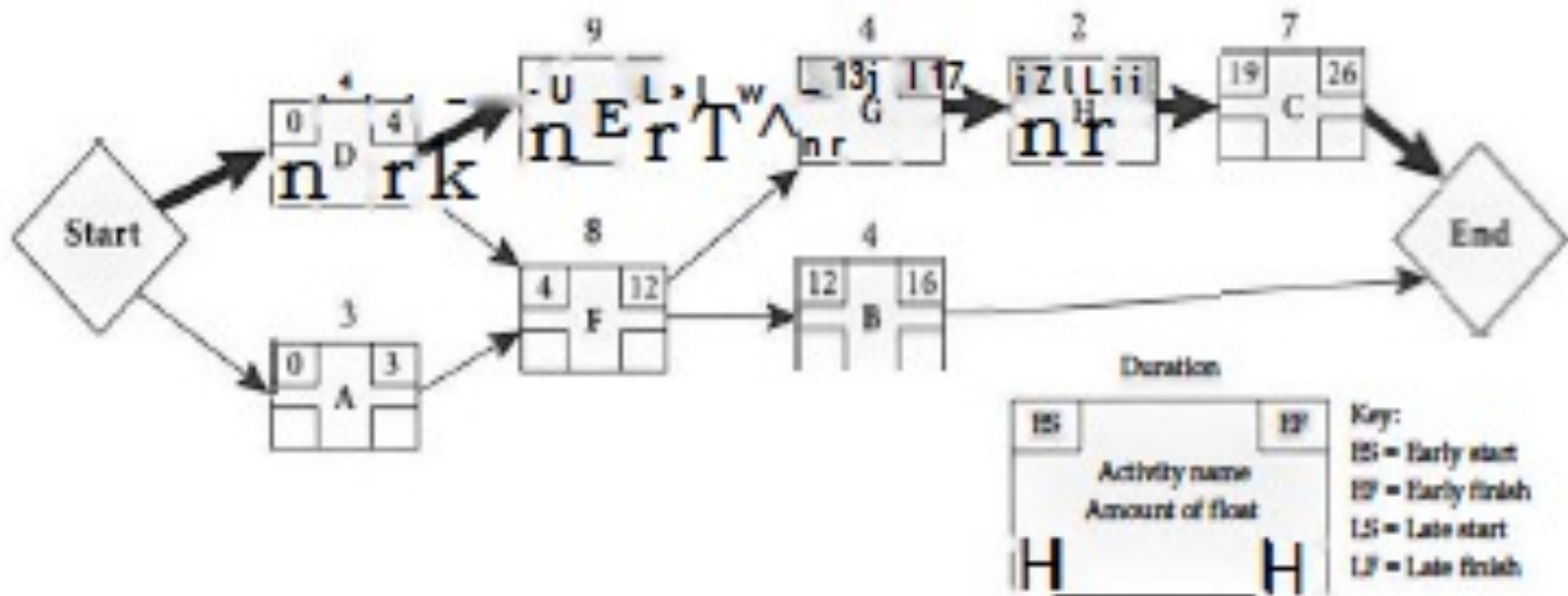
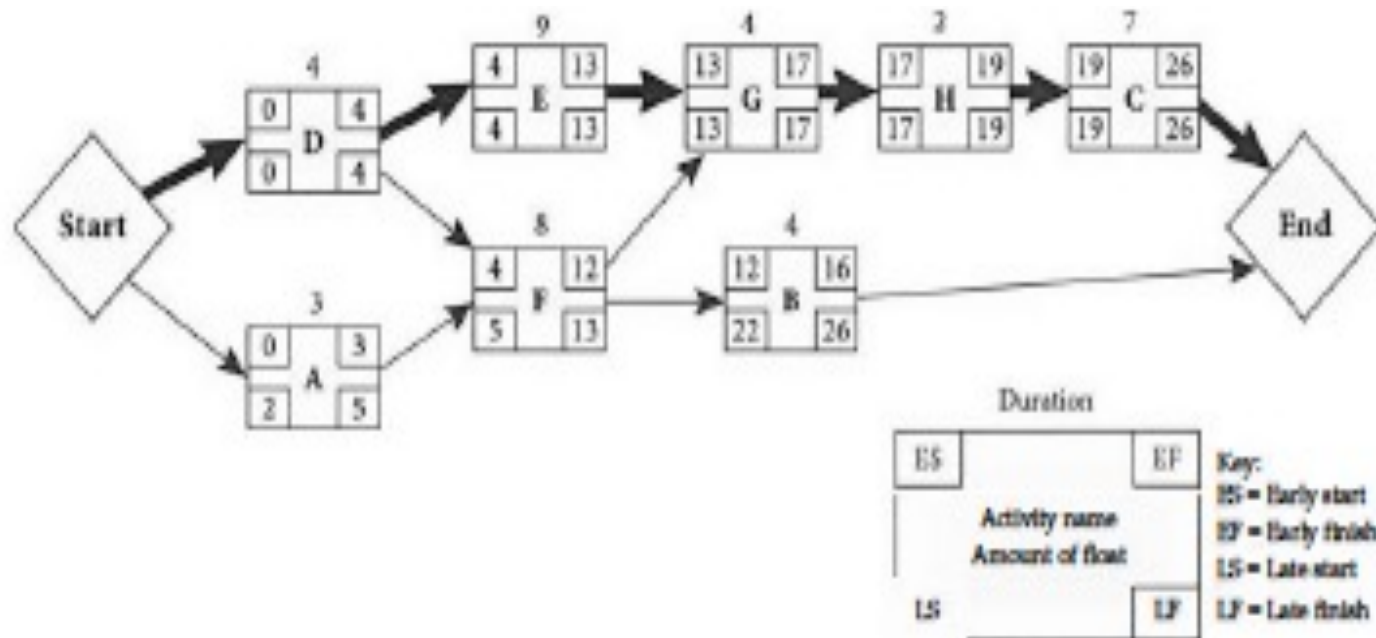


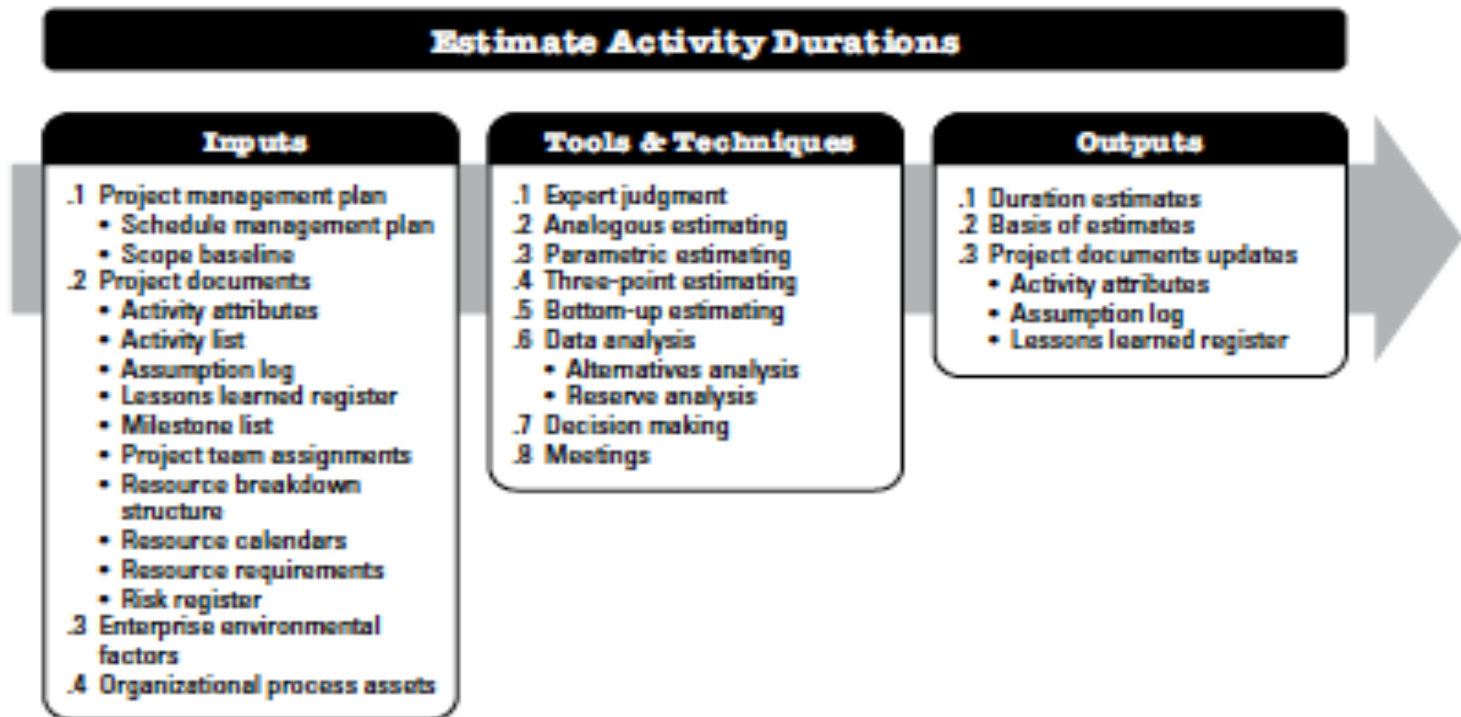
FIGURE 6.7 Forward pass through network diagram

Backward Pass



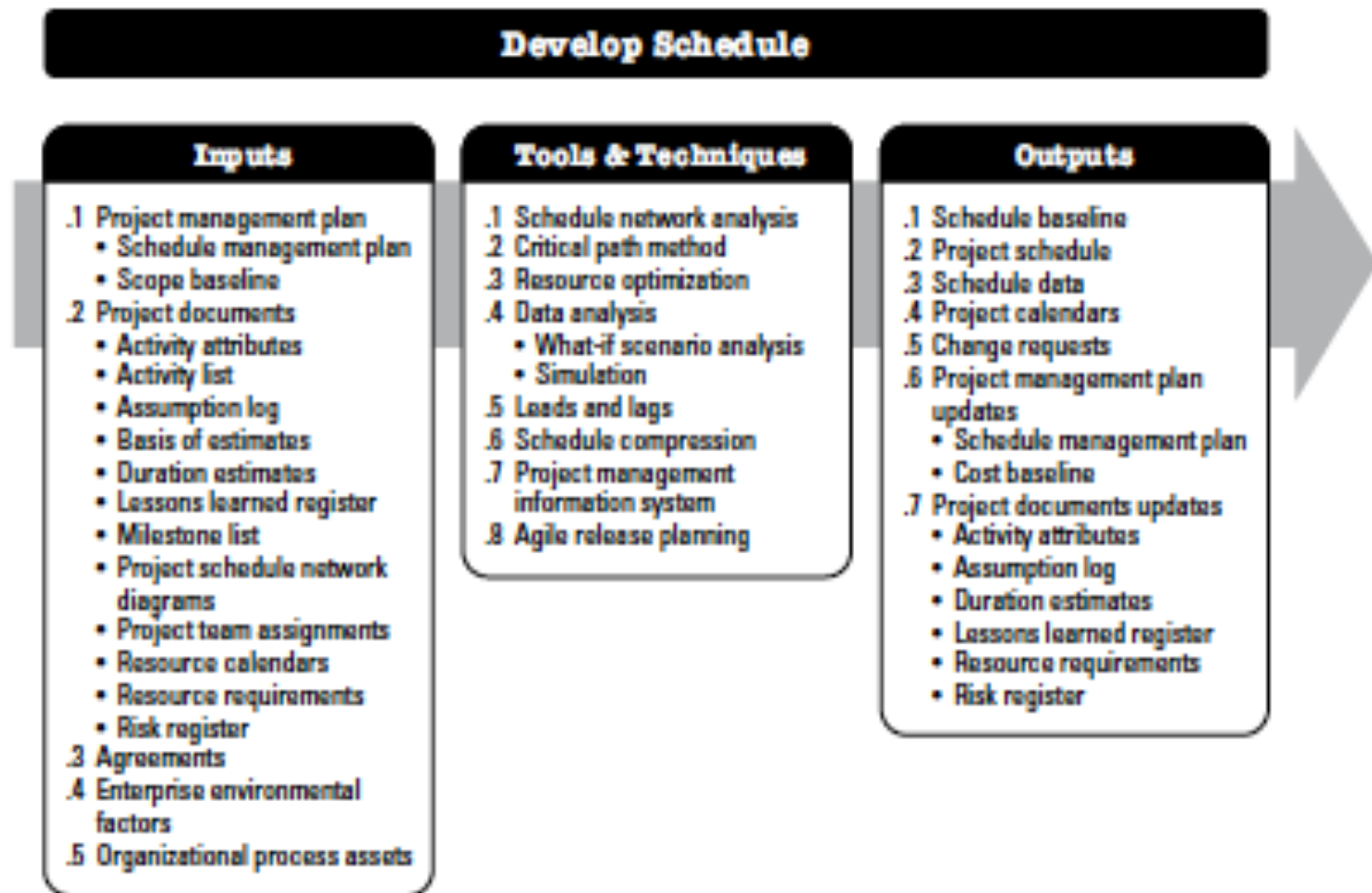
Estimate Activity Durations

- It is performed throughout the project and provides amount of time each activity will take to complete



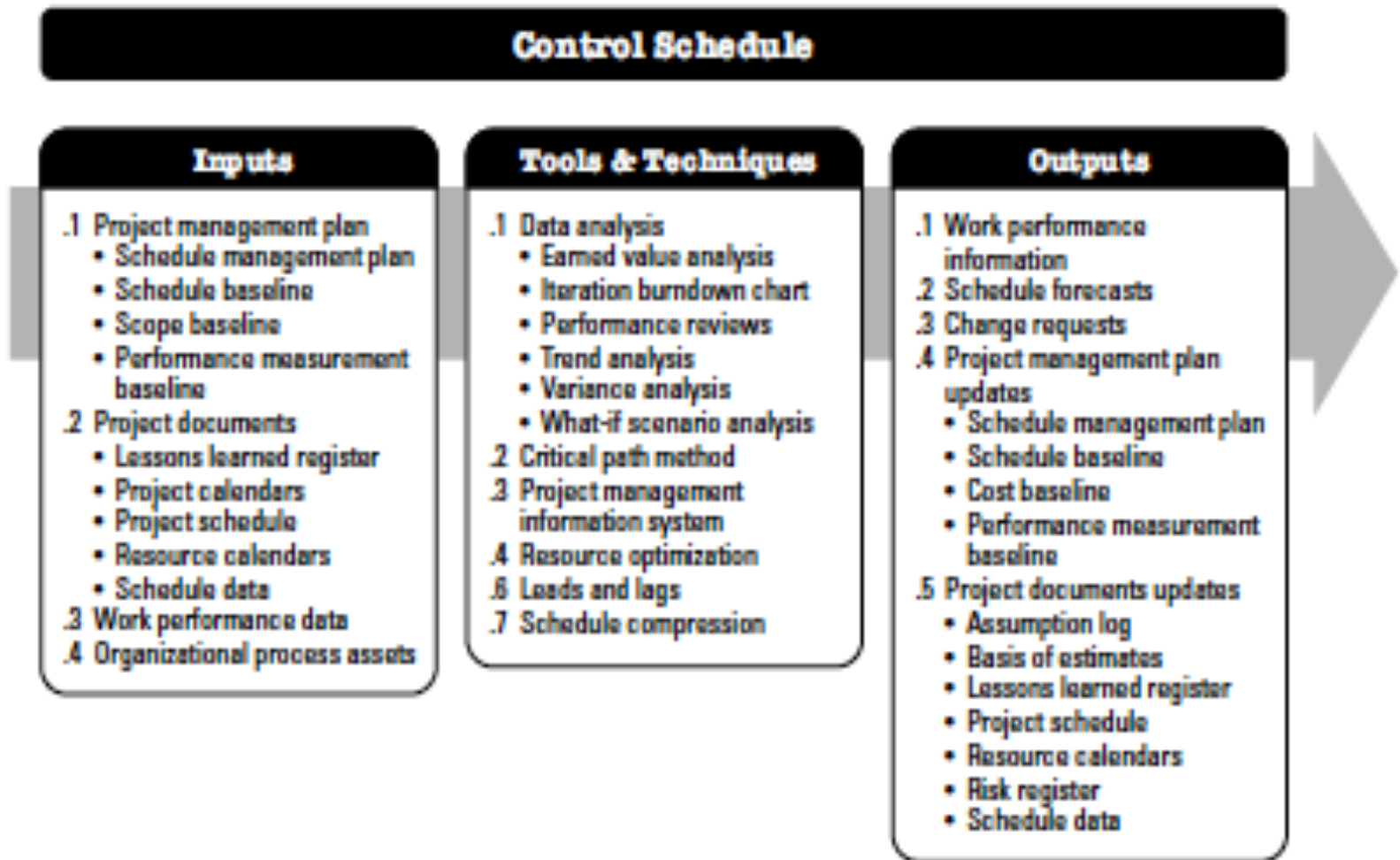
Develop Schedule

- It generates a schedule model with planned dates for completing project activities



Control Schedule

- It helps to maintain and control the schedule baseline throughout the project



Resource Management

Resource Management

- Resources refer to more than just human resources; it also includes materials, equipment, supplies and anything else needed to complete the project

The Resource Management Process	Done During
Plan Resource Management	Planning process group
Estimate Activity Resources	Planning process group
Acquire Resources	Executing process group
Develop Team	Executing process group
Manage Team	Executing process group
Control Resources	Monitoring and controlling process group

Resource Management

Exercise Did you complete the exercise on project roles in the Project Management Framework chapter? Your understanding of that content will impact how well you do on this exercise. You may want to review those pages before starting this exercise, or use the information in that exercise to fill your gaps.

This exercise is designed to help you answer situational questions on the exam dealing with project roles and responsibilities. If you disagree with some of the answers, make sure you are not reading something into the question, and assess whether it indicates a gap in your project management knowledge.

In the following table, write the initials of the key role responsible for solving each of the problems listed. Because much of the confusion of roles is between the team members (T), the project manager (PM), the sponsor (SP), and the functional manager (FM), this exercise is limited to those roles. Consider what you have learned about project roles, and remember to keep matrix organizations in mind when reading through these situations.

Situation	Key Role
1 Two project team members are having a disagreement.	
2 There is a change to the overall project deliverable.	
3 A functional manager is trying to pull a team member off the project to do other work.	
4 The project manager does not have the authority to get things done.	
5 There are not enough resources to complete the project.	
6 The team is unsure of what needs to happen when.	
7 An activity needs more time and will cause the project to be delayed.	
8 An activity needs more time without causing the project to be delayed.	
9 A team member is not performing.	
10 The team is not sure who is in charge of the project.	
11 There is talk that the project may no longer be needed.	
12 The sponsor provides an unrealistic schedule objective.	
13 The team is in conflict over priorities between activities.	
14 The project is behind schedule.	
15 A team member determines that another method should be used to complete an activity.	
16 The project is running out of funds.	
17 Additional work that will increase cost and that was not identified during the risk management process is added to the project.	

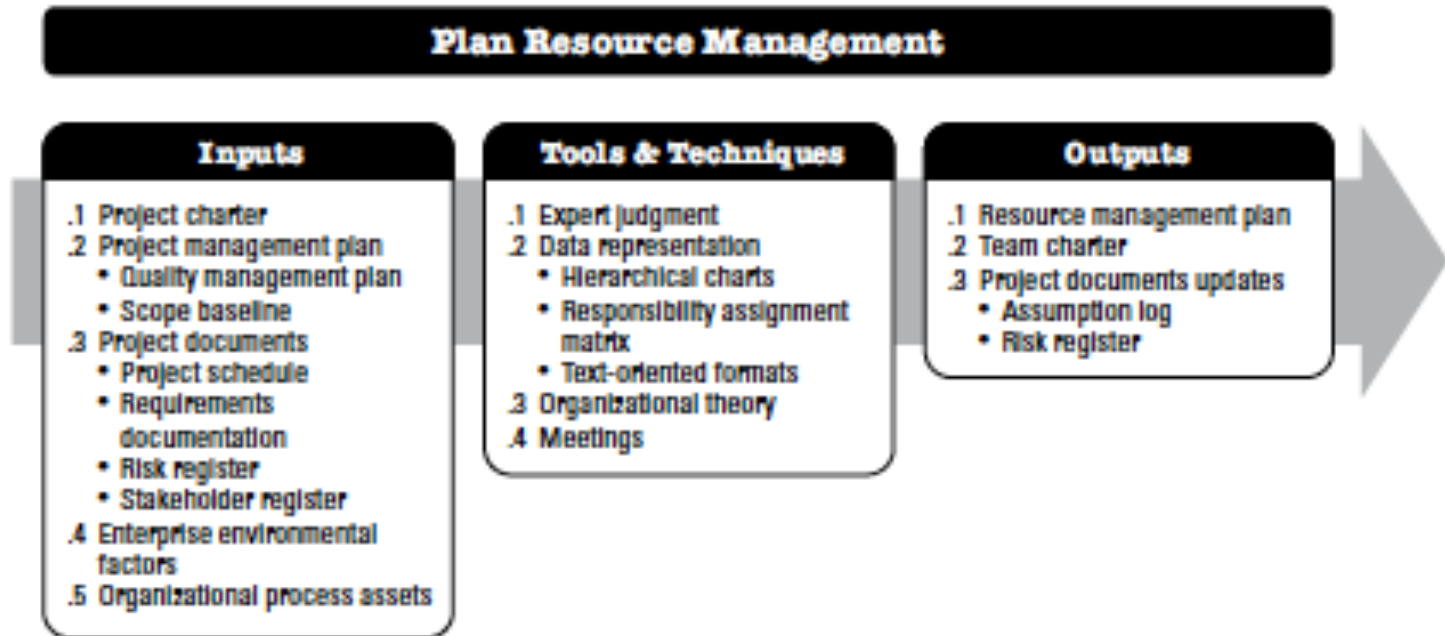
Resource Management

Situation	Key Role
<p>1 Two project team members are having a disagreement. <i>The people involved in the conflict should attempt to solve it themselves.</i></p>	T
<p>2 There is a change to the overall project deliverable. <i>A change to the project deliverable is a change to the project charter. Only the sponsor can approve changes to the project charter.</i></p>	SP
<p>3 A functional manager is trying to pull a team member off the project to do other work. <i>The project manager must give team members enough information (such as the schedule, network diagram, project management plan, and identified risks) so they can manage their own workloads. Because the word "trying" is used, we know this situation is occurring at the present time. If the question used the words "has pulled," the answer would be the project manager. Read situational questions carefully.</i></p>	T
<p>4 The project manager does not have the authority to get things done. <i>It is the sponsor's role to give the project manager authority via the project charter.</i></p>	SP
<p>5 There are not enough resources to complete the project. <i>The sponsor and functional manager control resources.</i></p>	SP/FM
<p>6 The team is unsure of what needs to happen when. <i>It is the project manager's role to take the individual estimates, combine them into the project schedule, and communicate that schedule to team members.</i></p>	PM
<p>7 An activity needs more time and will cause the project to be delayed. <i>Notice the word "will." This means the evaluation by the team is completed and there is no available reserve, since the project completion date is most likely included in the project charter. Any such changes are changes to the project charter and require sponsor involvement.</i></p>	SP
<p>8 An activity needs more time without causing the project to be delayed. <i>Think about integrated change control here. It is the project manager's role to look for impacts to the other project constraints.</i></p>	PM
<p>9 A team member is not performing. <i>In a matrix environment, the project manager and the functional manager share responsibility for directing resources.</i></p>	PM/FM
<p>0 The team is not sure who is in charge of the project. <i>The sponsor designates the project manager in the project charter.</i></p>	SP
<p>1 There is talk that the project may no longer be needed. <i>It is the sponsor's role to protect the project from changes, including such a large change as termination (unless it becomes clear that the project is no longer meeting the objectives of the organization).</i></p>	SP

Plan Resource Management

- This plan encompasses the management of HR as well as physical resources
- The key benefit of this process is that it establishes the approach and level of management effort needed for managing project resources based on the type and complexity of the project
- Resource planning is used to determine and identify an approach to ensure that sufficient resources are available for the successful completion of the project

Plan Resource Management



Assignment Matrix

RACI Chart	Person				
Activity	Ann	Ben	Carlos	Dina	Ed
Create charter	A	R	I	I	I
Collect requirements	I	A	R	C	C
Submit change request	I	A	R	R	C
Develop test plan	A	C	I	I	R
R = Responsible A = Accountable C = Consult I = Inform					

Estimate Activity Resources

- Estimate activity resources is the process of estimating team resources and the type/qty of materials, equipment, and supplies necessary to perform project work
- This process is performed periodically throughout the project s needed

Estimate Activity Resources

Estimate Activity Resources

Inputs

- .1 Project management plan
 - Resource management plan
 - Scope baseline
- .2 Project documents
 - Activity attributes
 - Activity list
 - Assumption log
 - Cost estimates
 - Resource calendars
 - Risk register
- .3 Enterprise environmental factors
- .4 Organizational process assets

Tools & Techniques

- .1 Expert judgment
- .2 Bottom-up estimating
- .3 Analogous estimating
- .4 Parametric estimating
- .5 Data analysis
 - Alternatives analysis
- .6 Project management information system
- .7 Meetings

Outputs

- .1 Resource requirements
- .2 Basis of estimates
- .3 Resource breakdown structure
- .4 Project documents updates
 - Activity attributes
 - Assumption log
 - Lessons learned register

Acquire Resources

- It is the process of obtaining team members, facilities, equipment, materials, supplies and other resources necessary to complete project work
- It outlines and guides the selection of resources and assigns them to their respective activities

Acquire Resources

Acquire Resources

Inputs

- .1 Project management plan
 - Resource management plan
 - Procurement management plan
- .2 Project documents
 - Cost baseline
 - 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

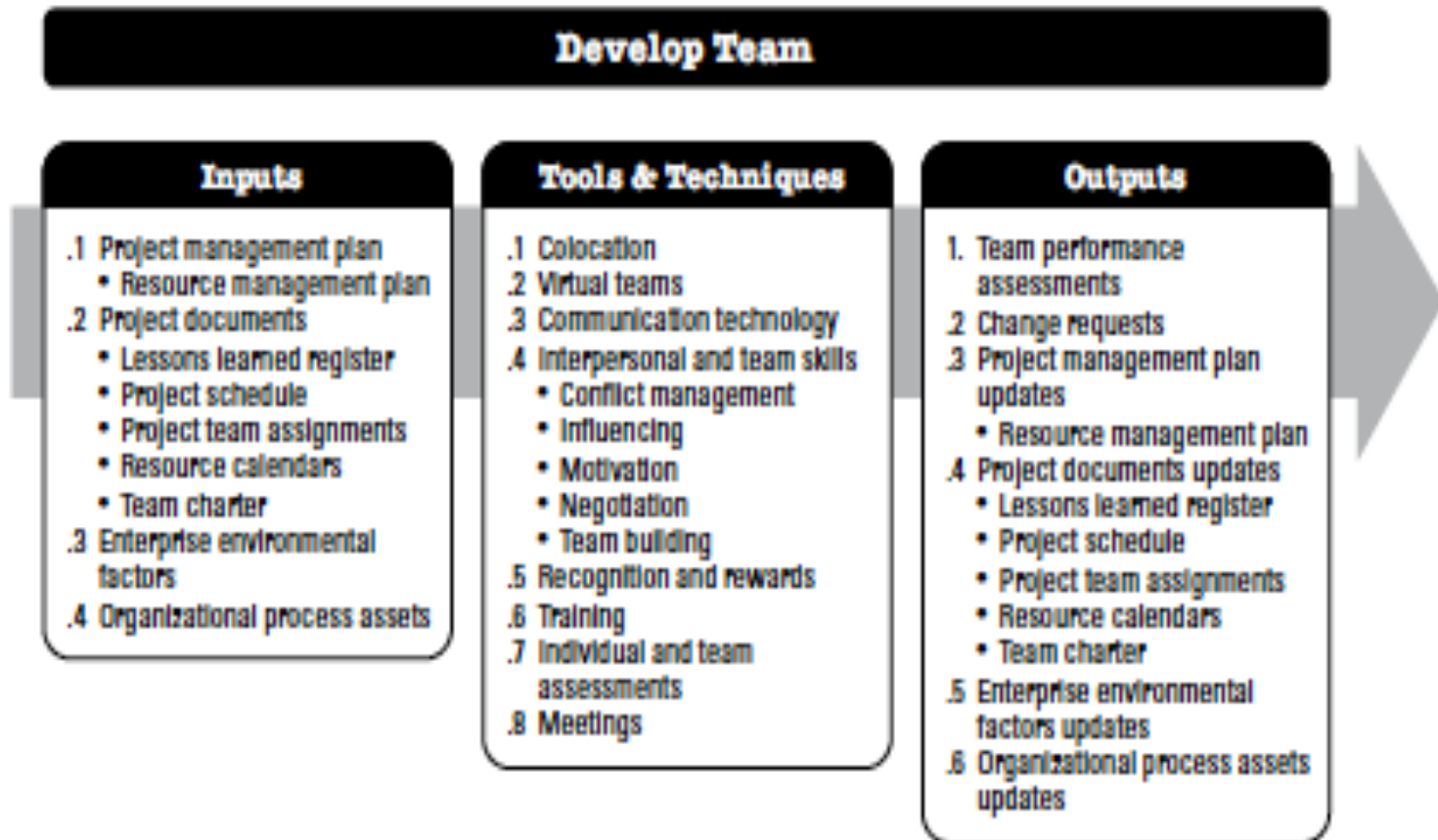
Outputs

- .1 Physical resource assignments
- .2 Project team assignments
- .3 Resource calendars
- .4 Change requests
- .5 Project management plan updates
 - Resource management plan
 - Cost baseline
- .6 Project documents updates
 - Lessons learned register
 - Project schedule
 - Resource breakdown structure
 - Resource requirements
 - Risk register
 - Stakeholder register
- .7 Enterprise environmental factors updates
- .8 Organizational process assets updates

Develop Team

- It is the process of improving competencies, team member interaction, and the overall team environment to enhance project performance
- It results in improved teamwork, enhanced interpersonal skills and competencies, motivated employees, reduced attrition, and improved overall project performance

Develop Team



Manage Team

- It is the process of tracking team members performance, providing feedback, resolving issues and managing team changes to optimize project performance
- Its key benefit is that influences team behavior, manages conflict, and resolves issues

Manage Team

Manage Team

Inputs

- .1 Project management plan
 - Resource management plan
- .2 Project documents
 - Issue log
 - Lessons learned register
 - Project team 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

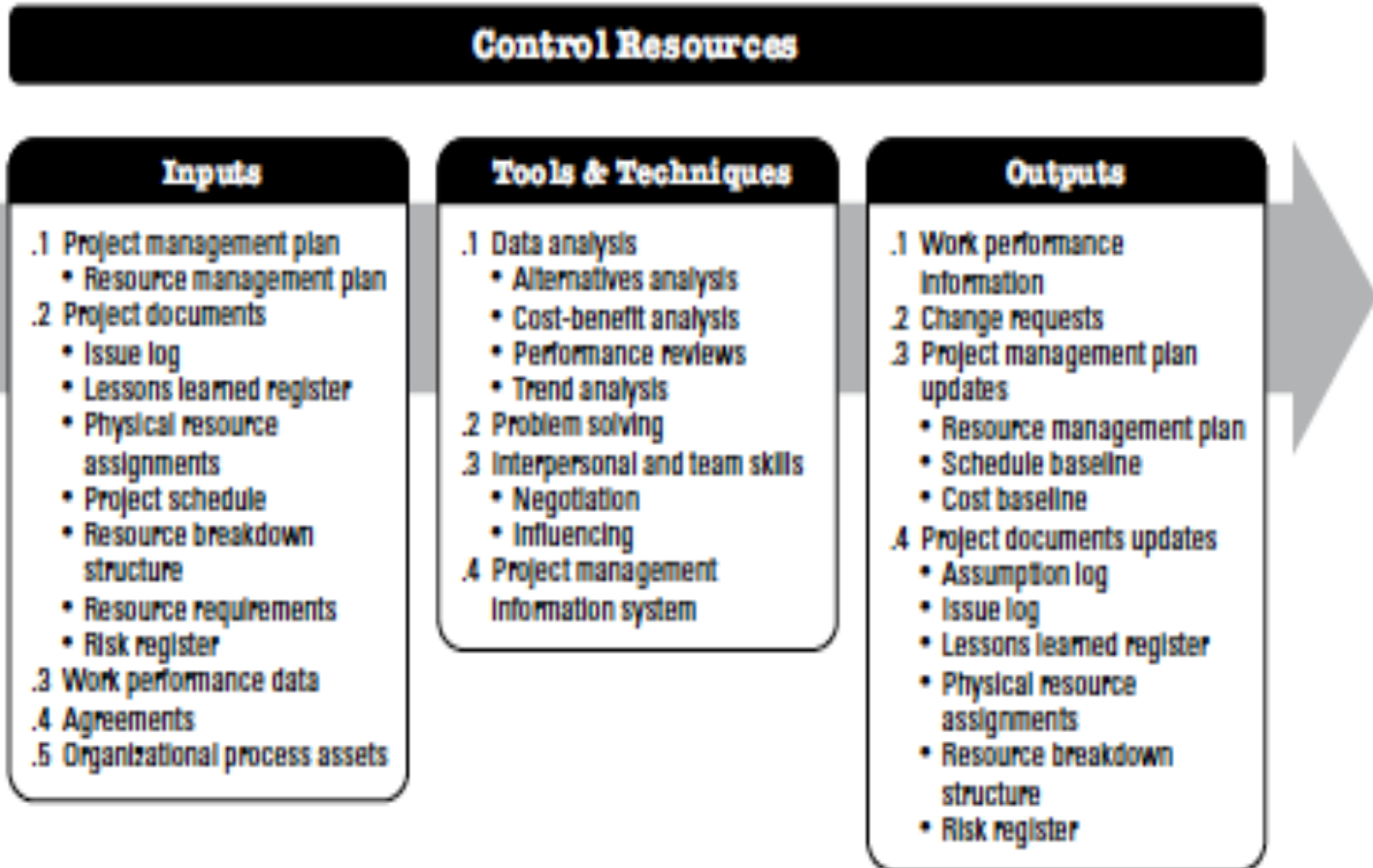
Outputs

- .1 Change requests
- .2 Project management plan updates
 - Resource management plan
 - Schedule baseline
 - Cost baseline
- .3 Project documents updates
 - Issue log
 - Lessons learned register
 - Project team assignments
- .4 Enterprise environmental factors updates

Control Resources

- It is the process of ensuring that 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
- Its key benefit is ensuring that the assigned resources are available to the project at the right time and in the right place and are released when no longer needed

Control Resources



Agenda

- Change
- Organizational change
- Change management
- Level of change management
- Change management in project management
- Motivation for change management

Agenda

- Building block of successful change
- Change management strategy
- ITIL change management
- Change management Roles
- Change management process
- Change management process flow

Change

- Move from current state to future state through transition
- Can be motivated internally or externally
- Can be anticipated or unexpected
- Inevitable and accelerating

Organizational Change

- Linked to business and performance goals
- Change in
 - Structure
 - Strategy
 - Operational method
 - Technology
 - Organizational culture
- Continuous or for distinct periods of time

Change Management

- Systematic approach to manage change effectively for transition and transformation of organizational goals, processes or technologies
- Management of change through body of knowledge, including processes and procedures
- For management of people side of business change to achieve desired results

Levels of Change Management

- Individual Change Management
- Organizational Change Management
- Enterprise Change Management

Communication needs based on different levels:

- Kind of communication
- Time of communication
- Mode of communication

Change Management in Project Management

- Scope
- Schedule
- Cost
- Quality
- Human resources
- Communications
- Risk
- Procurement
- Stakeholders

Motivation for Change Management

- Productivity decline
- Resistance from employees
- Employee turnover
- Unsuccessful implementation of full change
- Lack of change competency in the organization for future changes
- Communication gaps
- Increase in cost

Change Management Strategy

- Based on impact on processes, systems and employees
- Processes are required for
 - Planning and testing change
 - Communication change
 - Schedule and implementation change
 - Document change
 - Evaluation of impacts from change

Change Management Strategy

- Documentation is required for
 - Audit trail
 - Rollback
 - Compliance with internal and external controls including regulatory compliance
- Needs accurate accounting and impacts of change on
 - Systems
 - Applications
 - Employees

ITIL Change Management

- Change

The addition, modification or removal of any authorized, planned or supported service or component that could have effect on IT services.
- Standard changes
 - Pre-approved changes
 - Considered relatively low risk
 - Performed frequently
 - Follow documented (change management approved) process
 - Changes in production environment
 - Not tracked as RFC but as service request
- Non-standard changes – need RFC

ITIL, an acronym for Information Technology Infrastructure Library, is a set of detailed practices for IT service management that focuses on aligning IT services with the needs of business. ITIL describes processes, procedures, tasks, and checklists which are neither organization-specific nor technology-specific, but can be applied by an organization toward strategy, delivering value, and maintaining a minimum level of competency. ITIL underpins [ISO/IEC 20000](#) (previously BS 15000).

ITIL Change Management

- Types of changes
 1. Standard Change – Don't require RFC
 2. Normal Change – Subject to full change management review process
 - Application Changes
 - Hardware Changes
 - Software Changes
 - Network Changes
 - Documentation Changes
 - Environmental Changes

ITIL Change Management

3. Major Change -

- Requires in-depth change proposal with financial justification and approval process from different levels of management
- Environmental

4. Emergency/Urgent

- Require assessment and implementation as quickly as possible
- High failure rate
- Should be kept minimum

Change Management Roles

1. Change Requester/Initiator
2. Change Manager
 - Owner of change management process
 - Reviews, sends back RFC for insufficient information or forwards RFC for approval process
 - Leads CAB meetings
3. Service Manager
 - Representative for clients (teams/departments)
 - Approve/reject RFC for CAB

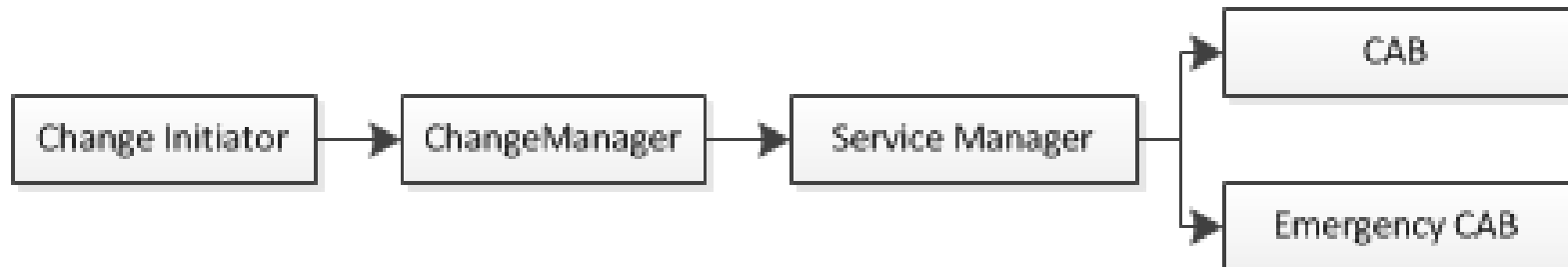
Change Management Roles

4. Change Advisory Board (CAB)

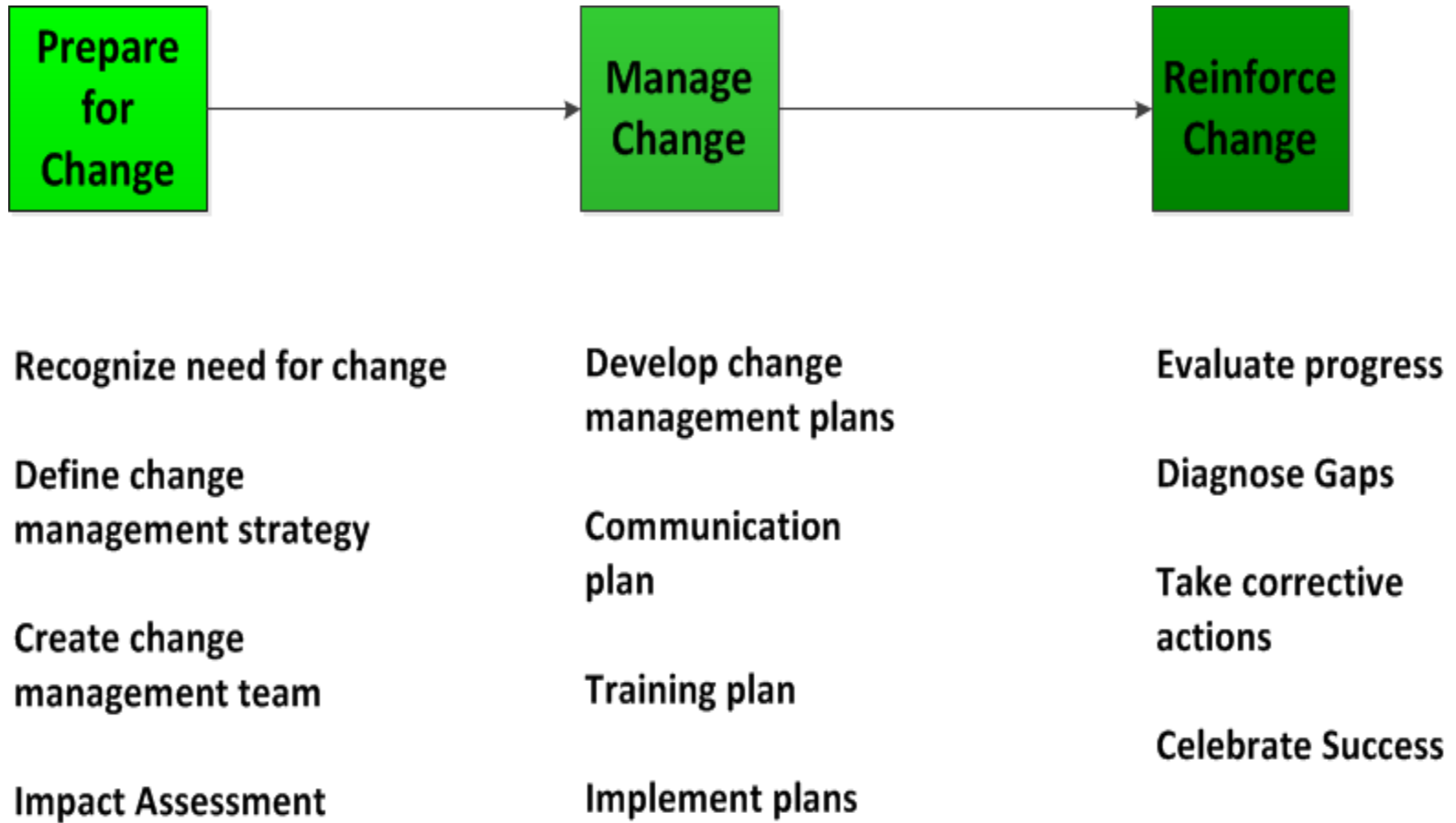
- Represented by different teams including business, financial and technical
- Perform change assessments
- Chaired by change manager

5. Emergency CAB

- CAB for emergency RFC



Change Management Process



Change Management Process Flow

