

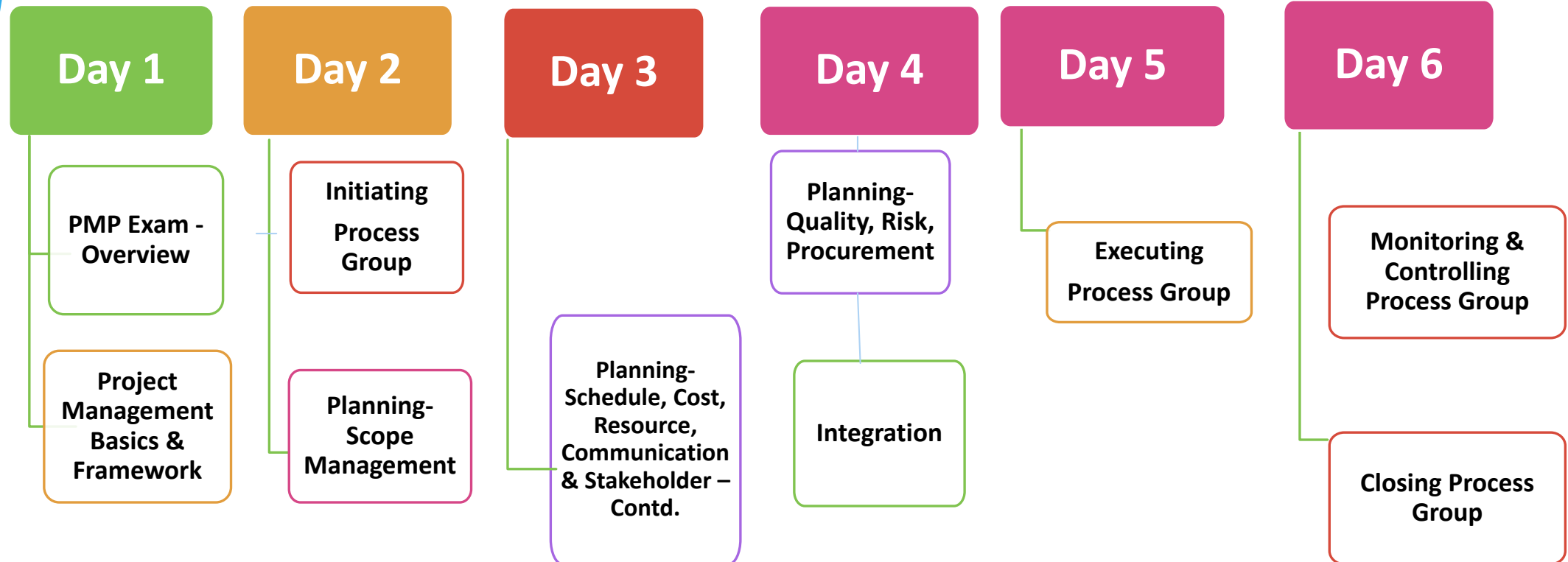
Sureshot™ PMP® Preparation Program

Based on

Project Management Institute,
A Guide to the Project Management Body of Knowledge, (PMBOK® Guide) – Sixth Edition,

Project Management Institute, Inc., 2017

Agenda



Combined with:

- Exercises
- Mock Exams
- Tips & Tricks



Introduction

- Name
- Role
- Organization
- Expectations
- Any previous Project Management Training





Scope of the Program

In Scope

- A project management course for experienced professionals
- Focus is to PASS PMP® Certification
- Based on *Guide to PMBOK® - Sixth Edition*
- Descriptive in nature

Out of Scope

- Templates will not be created
- Not a Case Study based approach training
- Consulting of projects will not be provided



Learning Objectives

- Best Practices of Project Management as per Project Management Institute (PMI®), USA
- Remove the gaps in the existing project management practices that are being followed
- Contribute to the organization's project management practices
- Learn, Unlearn, Evaluate, Apply, and Pass PMP® Certification

PMP® Exam - Overview

Based on LATEST PMI® Processes



About PMP® Certification

Based on Guide to
PMBOK®

Globally Recognized

One of the highest
paid certified
professionals





PMP® Exam – Qualification (Scenario 1)

Education:

- Four Year Degree or Global Equivalent

Project Management Experience:

- 4500 hours leading and directing projects

Formal Project Management Education

- 35 hours of project management education





PMP® Exam – Qualification (Scenario 2)

Education:

- Secondary degree

Project Management Experience:

- 7500 hours leading and directing projects

Formal Project Management Education

- 35 hours of project management education





PMP® Exam – Process



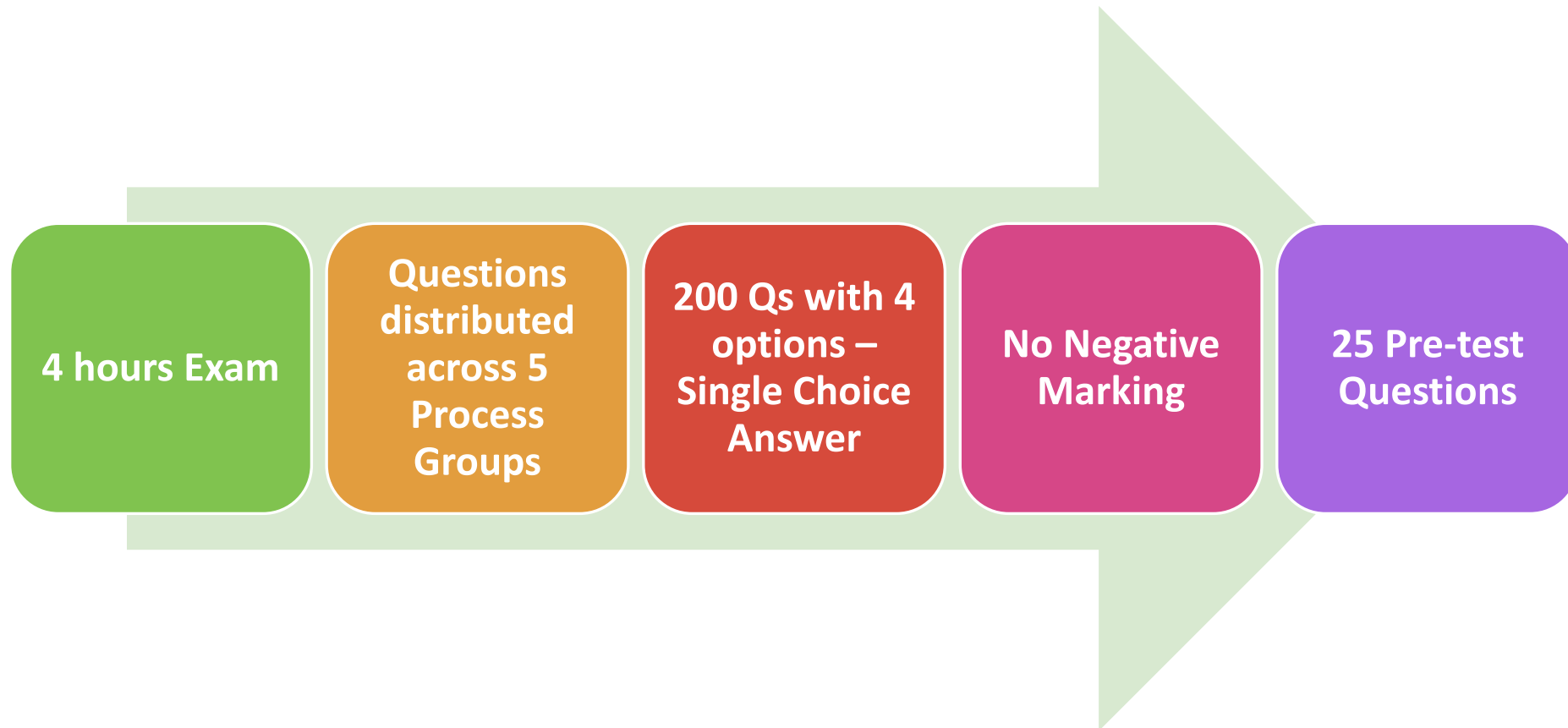
PMI® Members vs Non-Members

Description	PMI® Members	Non-Members
Initial Membership Cost	\$10 (One Time Registration) + \$129 (Annual Membership Fee)	✗
eCopy of PMBOK (download)	✓	✗
Exam Fees	\$405	\$555
PM Journals, etc	✓	✗

To become a member of PMI® - log on to www.pmi.org, and take the Individual Membership

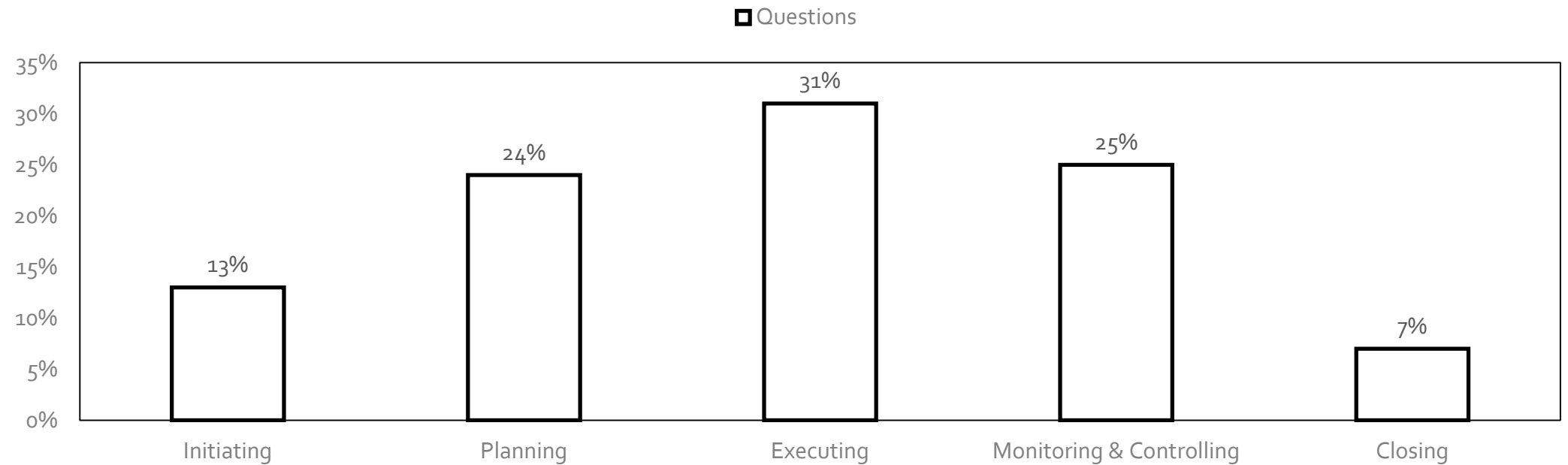


PMP® Exam





% Distribution of Questions





KNOWLETT LEARNING
KNOWLETTWOODS
KNOWLEDGEWOODS

Baseline Assessment Test

15 minutes





KNOWLETT LEARNING
KNOWLETTWOODS
KNOWLEDGEWOODS

Project Management Basics & Framework

Based on Guide to PMBOK® - Sixth Edition





Learning Objectives

- Basics of project & project management
- Factors influencing a project
- Different lifecycles





What is a Project?

Temporary endeavor.

Create a unique product,
service, or result.





Why Organizations do Projects?

New technology

Competitive
forces

Material issues

Political changes

Market demand

Economic
changes

Customer
request

Stakeholder
demands

Legal
requirement

Business process
improvements

Strategic
opportunity or
business need

Social need

Environmental
considerations





How Organizations Do Projects?

Divide it into phases for **extra control**, ease of management

Depending on the **size, complexity & impact**

Collectively called **project life cycle**

Typically deliverable oriented

Phase Ends Reviews : **Phase Exits, Stage Gates** or **Kill Points**

Example of Phases: - Analysis, Design, Development, Testing





How Organizations Do Projects?

Project & Development Lifecycles

- ☐ Project life cycles can be predictive or adaptive.
- ☐ Within a project life cycle, there are generally one or more phases that are associated with the development of the product, service, or result. These are called a development life cycle.
- ☐ Development life cycles can be
 - Predictive
 - Change-driven

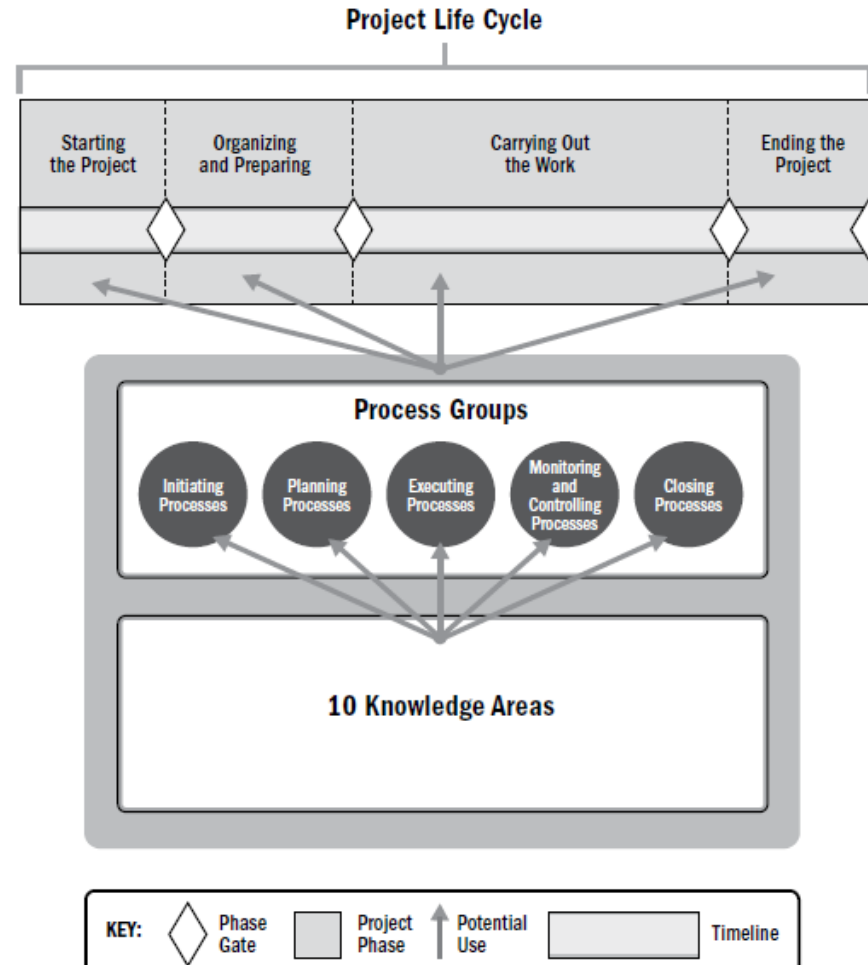


How Organizations Manage Projects?

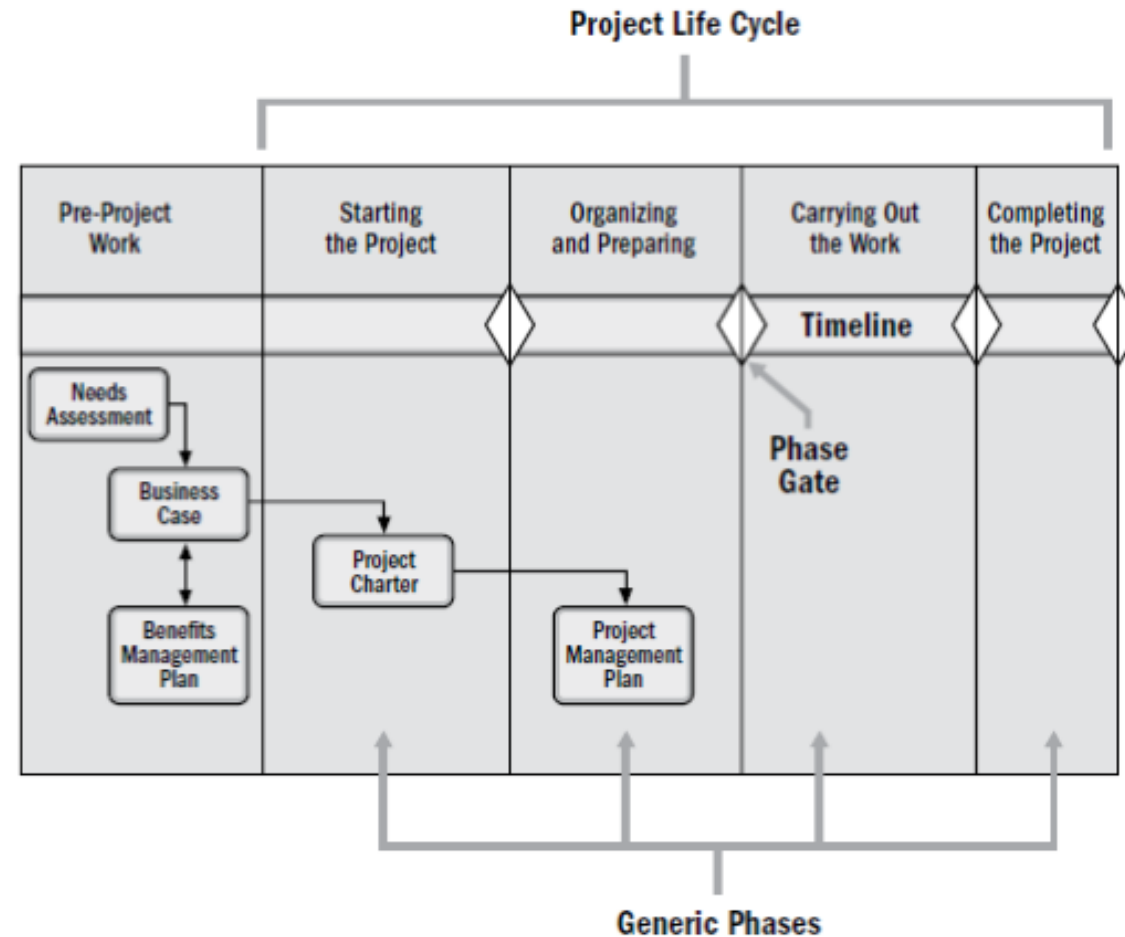
- Through application of
 - Knowledge,
 - Skills,
 - Tools and Techniques
- **Accomplished throughout**
 - ✓ Initiating,
 - ✓ Planning,
 - ✓ Executing
 - ✓ Monitoring and Controlling
 - ✓ Closing



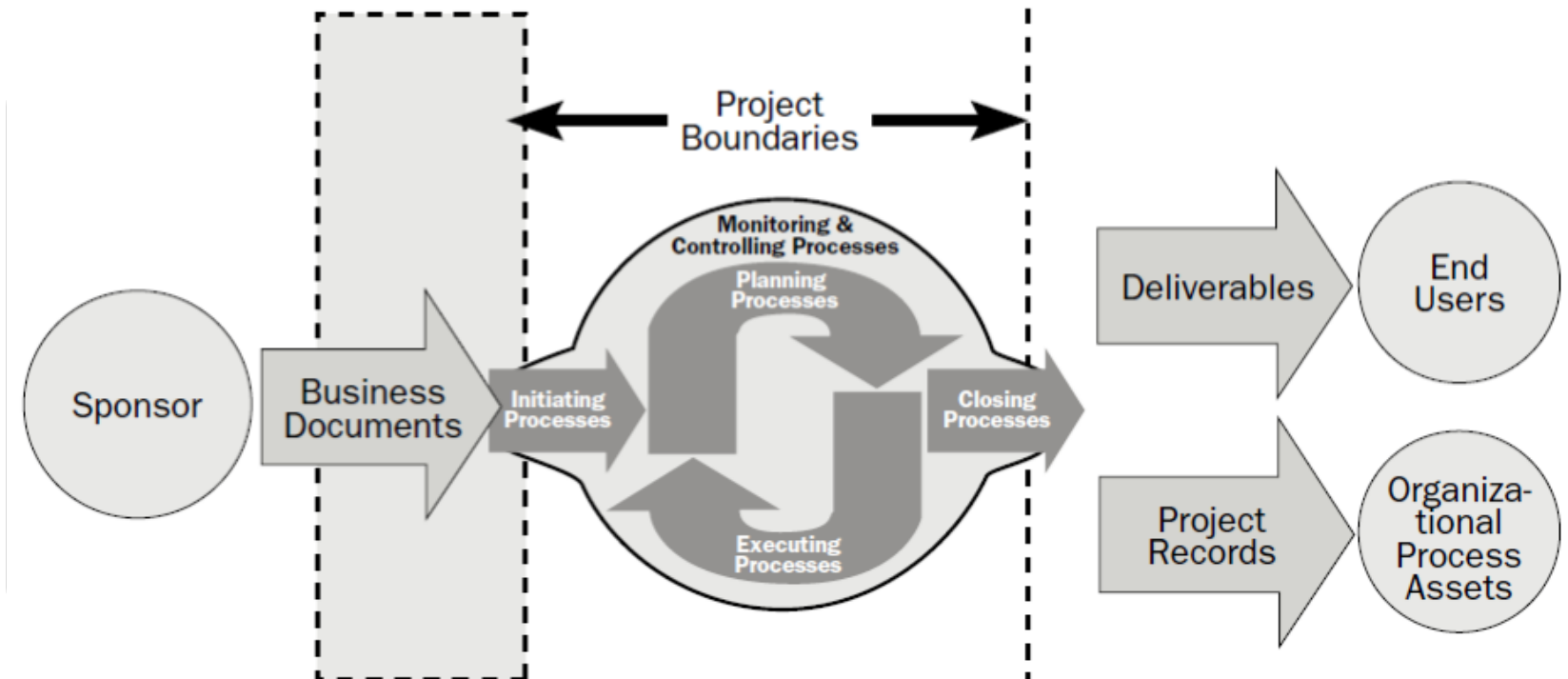
How Organizations Manage Projects?



Understanding the Overall Spectrum

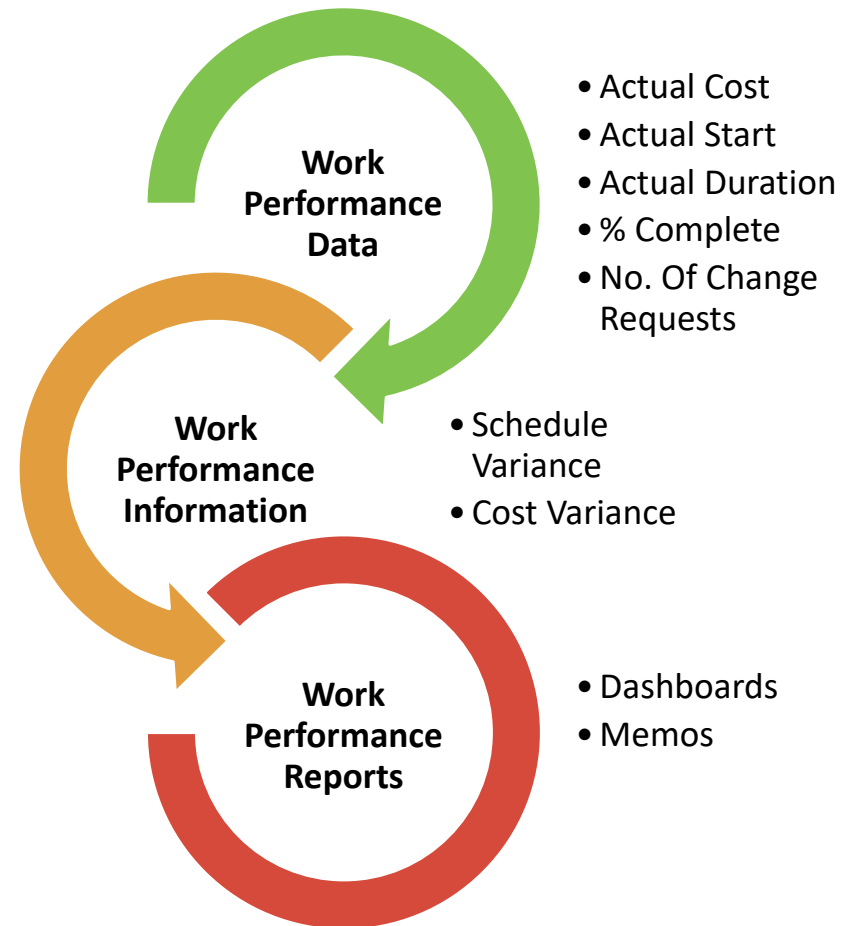


Understanding the Overall Spectrum

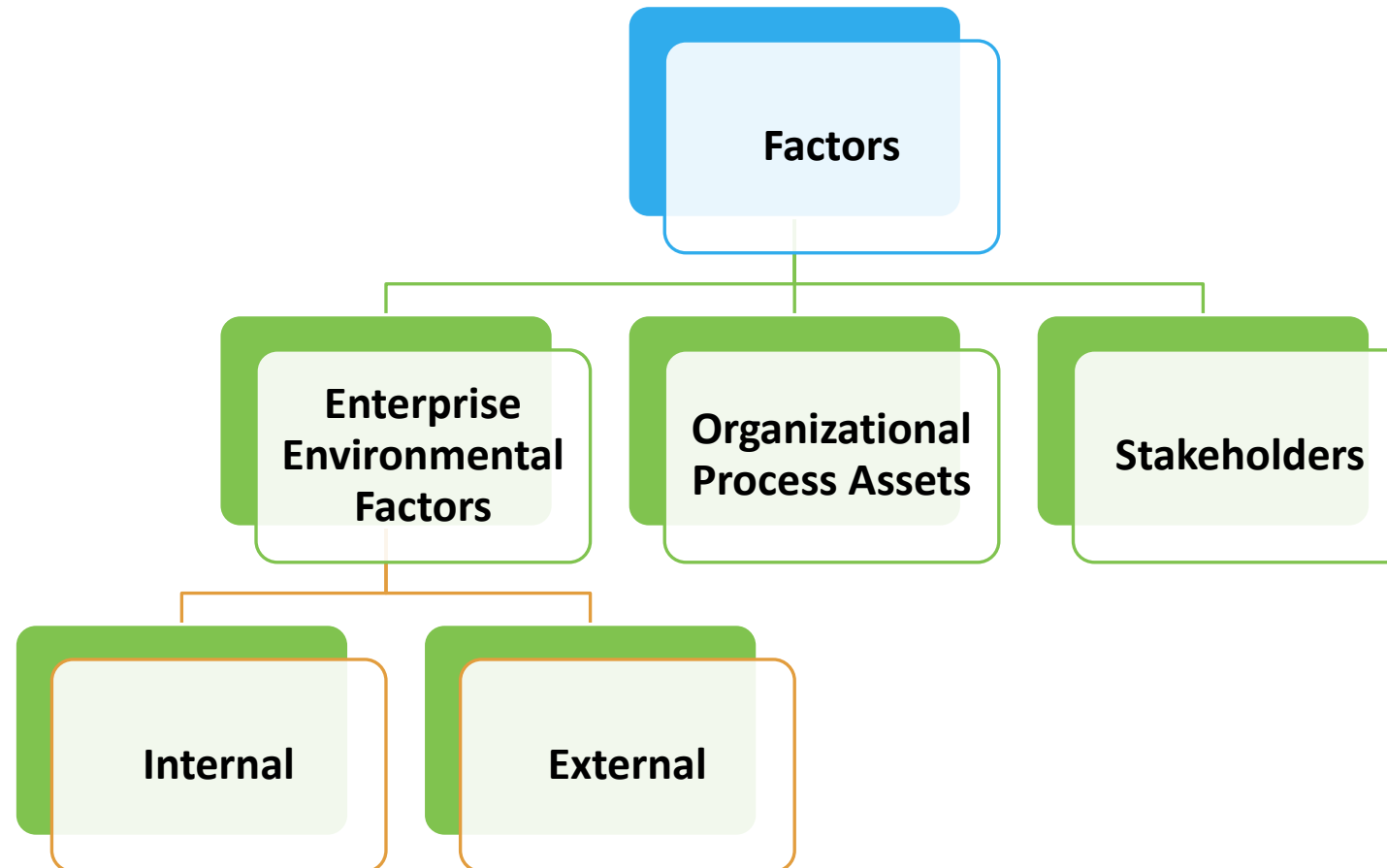




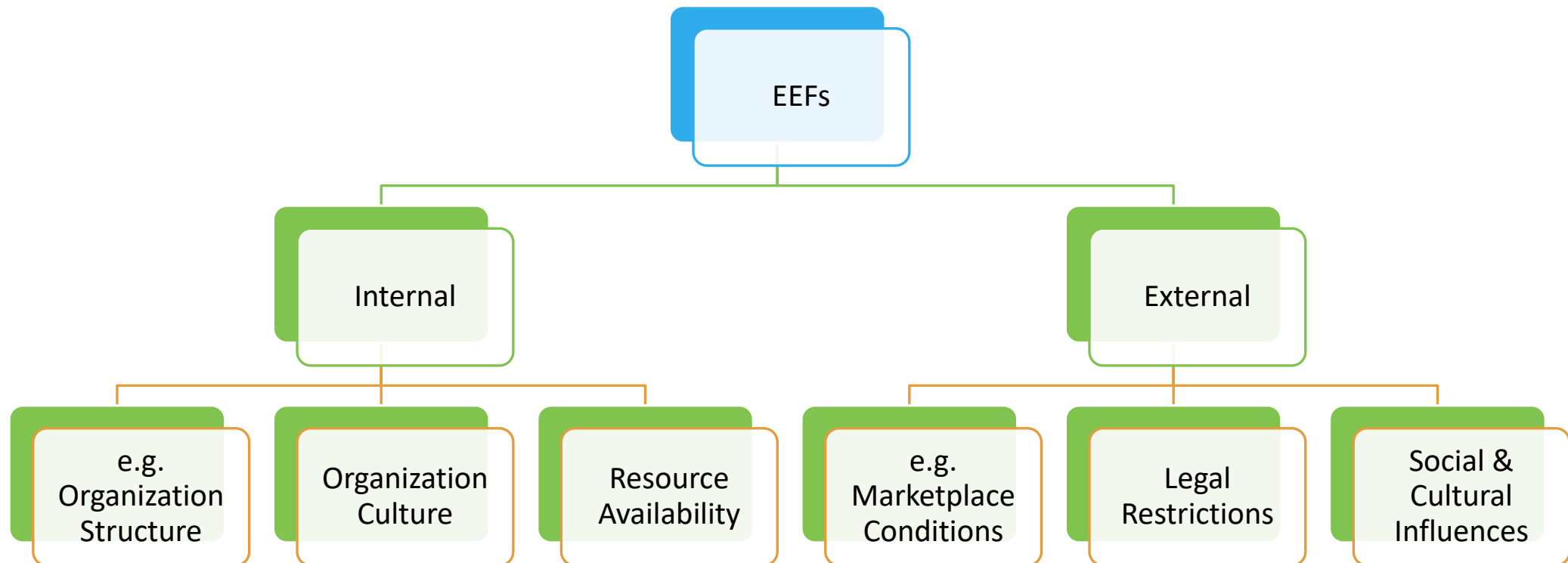
Flow of Information



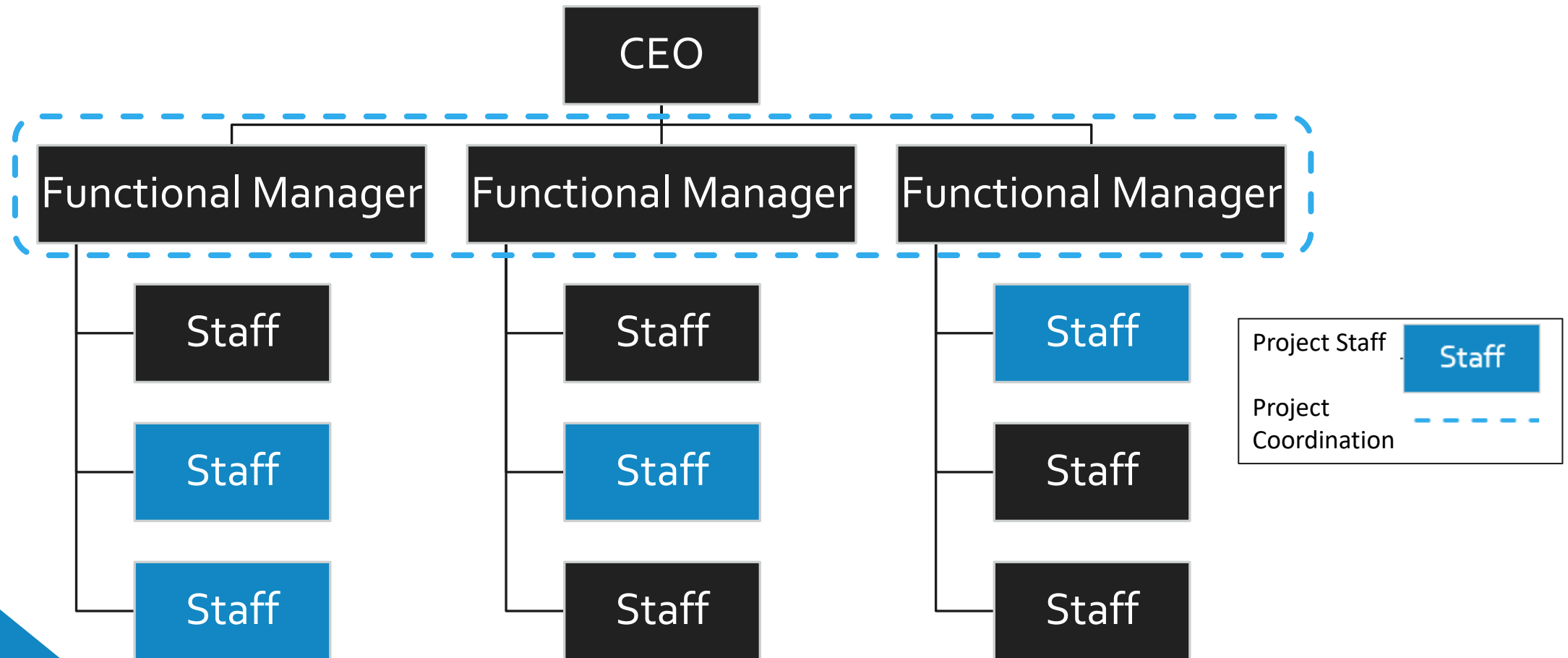
Factors Influencing a Project



Enterprise Environmental Factors (EEFs)

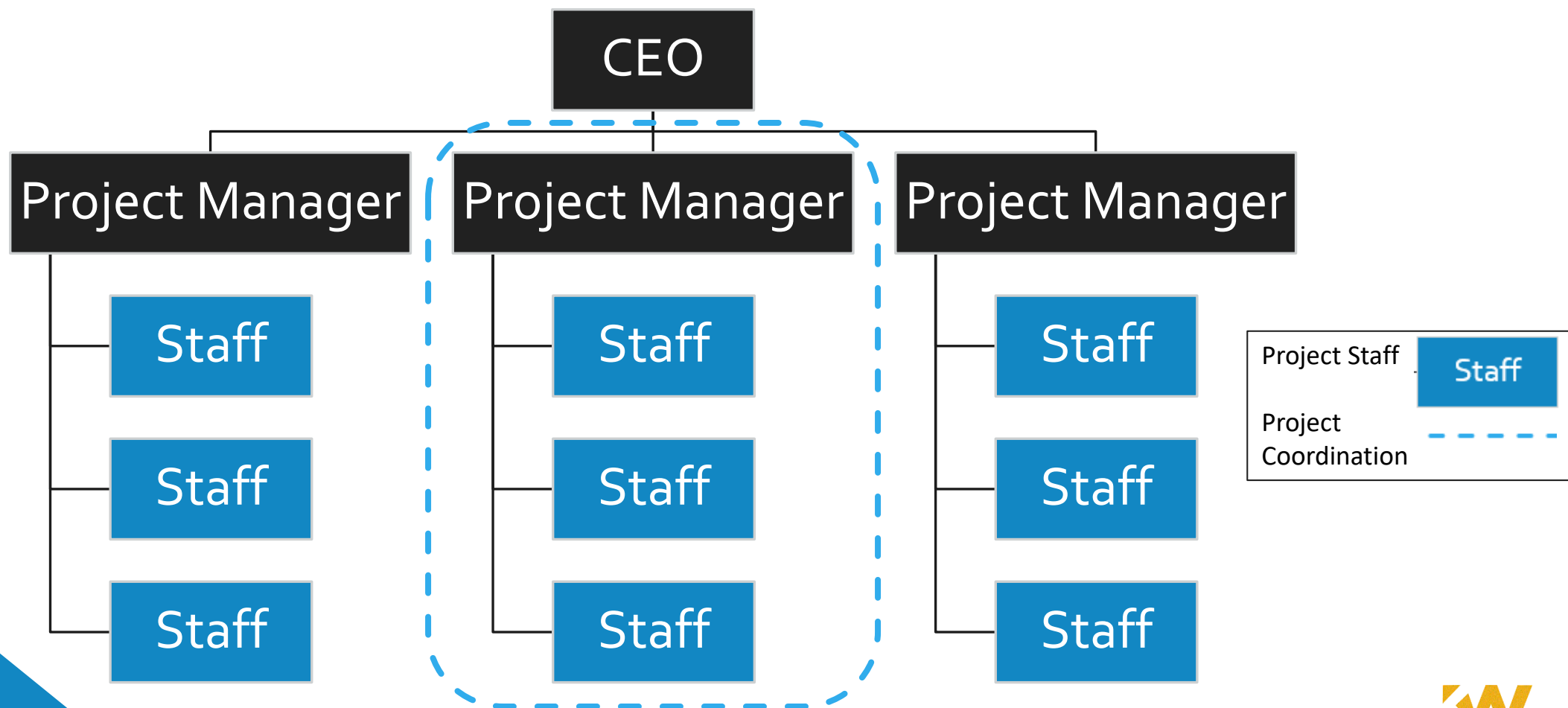


Functional Organization

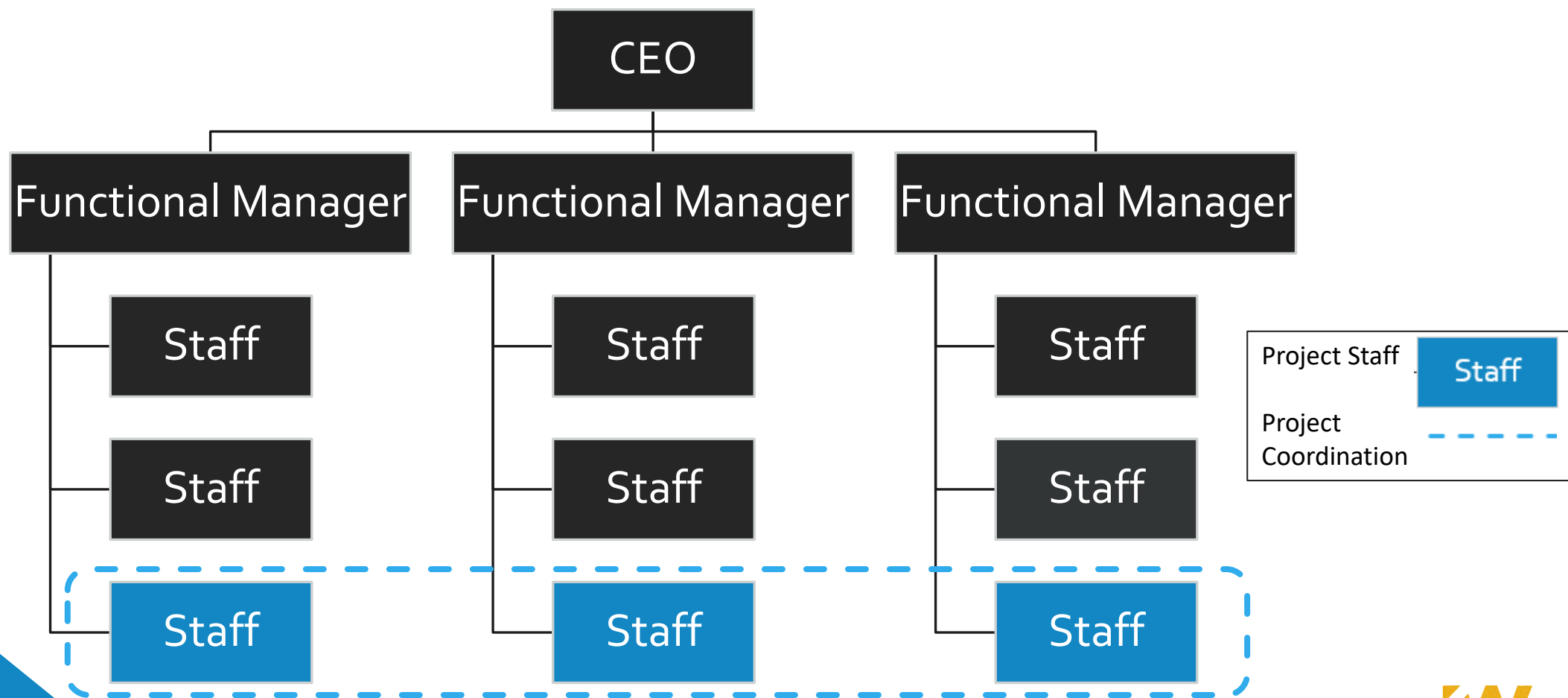




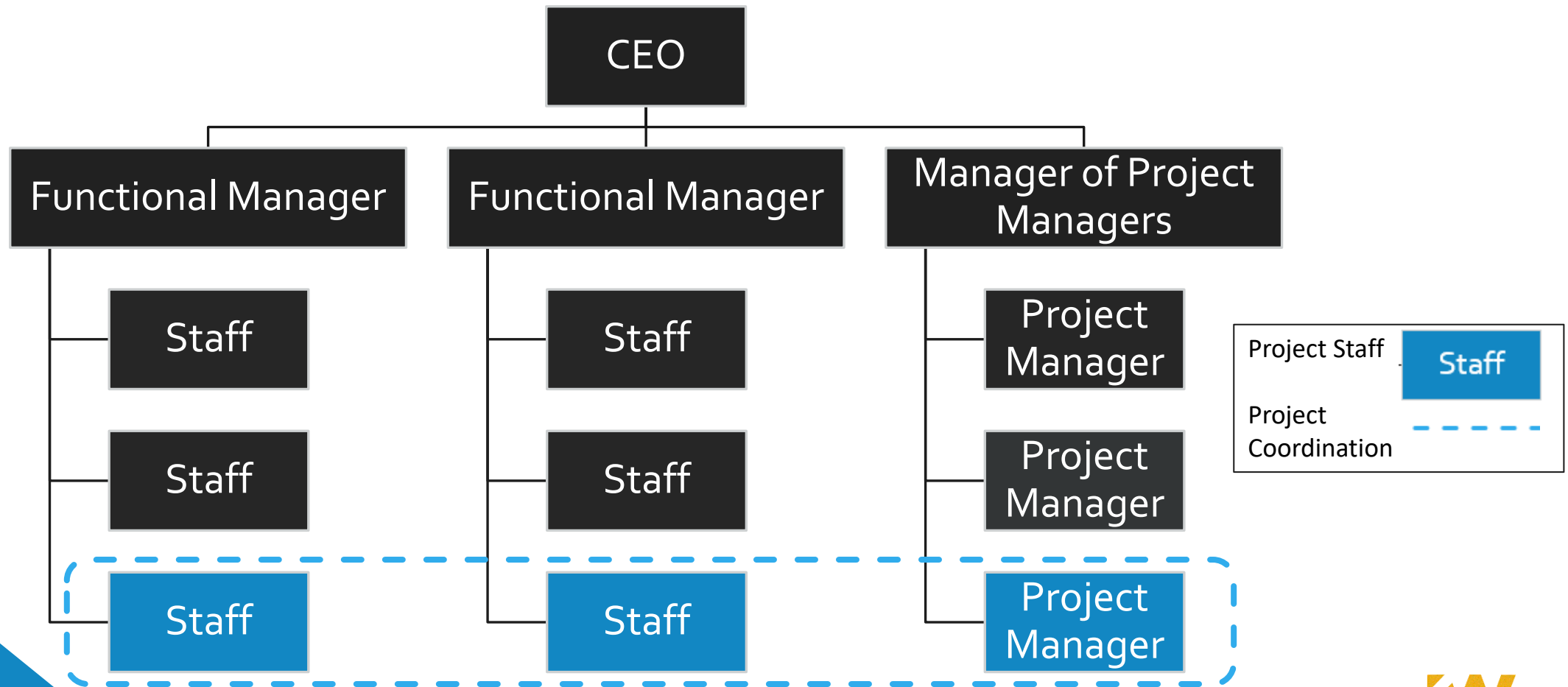
Projectized Organization



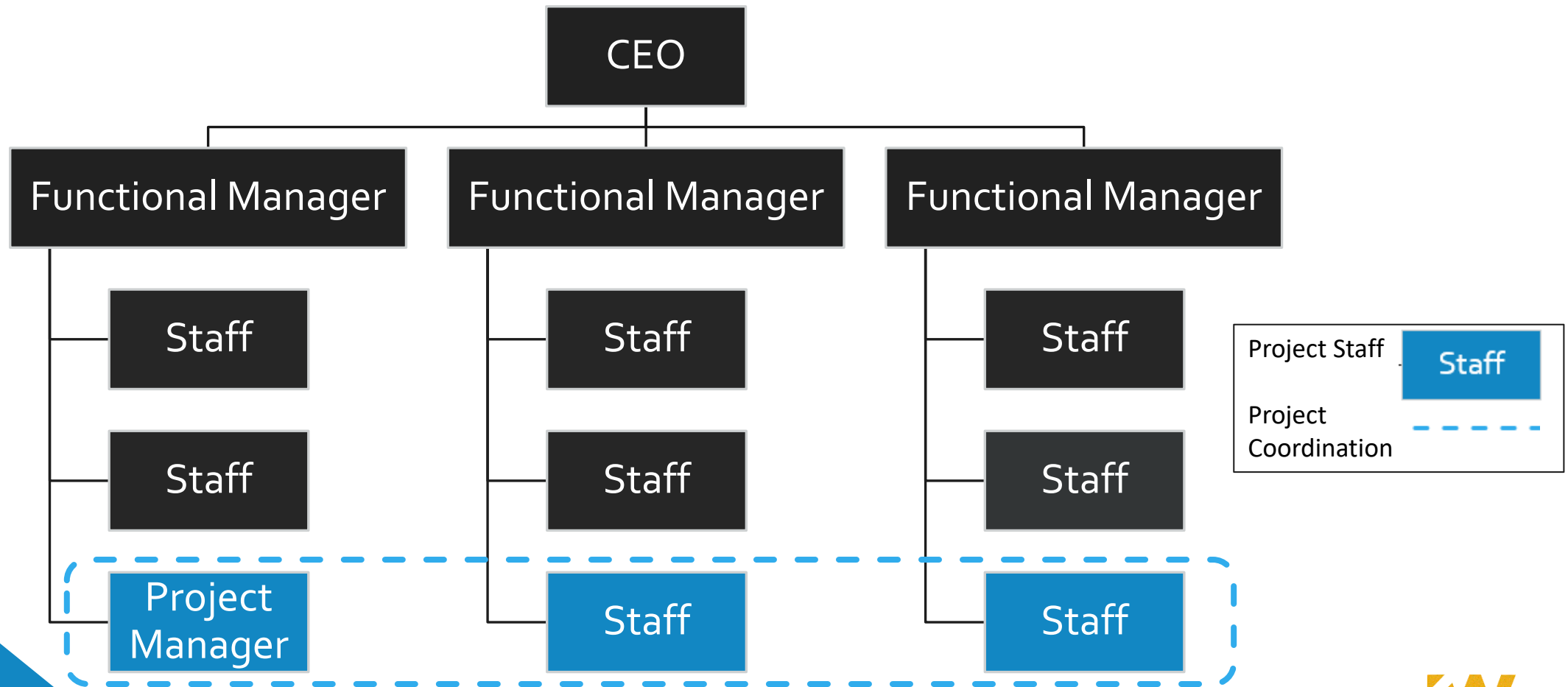
Weak Matrix Organization



Strong Matrix Organization

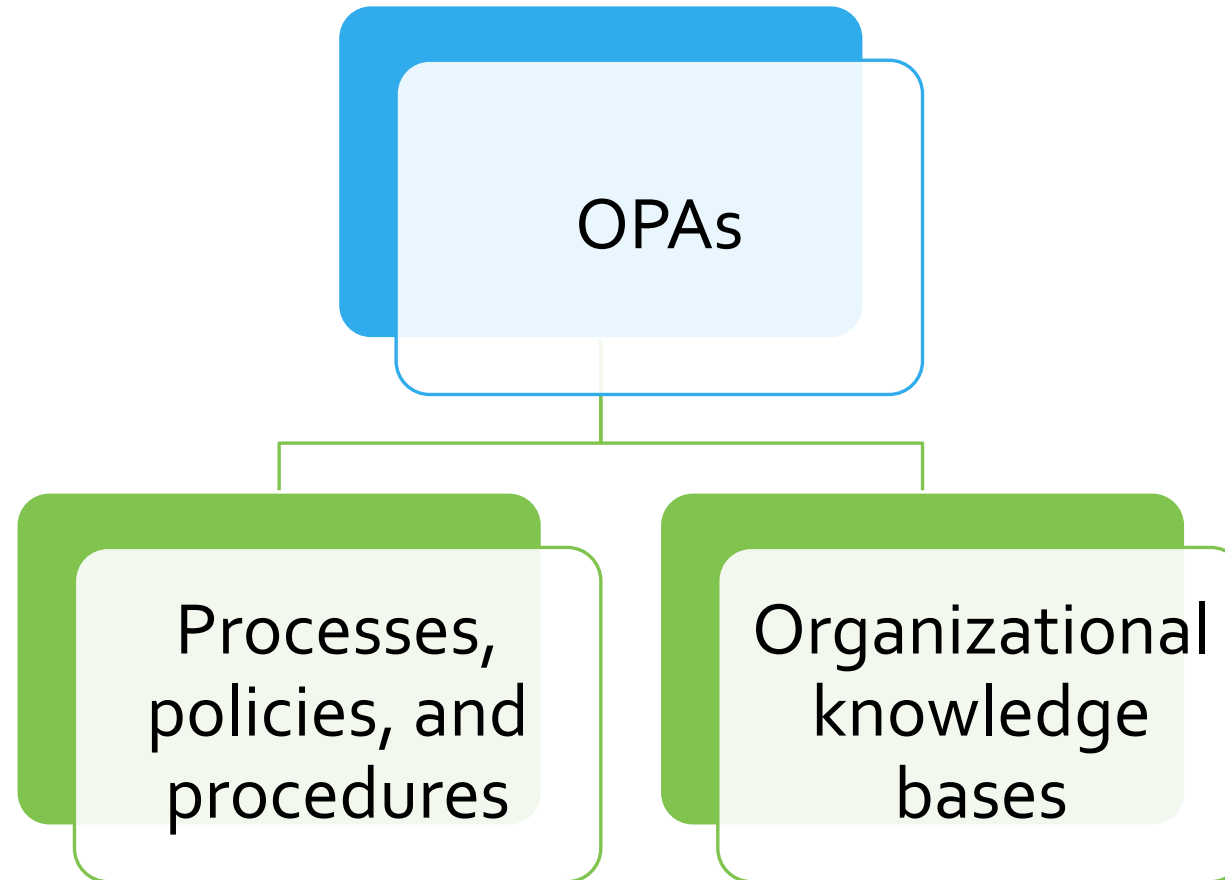


Balanced Matrix Organization





Organizational Process Assets (OPAs)



Stakeholders

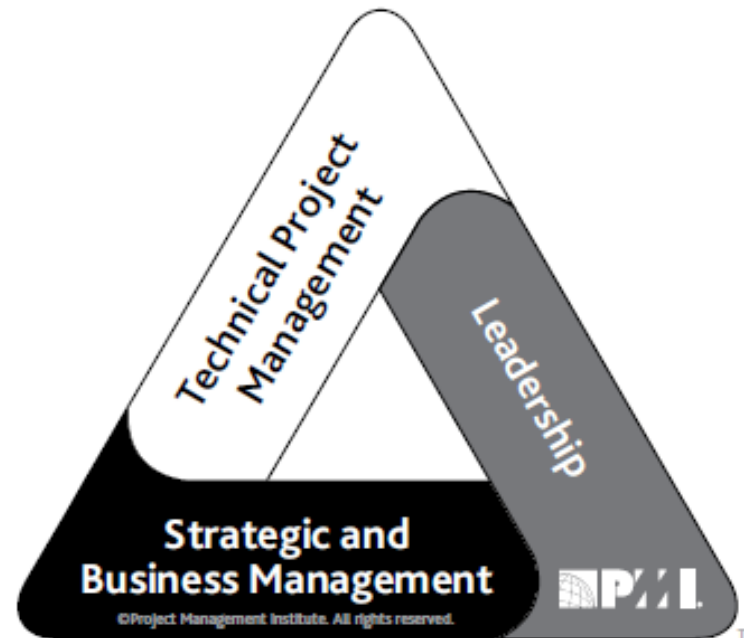




KNOWLETT LEARNING
KNOWLETTWOODS
KNOWLEDGEWOODS

Project Manager

The PMI Talent Triangle®





Project vs Operations

Projects	Operations
Temporary	Ongoing
Brings Change	Sustenance
Unique	Repetitive
e.g. Setting up a Chemical Plant	e.g. Chemical Production





Program & Portfolio

Programs

- Collection of related projects
- Controls are implemented and managed in a coordinated way
- Collective benefits are realized
- Each project has a project manager
- Projects share resources and depends on the outcomes of other projects

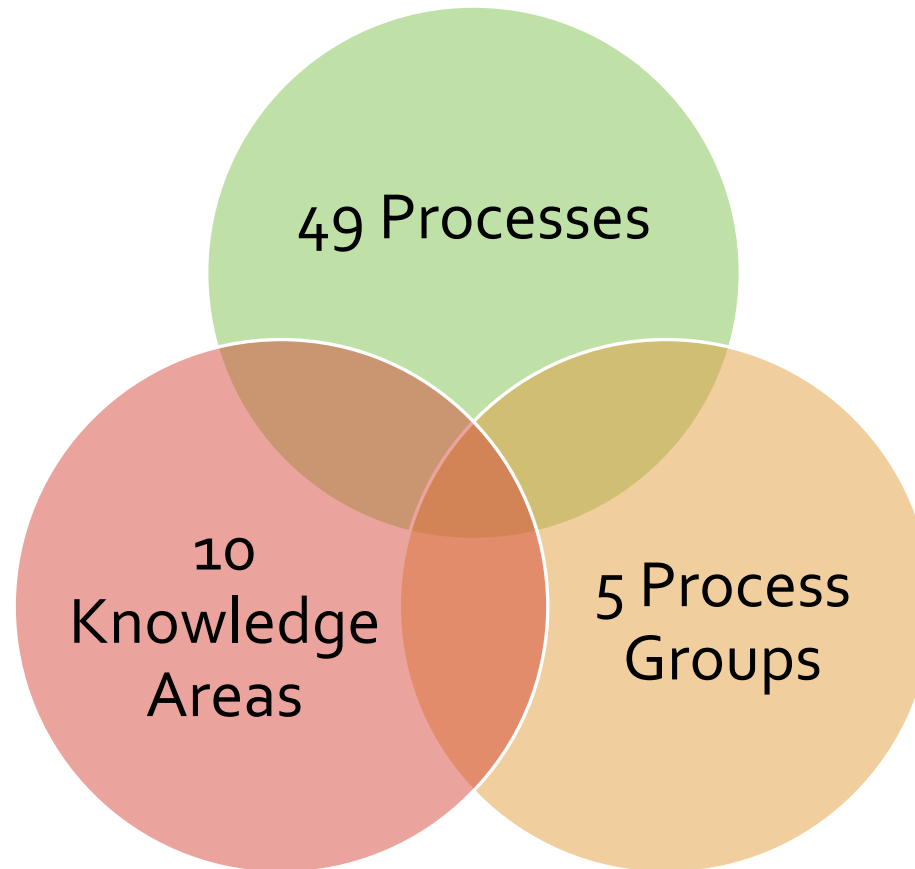
Portfolios

- Collection of programs and projects
- Projects meet a specific business goal or objective
- Includes weighing the value of each project against the portfolios strategic objective
- Ensures efficient use of resources





Understanding Processes, Process Groups & Knowledge Areas



Understanding Inputs, Tools & Techniques, & Outputs



- Any item, whether internal or external to the project which is required by a process before that process proceeds. *May be an output from a predecessor process*. Examples include: Project charter, Project schedule, Resource calendars
- Tools: Something tangible, such as a template or software program, used in performing an activity to produce a product or result. Examples include: Project management information system(s), Benchmarking, Product analysis
- Techniques: A defined systematic procedure employed by a human resource to perform an activity to produce a product or result or deliver a service, and that may employ one or more tools. Examples include: Meetings, Expert judgment, Inspection, Interviews, Decomposition
- A product, result, or service generated by a process. *May be an input to a successor process*. Examples include: Work performance information, Change requests, Project management plan updates, Project documents updates



Exercises : 1.1 to 1.6

Assessment Test: 1.7 | Page - 21





KNOWLETT LEARNING
KNOWLETTWOODS
KNOWLEDGEWOODS

Initiating Process Group

Based on *Guide to PMBOK®* - Sixth Edition





Learning Objectives

- Processes in Initiating process Group
- Importance of a Project Charter
- Stakeholder Analysis





Initiating Process group

Guide to PMBOK® Sixth Edition

PROCESS NAME	KNOWLEDGE AREA
Develop Project Charter	Project Integration Management
Identify Stakeholders	Project Stakeholder Management





Develop Project Charter

As per *Guide to PMBOK*® Sixth Edition:

Develop project charter is

The process of developing a document that formally authorizes the existence of a project and provides the project manager with the authority to apply organizational resources to project activities.





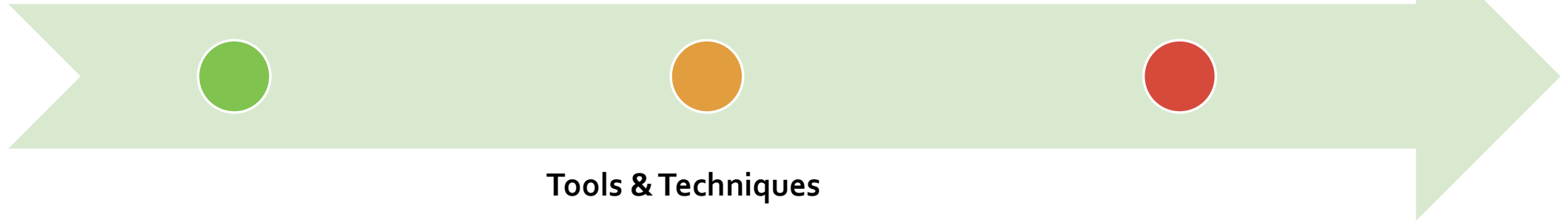
Develop Project Charter - ITTOs

Inputs

- Business documents
 - *Business Case*
 - *Benefit Management Plan*
- Agreements
- Enterprise Environmental Factors
- Organizational Process Assets

Outputs

- Project Charter
- Assumption Log



Tools & Techniques

- Expert judgment
- Data gathering
- Interpersonal and team skills
- Meetings



Sample Project Charter

PROJECT CHARTER				
PROJECT NAME		DATE	AREA OF FOCUS	
Implement End-User Feedback Team		1/20/2015	New Product Development	
BUSINESS CASE		SCOPE		
End-user feedback is essential early in the product design process, before designs are finalized and investments are made in tooling and equipment. This project will implement the End-User Feedback Team - a new organization that will (1) gather end-user product preferences prior to prototyping, (2) solicit feedback on prototypes, and (3) conduct field testing with engineering-build products (prior to production tooling).		IN SCOPE	IN SCOPE	OUT OF SCOPE
		Domestic new product intro's		International
		Industrial products business		Consumer products
		In-house designs		
		KEY DELIVERABLES		
		Proposed organization chart		Team on board
		Approved orgnaizational chart		Training/orientation complete
		Finalized budget		Standard work and reporting finalized
		Finalized job descriptions		
				Manager on board

Sample Project Charter - Contd.



KNOWLETT LEARNING
KNOWLETTWOODS
KNOWLEDGEWOODS

MEASURABLE TARGET/GOAL		TIMELINE	
		ACTIONS/MILESTONES	TARGET DATE / STATUS
Finalize organization outline	2/20/2015		
Finalize and approve budget	3/10/2015	1/2 day session: develop high level requirements and org chart	2/1/2015
Develop and grade positions	4/2/2015	Org chart & budget approval meeting	3/5/2015
Hire manager	6/1/2015	Team job descriptions approved and handed off to in-house recruiters	3/28/2015
Staff remaining positions	9/15/2015	Manager job posted internally and sent to three external recruiters	4/15/2015
		Interview period - manager	5/1/15 - 6/15/15
TEAM MEMBERS		Manager Hired	7/1/2015
NAME	FUNCTION	Staff interviews and hiring decisions	7/15/15 - 9/1/15
Gerry Betran	R&D Leader	Staff positions filled	9/15/2015
Bo Hamilton	Human Resources	Training/orientation complete, team's role integrated into Milestone proc.	10/15/2015
James Gapp	Marketing		
Hank Ankeny	Field Marketing		
Mike Cote	Supply Chain	FINANCIALS	
		BUSINESS IMPACT	INVESTMENT
		Increase new product demand 10% (conservative) by ensuring that product performance and features exceed expectations	Ongoing annual expense: \$1.2M



Sample Project Charter - Contd.

ASSUMPTIONS/CONSTRAINTS	RISK PLANNING
Team must be functioning by 9/15/15 for major NPI project	The end-user feedback team will need a highly experienced leader who will work very well with customers, R&D, and marketing functions. Filling the leader position with the right individual is critical to the new organization's success.
\$1.2M annual budget	



Assumption Log

Project:						Date:	
ID	Category	Assumption	Responsibility	Due Date	Status	Actions	
001	Manufacturing	There is adequate capacity on manufacturing lines to produce prototypes for the project.	J. Brown	6/1/20xx	Open	J. Brown to meet with operations manager on 4/15 to discuss line capacity.	
002	Design	Cable dimensions will not deviate significantly from existing product lines.	P. White	5/15/20xx	Open	Design team is currently verifying planned cable dimensions.	
003	Supply	There is adequate warehousing space for additional materials needed for this product.	T. Black	5/1/20xx	Closed	T. Black has verified that there is ample warehousing space available for the Xwave Fiber Project.	
004	Planning/ Execution	All project resources will remain available throughout the project lifecycle.	A. Green	4/15/20xx	Open	A. Green will meet with Sponsor and all functional managers on 3/13 to discuss this topic.	



Identify Stakeholders

As per *Guide to PMBOK*® Sixth Edition:

Identify stakeholders is

The process of identifying project stakeholders regularly and analyzing and documenting relevant information regarding their interests, involvement, interdependencies, influence, and potential impact on project success.

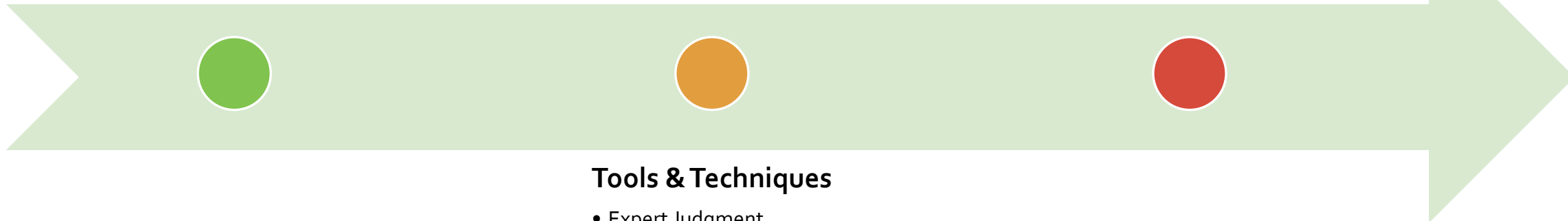
Identify Stakeholders - ITTOs

Inputs

- Project charter
- Business documents
- Project management plan
- Project documents
- Agreements
- Enterprise Environmental Factors
- Organizational Process Assets

Outputs

- Stakeholder Register
- Change Requests
- Project Management Plan Updates
- Project Document Updates

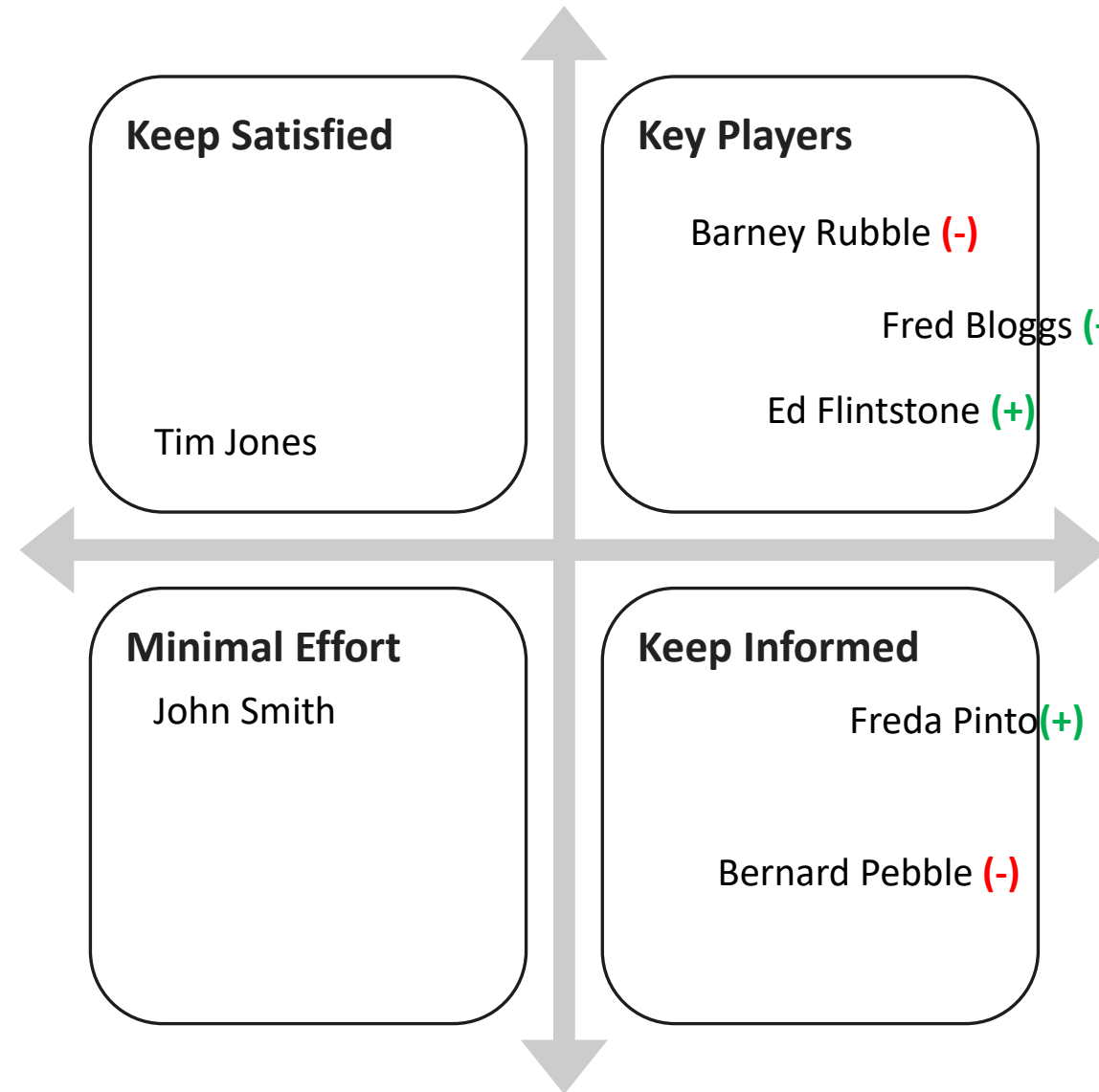


Tools & Techniques

- Expert Judgment
- Data Gathering
- Data Analysis
- Data Representation
- Meetings



Power



Interest



Stakeholder Register - Sample

Project Title:			Date Prepared:	<YYYY-MM-DD>
-----------------------	--	--	-----------------------	--------------

Name	Role	Requirements or Expectations	Interest	Power
John Mathew	Sponsor	User Friendly and responsive UI across handheld device, tablet, or desktop	High	High



Assessment Test: 2.1 | Page - 25





KNOWLETT LEARNING
KNOWLETTWOODS
KNOWLEDGEWOODS

Planning Process Group

Based on *Guide to PMBOK®* - Sixth Edition





Learning Objectives

- Processes in Planning process Group
- How to get the project organized
- Developing the project management plan





Planning Process group

Guide to PMBOK® - Sixth Edition

PROCESS NAME	KNOWLEDGE AREA
Plan Scope Management	Project Scope Management
Collect Requirements	Project Scope Management
Define Scope	Project Scope Management
Create WBS	Project Scope Management
Plan Schedule Management	Project Schedule management
Define Activities	Project Schedule management
Sequence Activities	Project Schedule management
Estimate Activity Durations	Project Schedule management
Develop Schedule	Project Schedule management
Plan Cost Management	Plan Cost Management
Estimate Costs	Plan Cost Management
Determine Budget	Plan Cost Management





Planning Process group (contd.)

Guide to PMBOK® Sixth Edition

PROCESS NAME	KNOWLEDGE AREA
Plan Resource Management	Project Resources Management
Estimate Activity Resources	Project Resources Management
Plan Communications Management	Project Communications Management
Plan Stakeholder Engagement	Project Stakeholder Management
Plan Quality Management	Project Quality Management
Plan Risk Management	Project Risk Management
Identify Risks	Project Risk Management
Perform Qualitative Analysis	Project Risk Management
Perform Quantitative Analysis	Project Risk Management
Plan Risk Responses	Project Risk Management
Plan Procurement Management	Project Procurement Management
Develop Project Management Plan	Project Integration Management





Project Scope Management - Planning

Guide to PMBOK® - Sixth Edition

PROCESS NAME	PROJECT MANAGEMENT PROCESS GROUP
Plan Scope Management	Planning
Collect Requirements	Planning
Define Scope	Planning
Create WBS	Planning





Plan Scope Management

As per *Guide to PMBOK*® Sixth Edition:

Plan scope management is

The process of creating a scope management plan that documents how the project and product scope will be defined, validated, and controlled.





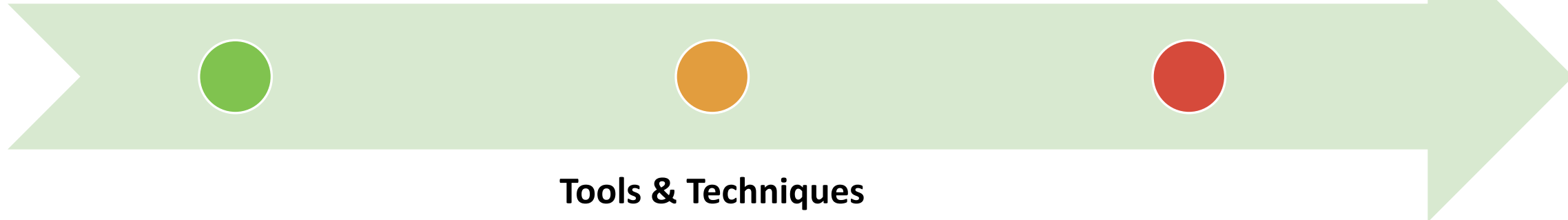
Plan Scope Management - ITTOs

Inputs

- Project Charter
- Project Management Plan
- Enterprise Environmental Factors
- Organizational Process Assets

Outputs

- Scope Management Plan
- Requirements Management Plan



Tools & Techniques

- Expert Judgment
- Data Analysis
- Meetings



Collect Requirements

As per *Guide to PMBOK®* Sixth Edition:

Collect requirements is

The process of determining, documenting, and managing stakeholder needs and requirements to meet project objectives.



Collect Requirements - ITTOs

Inputs

- Project Charter
- Project Management Plan
- Project Documents
- Business Documents
- Agreements
- Enterprise Environmental Factors
- Organizational Process Assets

Outputs

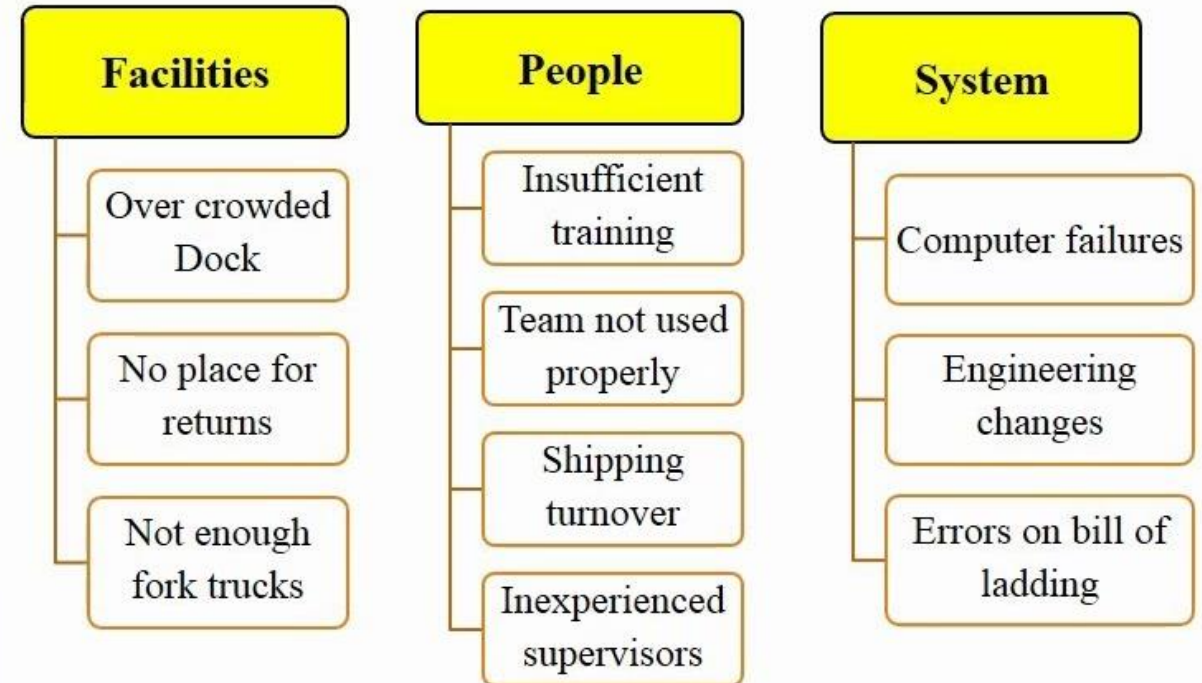
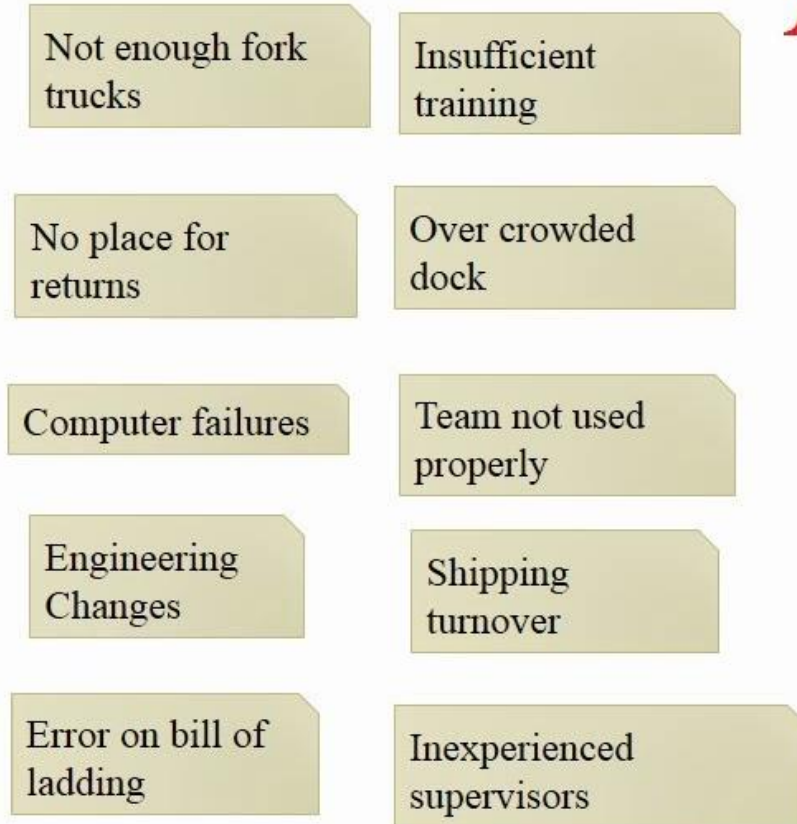
- Requirements Documentation
- Requirements Traceability Matrix

Tools & Techniques

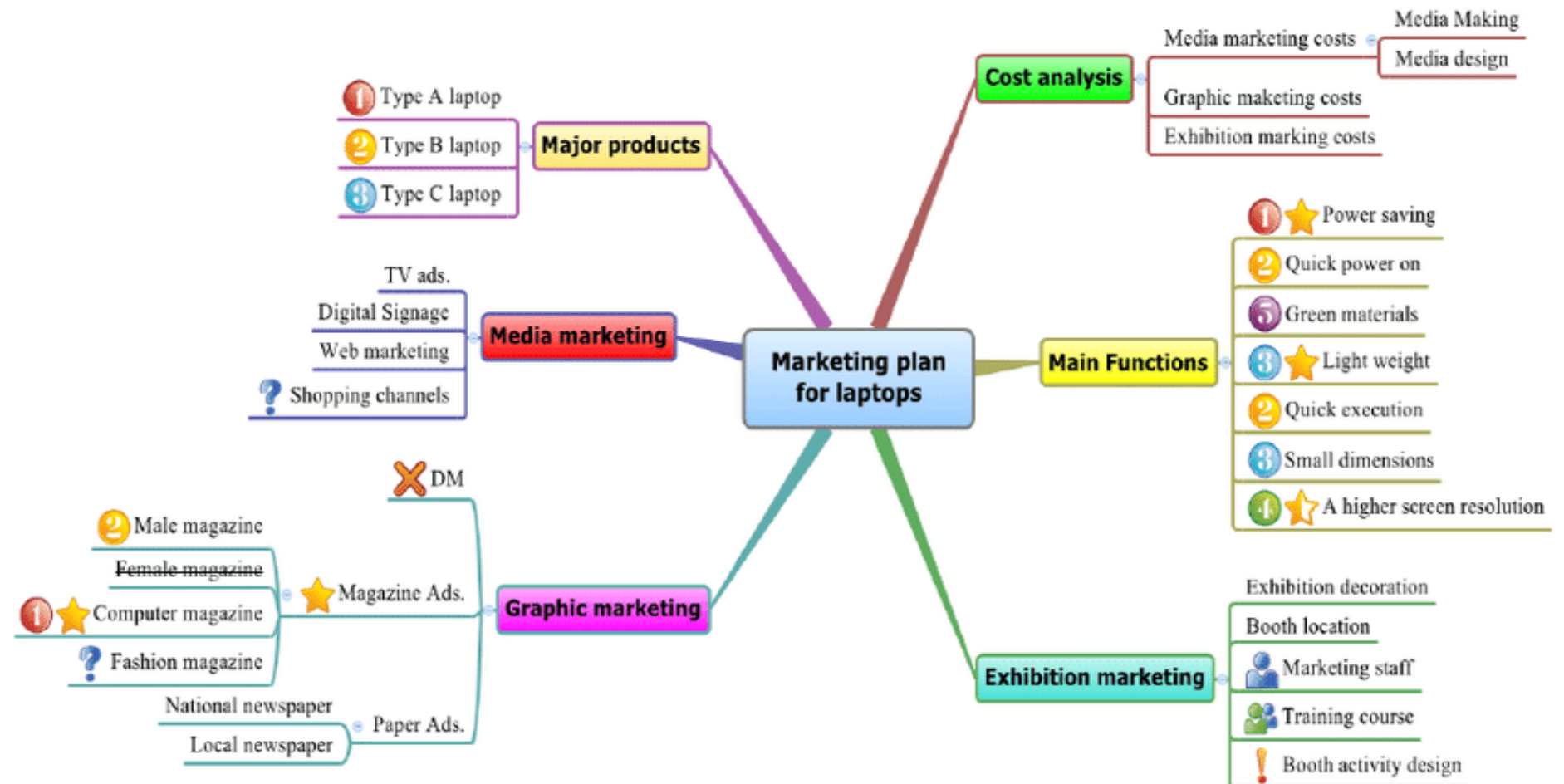
- Expert Judgment
- Data Gathering
- Data Analysis
- Decision Making
- Data Representation
- Interpersonal & Team Skills
- Context diagrams
- Prototypes



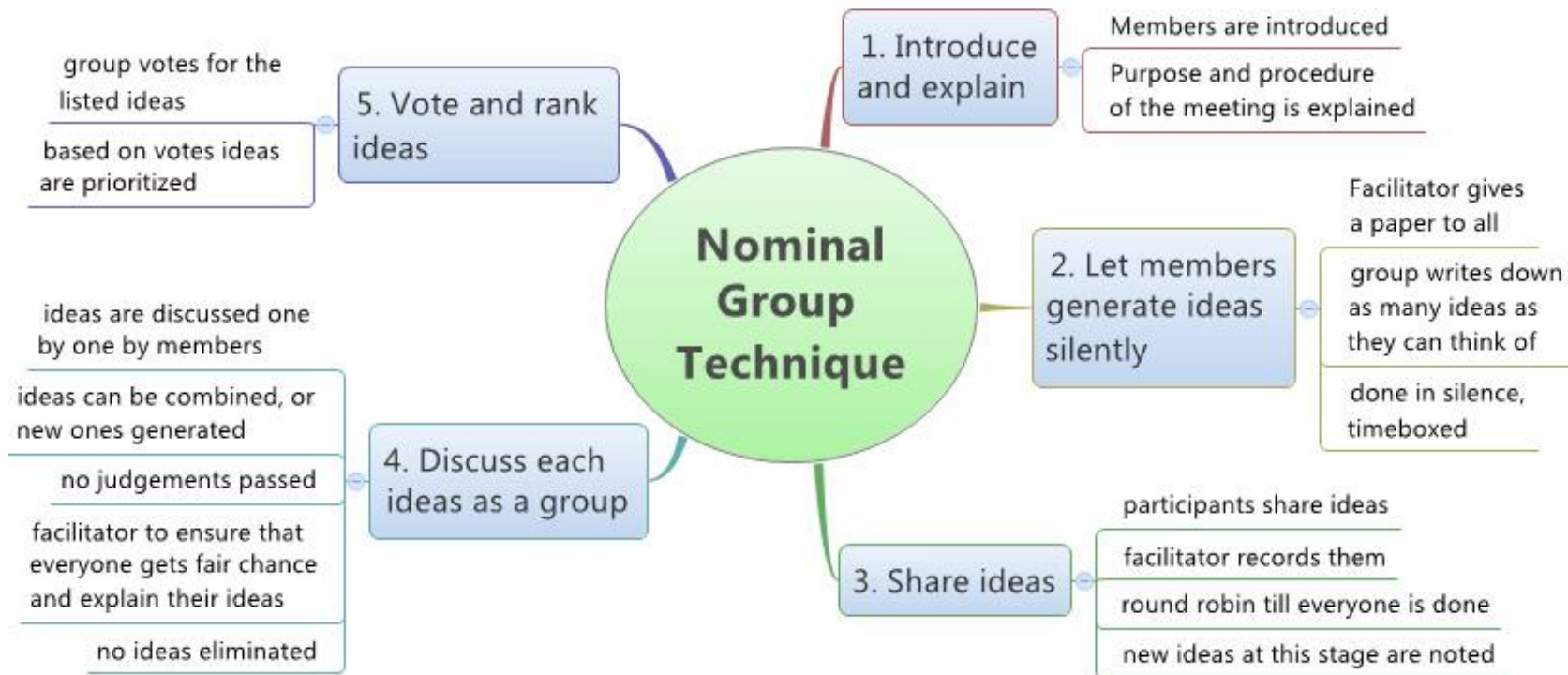
Affinity Diagram



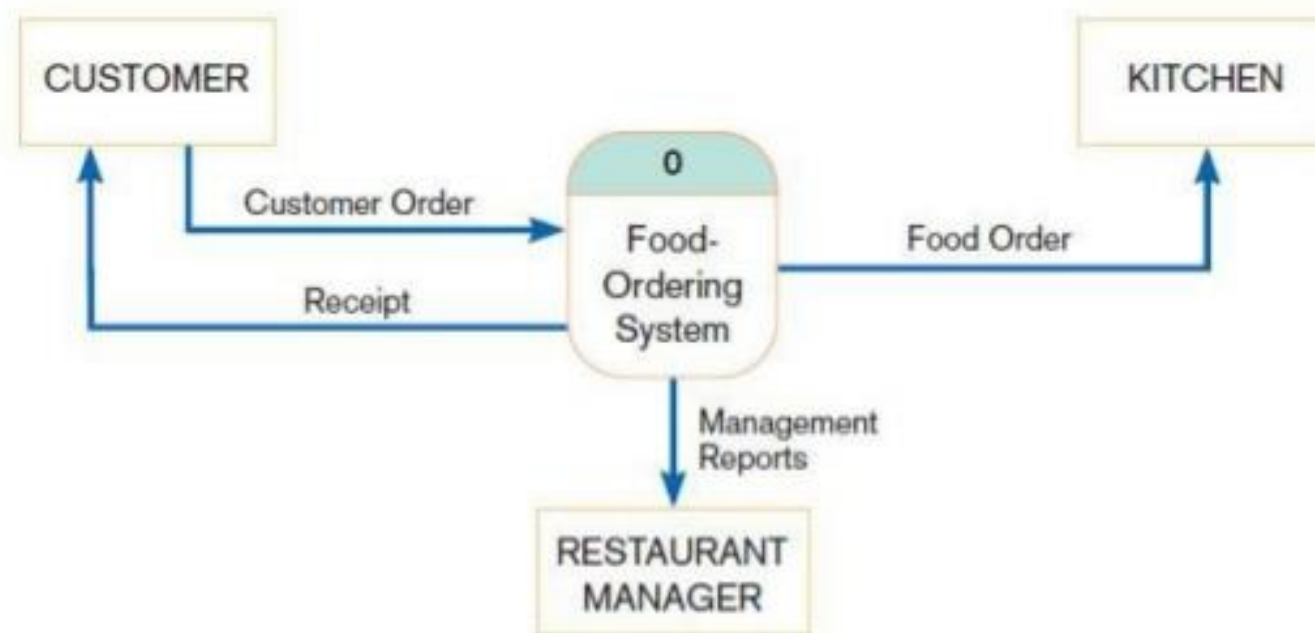
Mind Maps



Nominal Group Technique



Context Diagram





Exercises - 3.1 & 3.2

Decision Making techniques : Page no - 29
Requirement gathering techniques : Page No - 31



Define Scope

As per Guide to PMBOK® Sixth Edition:

Define scope is

The process of developing a detailed description of the project and product.



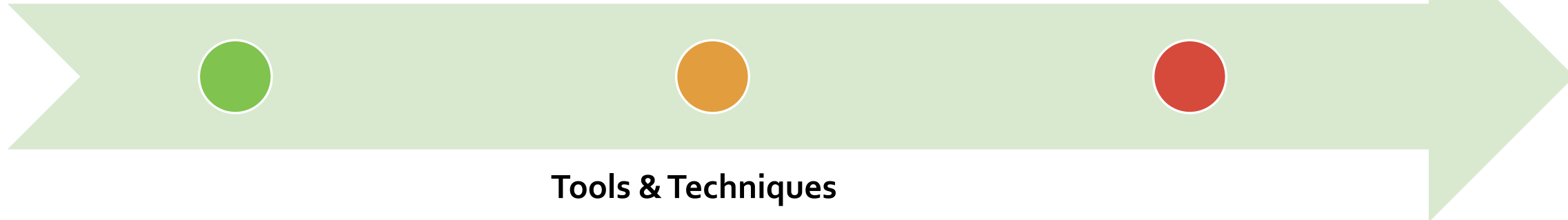
Define Scope - ITTOs

Inputs

- Project Charter
- Project Management Plan
- Project Documents
- Enterprise Environmental Factors
- Organizational Process Assets

Outputs

- Project Scope Statement
- Project Document Updates



Tools & Techniques

- Expert Judgment
- Data Analysis
- Decision Making
- Interpersonal & Team Skills
- Product analysis





Product Scope vs Project Scope

Product scope:

- The **features** and functions that characterize a product, service, or result

Project scope:

- **The work** that needs to be accomplished to deliver a product, service, or result with the specified features and functions.





Exercise 3.3

Product vs. Project Scope

Page No: 33



Create WBS

As per *Guide to PMBOK*® Sixth Edition:

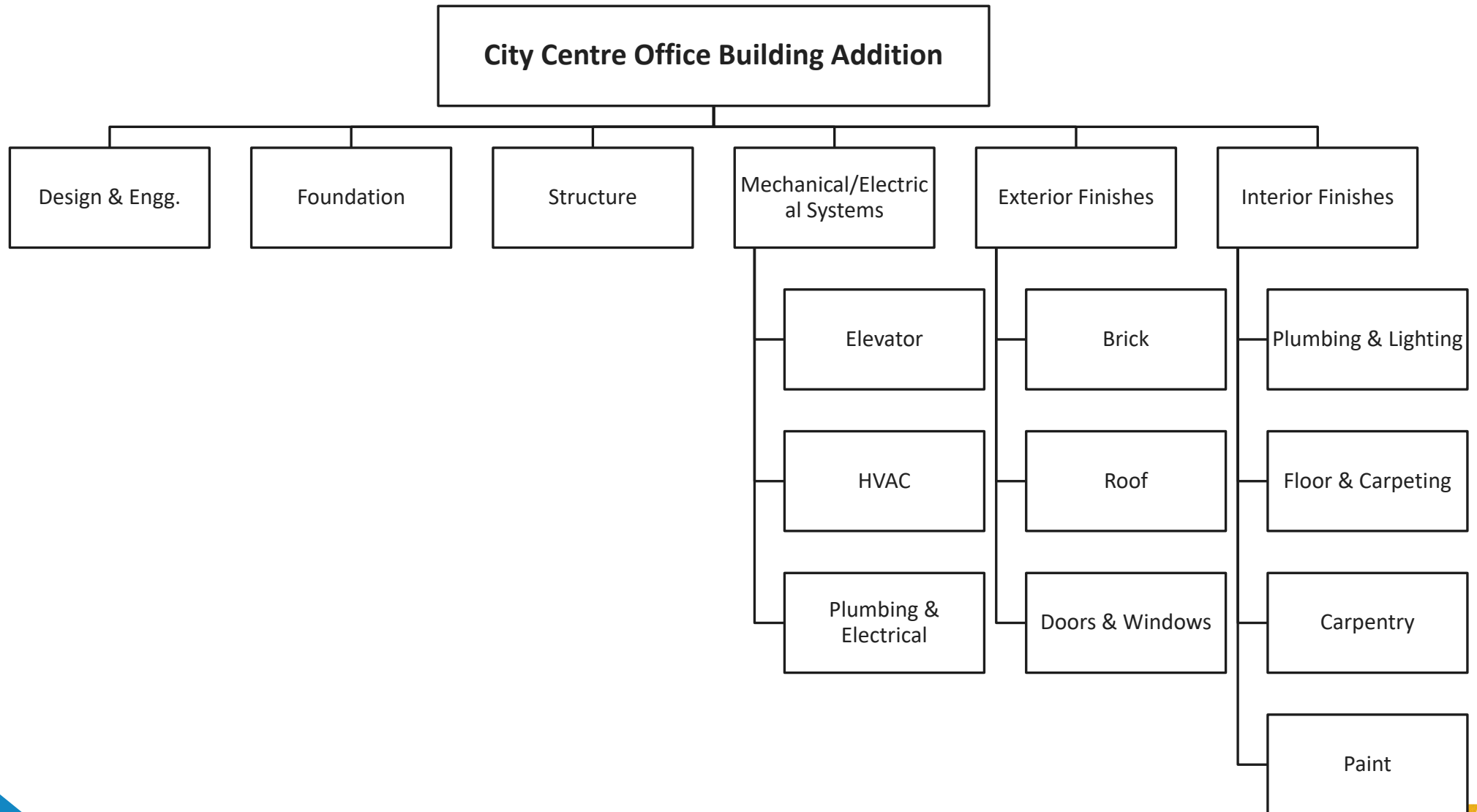
Create WBS is

The process of subdividing project deliverables and project work into smaller, more manageable components.

Sample WBS



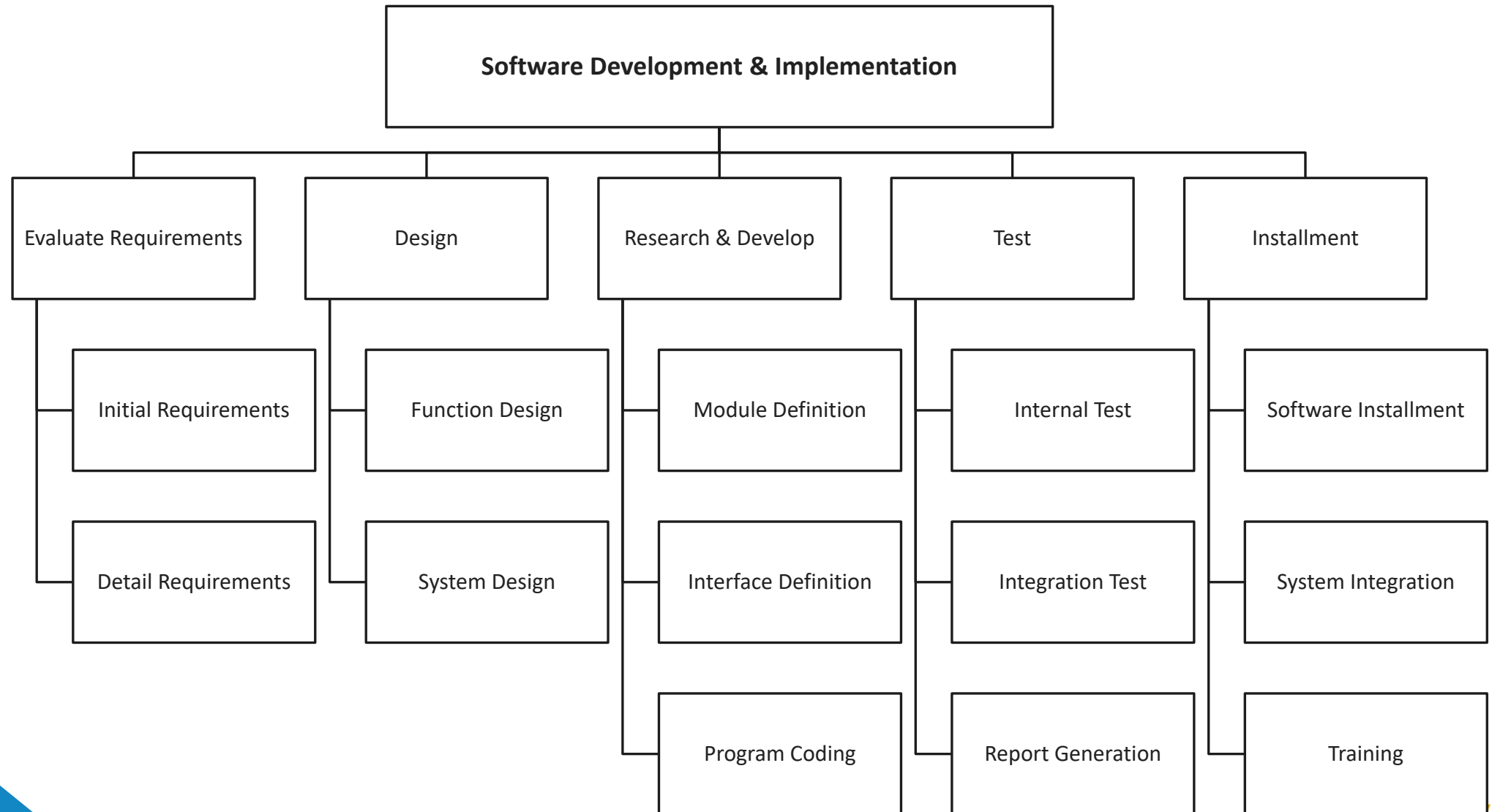
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KNOWLEDGEWOODS



Sample WBS



KNOWLETT LEARNING
KNOWLETTWOODS
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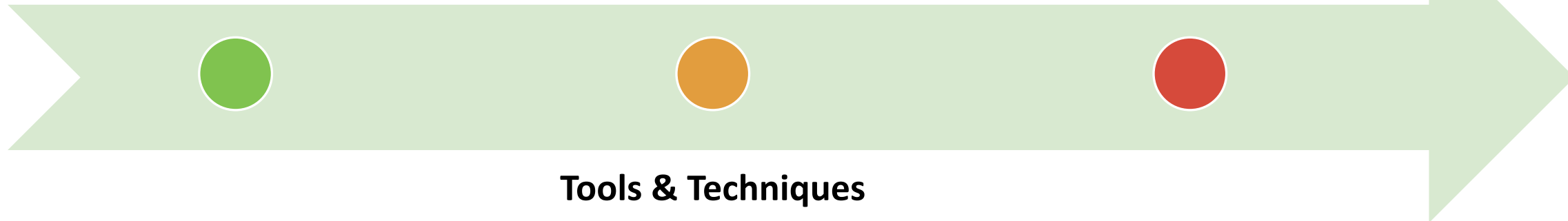
Create WBS - ITTOs

Inputs

- Project Management Plan
- Project Documents
- Enterprise Environmental Factors
- Organizational Process Assets

Outputs

- Scope Baseline
- Project Document Updates



Tools & Techniques

- Expert Judgment
- Decomposition





Assessment Test : 3.4 | Page - 35





Project Schedule Management - Planning

Guide to PMBOK® Sixth Edition

PROCESS NAME	PROJECT MANAGEMENT PROCESS GROUP
Plan Schedule Management	Planning
Define Activities	Planning
Sequence Activities	Planning
Estimate Activity Durations	Planning
Develop Schedule	Planning





Plan Schedule Management

As per *Guide to PMBOK*® Sixth Edition:

Plan schedule management is

The process of establishing the policies, procedures, and documentation for planning, developing, managing, executing, and controlling the project schedule.





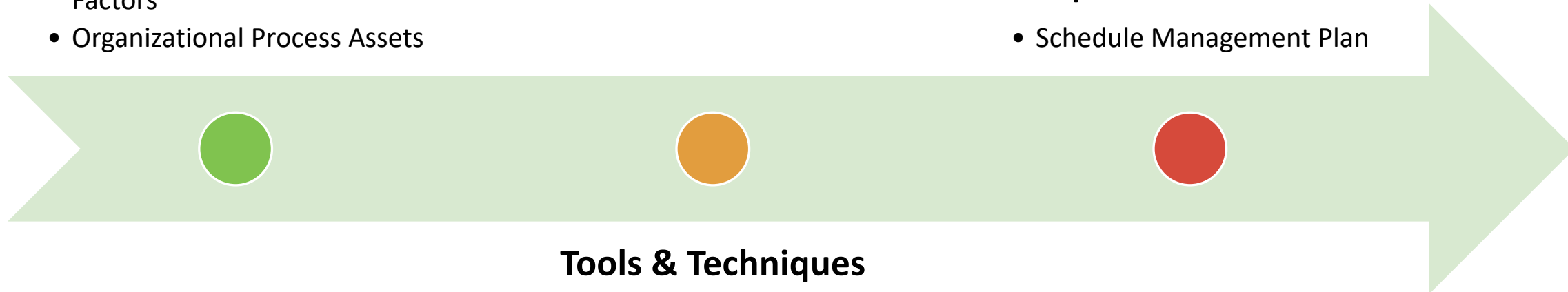
Plan Schedule Management - ITTOs

Inputs

- Project Charter
- Project Management Plan
- Enterprise Environmental Factors
- Organizational Process Assets

Outputs

- Schedule Management Plan



Tools & Techniques

- Expert Judgment
- Data Analysis
- Meetings



Define Activities

As per *Guide to PMBOK*® Sixth Edition:

Define activities is

The process of identifying and documenting the specific actions to be performed to produce the project deliverables.



Define Activities - ITTOs

Inputs

- Project Management Plan
- Enterprise Environmental factors
- Organizational Process Assets

Outputs

- Activity List
- Activity Attributes
- Milestone List
- Change Requests
- Project Management Plan Updates

Tools & Techniques

- Expert Judgment
- Decomposition
- Rolling Wave Planning
- Meetings





Activity List

Activity List			
Project: Billing Group Relocation			Date: 03/01/20xx
Activity ID No.	Activity Name	Description of Work	Responsibility
1001	Complete work area parking	This activity consists of packing all billing group employee work areas into clearly labeled boxes with employee names written on the outside. This activity also includes disconnecting all workstations, telephone and electrical items.	J. Doe has primary responsibility and P. Brown is the alternate
1002	Complete preparation of new work area	This activity consists of ensuring electrical, telephone and network services are turned on for employees in the new work area. This activity also includes labeling and configuring cubicles per the workspace layout and ensuring all work areas are complete and serviceable. The workspace should also be safe and free of trash and clutter.	F. White is responsible for this activity
1003	Transport employee equipment	This activity consists of loading packed boxes into the company vehicle, transporting them to the new workspace and unloading the boxes into the labeled cubicles in the new location. Employees will unpack their respective boxes.	B. Black is responsible for this activity
1004	Complete discarding/recycling boxes and moving materials	This activity includes turning in all unused packing and shipping materials as well as breaking down and recycling all boxes. This also includes discarding used packing material in the appropriate bins.	B. Black has primary responsibility and P. Brown is the alternate
1005	Complete new workspace connections	This activity includes connecting all telephone services, network services and any other electrical items for employees in their new workspace.	F. White is responsible for this activity





Activity Attributes

Activity Attributes		
Project: DataNet Software Installation		Date: 03/01/20xx
Activity ID: 0031	Activity: Install DataNet Software on Human Resources Computers	WBS No: 3.1.1
Activity Description: This activity requires the installation of DataNet software on 8 workstations belonging to the Human Resources Department.		
Activity Responsibility: John Brown will be responsible for performing the work for this activity.	Resources and Skill Sets Required: This activity requires basic computer network skills and access to designated workstations. No additional skill sets or resources are required.	
Activity Predecessors: Before this activity can begin installation of DataNet software on the Operations Group workstations must be completed.	Predecessor Scheduling: This activity must start once the predecessor is complete: Finish-Start Relationship.	Predecessor Dependency: There is no lead or lag time requirement with the predecessor activity.
Activity Successors: Installation of DataNet on Executive Management workstations will begin immediately upon completion of this activity.	Successor Scheduling: Once this activity is complete the installation on Executive Management workstations will begin: Finish-Start relationship.	Successor Dependency: There is no lead or lag time between this activity and its successor.
Type of Effort: This activity is a fixed duration activity which will occur over a period of one week, or 40 hours.		
Location of Activity: All work associated with this activity will occur at company headquarters.		
Activity Assumptions: This activity assumes all workstations are currently configured and compatible with the DataNet software.		
Activity Constraints: Installation on Human Resources workstations must be completed by 06/01/20xx. This activity is dependent on HR employee schedules and availability.		





Milestone List

Milestone List				
Project:			Date: 04/01/20xx	
Milestone No.	Milestone	Mandatory/Optional	Completion Date	Verification
001	Project Start	Mandatory	5/1/20xx	Sponsor Approval
002	Complete Gathering Requirements	Mandatory	6/10/20xx	Sponsor Approval
003	Complete Design	Mandatory	8/14/20xx	Sponsor Approval
004	Complete Coding	Mandatory	10/9/20xx	Sponsor Approval
005	Complete Testing	Mandatory	11/10/20xx	Sponsor Approval
006	Complete Implementation	Mandatory	12/1/20xx	Sponsor Approval
007	Project End	Mandatory	12/31/20xx	Sponsor Approval





Sequence Activities

As per *Guide to PMBOK*® Sixth Edition:

Sequence activities is

The process of identifying and documenting relationships among the project activities.





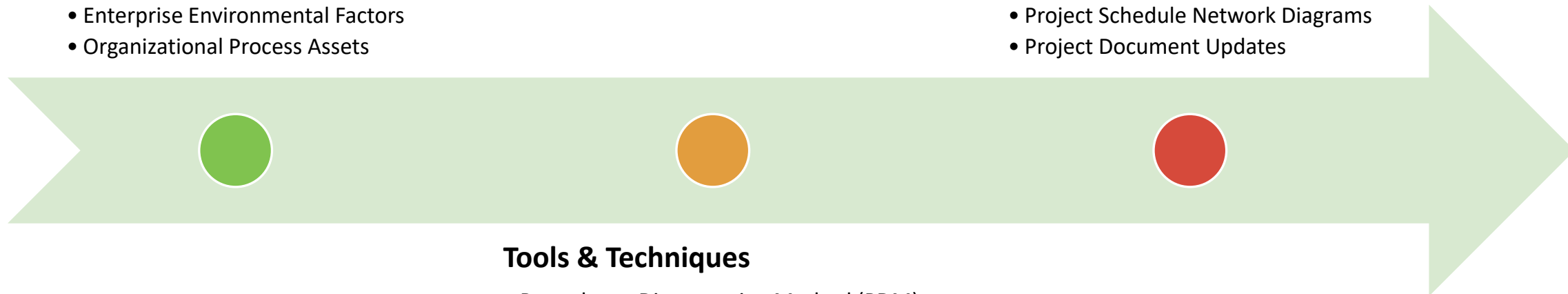
Sequence Activities - ITTOs

Inputs

- Project Management Plan
- Activity list
- Project Documents
- Enterprise Environmental Factors
- Organizational Process Assets

Outputs

- Project Schedule Network Diagrams
- Project Document Updates



Tools & Techniques

- Precedence Diagramming Method (PDM)
- Dependency Determination & Integration
- Leads and Lags
- Project Management Information System

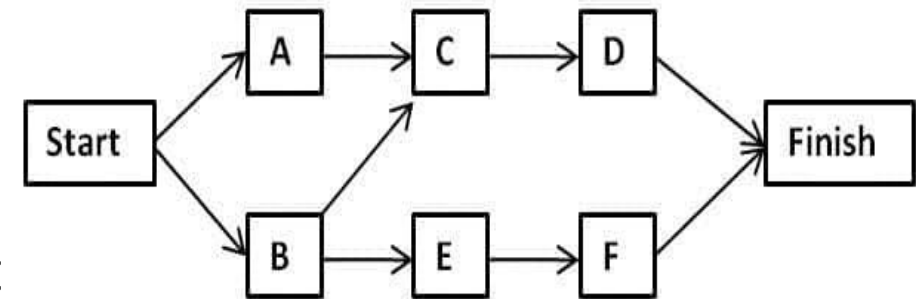


Precedence Diagramming Method (PDM)

The **precedence diagram method (PDM)** is a tool for scheduling activities in a project plan.

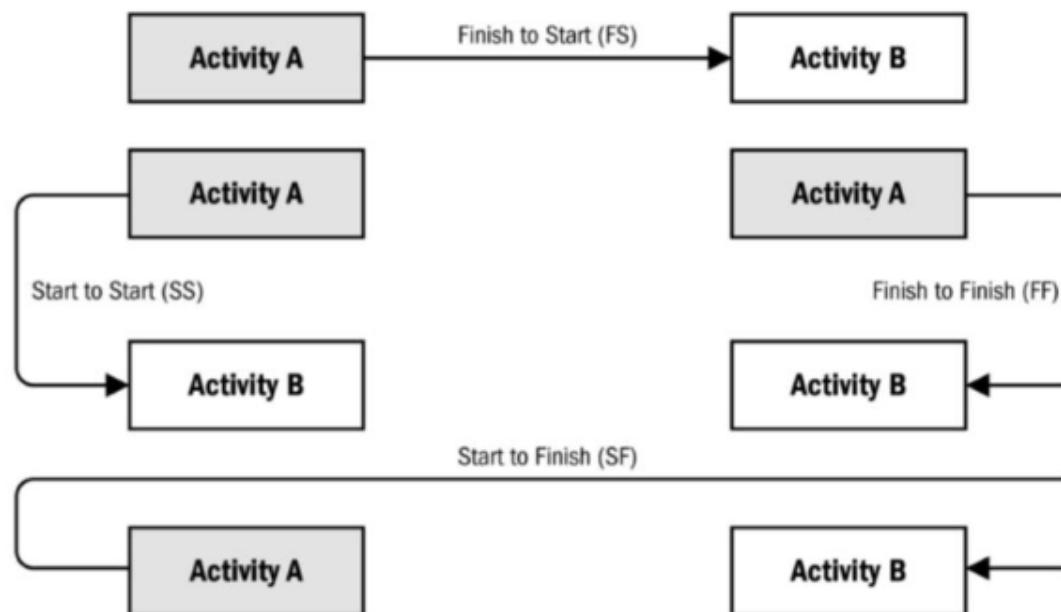
It is a method of constructing a project schedule network diagram that uses boxes, referred to as nodes, to represent activities and connects them with arrows that show the dependencies.

It is also called the activity-on-node (AON) method.



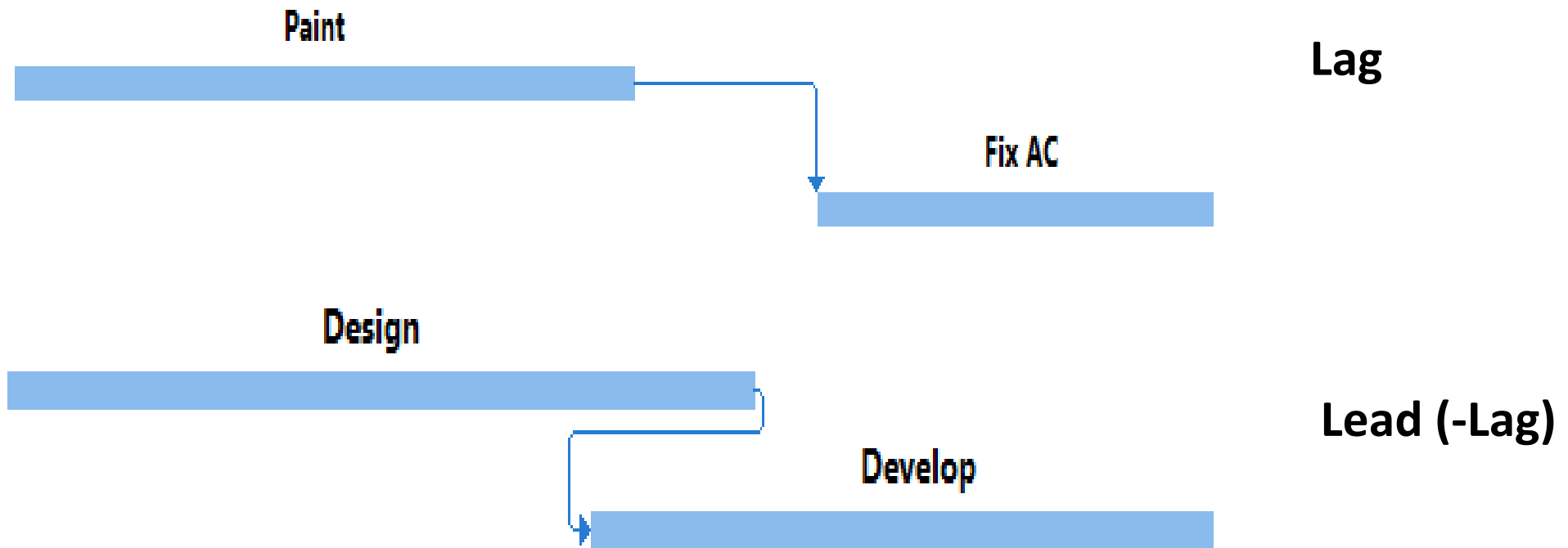
Precedence Diagram Method (PDM)

Task Relationships





Lead & Lag



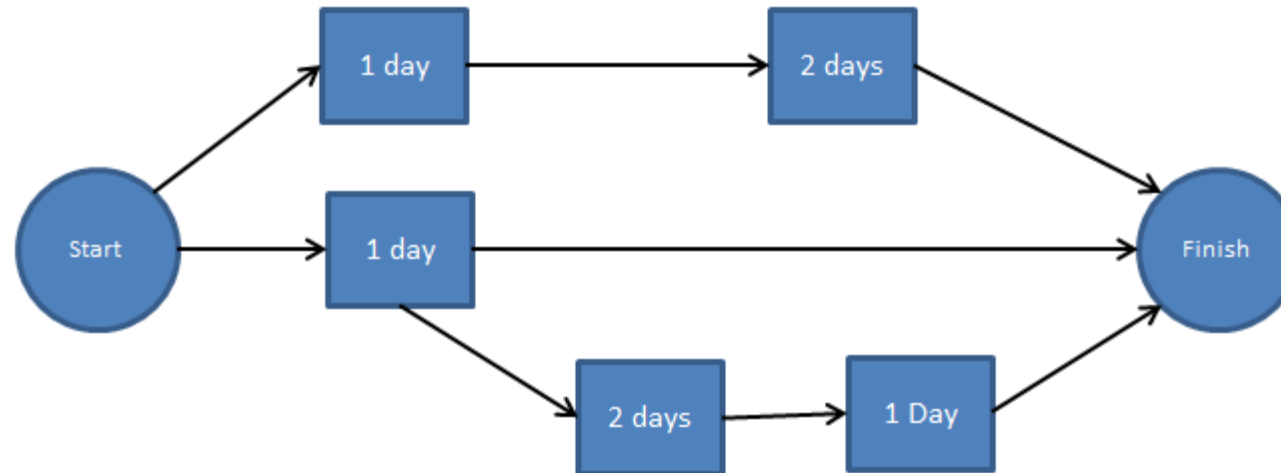


Dependencies

- **MANDATORY DEPENDENCIES:**
 - Also called Hard Logic dependencies.
- **DISCRETIONARY DEPENDENCIES:**
 - “Best practices” within a particular application area.
 - Also be called preferred logic, preferential logic, or soft logic.
- **INTERNAL DEPENDENCIES:**
 - Internal Project Dependencies are defined between two project activities.
 - The Project Team, usually, has complete control over project activities.
- **EXTERNAL DEPENDENCIES:**
 - Involve relationship between project activities and non project activities.
 - Regulatory dependencies



Project Schedule Network Diagram





Estimate Activity Durations

As per *Guide to PMBOK*® Sixth Edition:

Estimate activity durations is

The process of estimating the number of work periods needed to complete individual activities with the estimated resources.





Estimate Activity Durations - ITTOs

Inputs

- Project Management Plan
- Project Documents
- Enterprise Environmental Factors
- Organizational Process Assets

Outputs

- Duration Estimates
- Basis of Estimates
- Project Documents Updates

Tools & Techniques

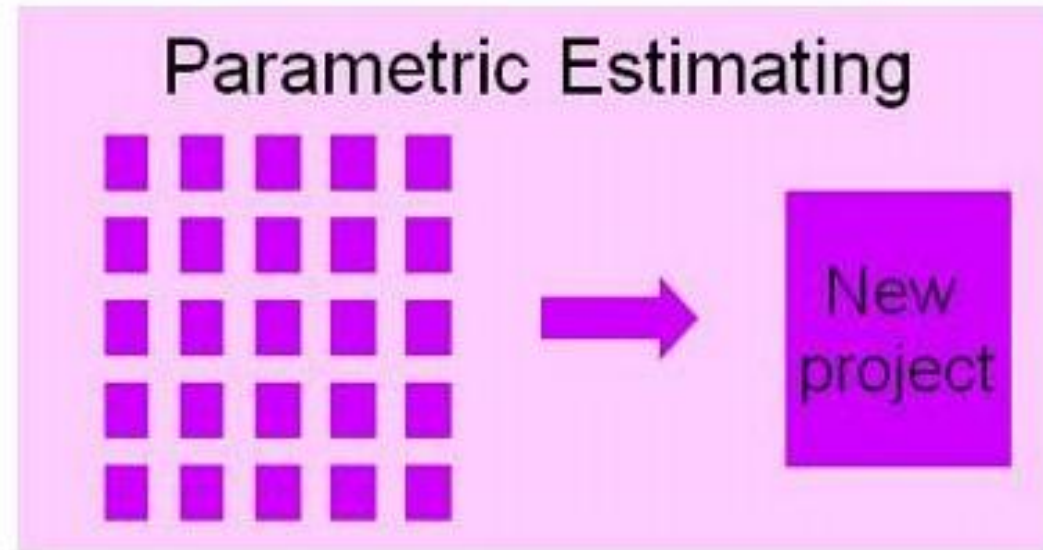
- Expert judgment
- Analogous Estimating
- Parametric Estimating
- Three-point Estimating
- Bottom-up Estimating
- Data Analysis
- Decision Making
- Meetings



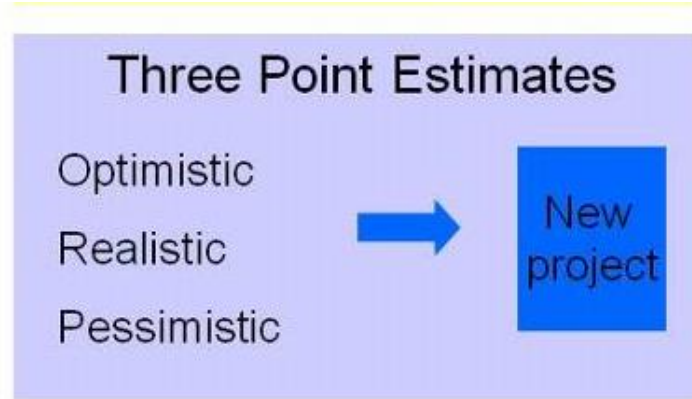
Analogous Estimating



Parametric Estimating



Three-Point Estimating



1. Collect Optimistic, Most Likely and Pessimistic Estimate

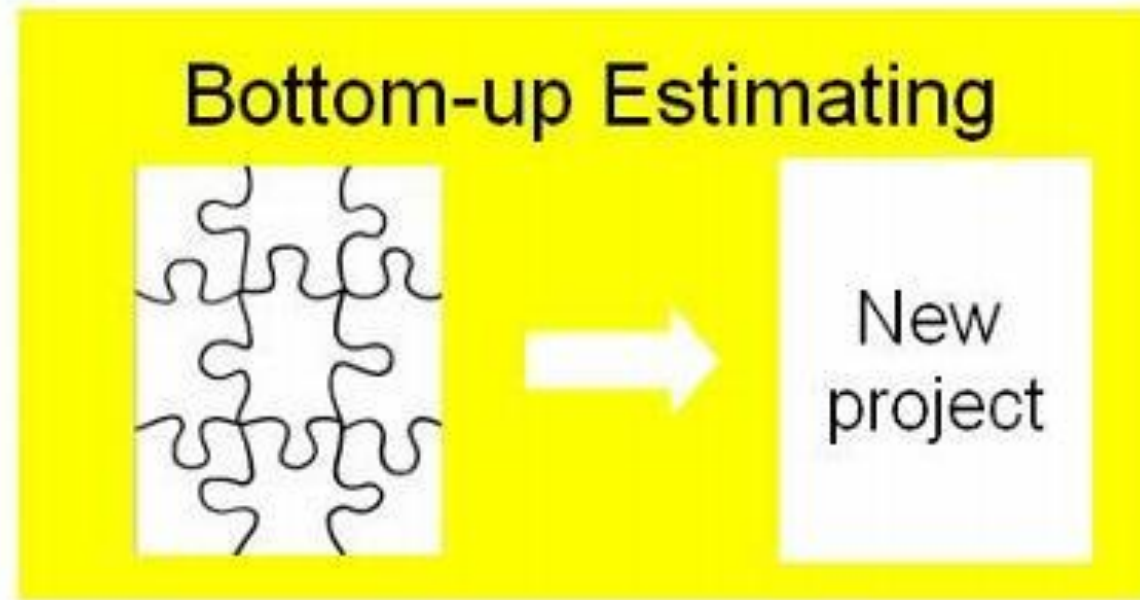
2. Calculate the Activity Expected Duration

$$\frac{P+4M+O}{6}$$

3. Calculate the Standard Deviation

$$\frac{P-O}{6}$$

Bottom-Up Estimating





Develop Schedule

As per *Guide to PMBOK®* Sixth Edition:

Develop schedule is

The process of analyzing activity sequences, durations, resource requirements, and schedule constraints to create the project schedule model for project execution and monitoring and controlling.





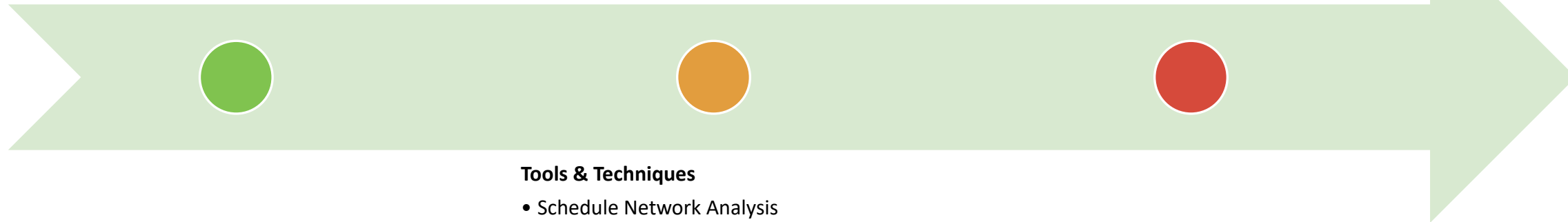
Develop Schedule - ITTOs

Inputs

- Project Management Plan
- Project Documents
- Agreements
- Enterprise Environmental Factors
- Organizational Process Assets

Outputs

- Schedule Baseline
- Project Schedule
- Schedule Data
- Project Calendars
- Change Requests
- Project Management Plan Updates
- Project Documents Updates

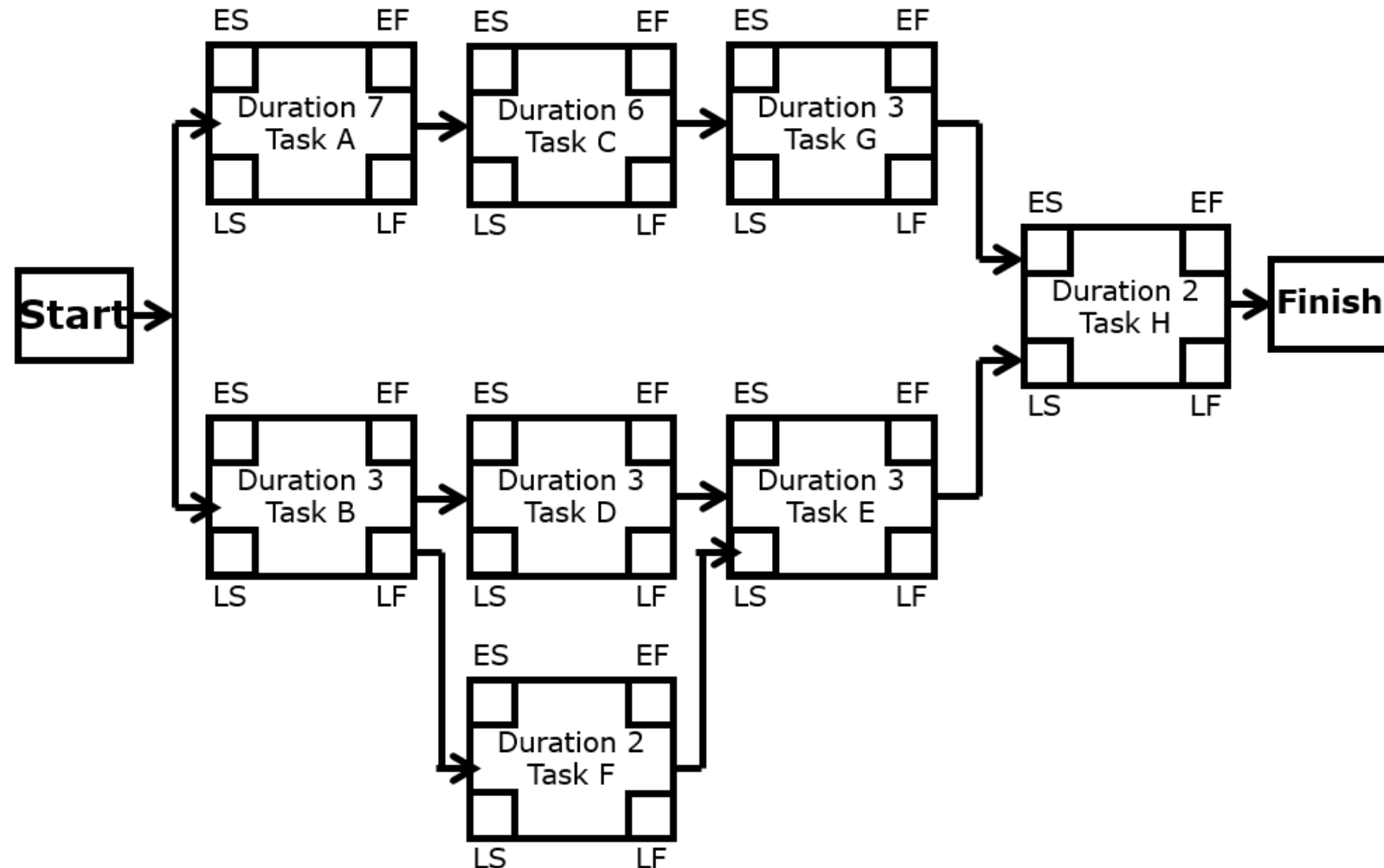


Tools & Techniques

- Schedule Network Analysis
- Critical Path Method
- Resource Optimization
- Modeling techniques
- Data Analysis
- Leads & Lags
- Schedule Compression
- Project Management Information System
- Agile Release Planning



Exercise - Critical Path Method (CPM)





Schedule Compression

Actual Schedule (15 Days, 7 Resources)

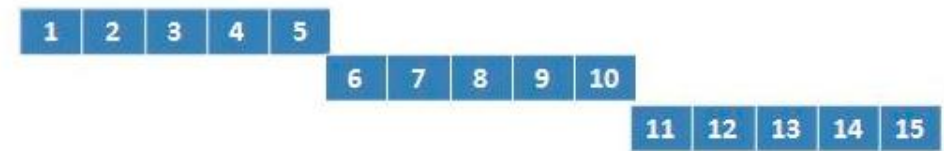


Fast Tracking (11 Days, with same 7 Resources)

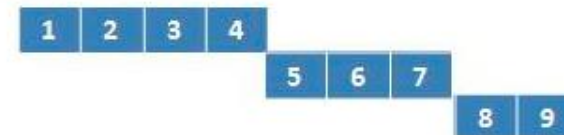


Increases Risk, Increases Cost due to Rework, Overloads Resources, Requires more Communication among Resources to perform work.

Actual Schedule (15 Days, 7 Resources)



Crashing (9 Days, 15 Resources)



Increases in Cost due to increase in Physical and Human Resources, Increases Risk, Results in Team Burnout, May Involve Rework





Resources Optimization

Resource leveling:

- Start and finish dates are adjusted based on resource constraints
- Can be used when shared or critically required resources are only available
 - at certain times,
 - in limited quantities,
 - over-allocated.

Resource Smoothing:

- To adjust the activities of a schedule such that the requirements for resources on the project do not exceed certain predefined resource limits.





Exercises – 4.1 & 4.2

Critical Path : Page No- 43, 45





Assessment Test : 4.3 | Page - 47





Project Cost Management - Planning

Guide to PMBOK® Sixth Edition

PROCESS NAME	PROJECT MANAGEMENT PROCESS GROUP
Plan Cost Management	Planning
Estimate Costs	Planning
Determine Budget	Planning





Plan Cost Management

As per *Guide to PMBOK®* Sixth Edition:

Plan cost management is

The process of defining how the project costs will be estimated, budgeted, managed, monitored, and controlled.





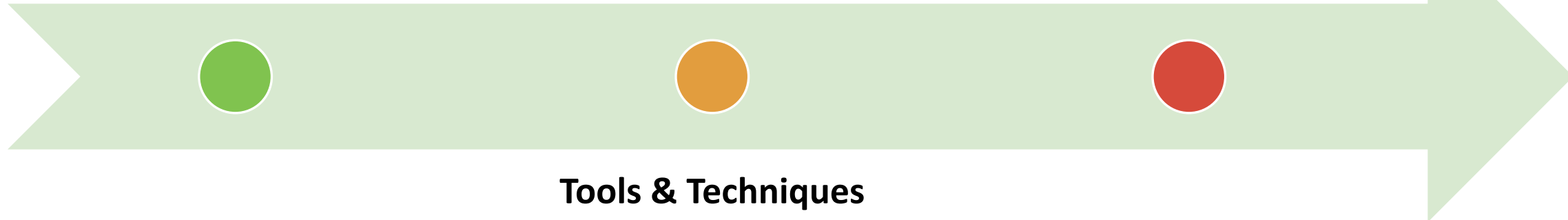
Plan Cost Management - ITTOs

Inputs

- Project Charter
- Project Management Plan
- Enterprise Environmental Factors
- Organizational Process Assets

Outputs

- Cost Management Plan



Tools & Techniques

- Expert Judgment
- Data Analysis
- Meetings





Estimate Costs

As per *Guide to PMBOK*® Sixth Edition:

Estimate costs is

The process of developing an approximation of the monetary resources needed to complete project activities.





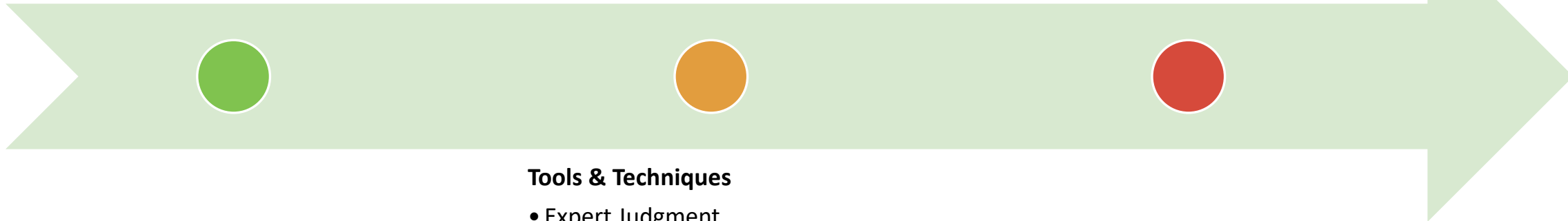
Estimate Costs - ITTOs

Inputs

- Project Management Plan
- Project Documents
- Enterprise Environmental Factors
- Organizational Process Assets

Outputs

- Cost Estimates
- Basis of Estimates
- Project Document Updates



Tools & Techniques

- Expert Judgment
- Analogous Estimating
- Parametric Estimating
- Bottom-up Estimating
- Three – point Estimating
- Data Analysis
- Project Management Information System
- Decision Making



Types of Reserves

- **Contingency Reserve** (known-unknown):
 - Know that it's going to happen but till what extent is not known.
 - Project manager is authorized to have it.
 - Also known as buffers, time reserves.

- **Management Reserve** (unknown-unknown):
 - Nothing is known
 - Project manager is not authorized to have it. He needs to take prior approval.
 - These are not the part of project cost baseline.
 - They are not included as part of the EVM calculations.

Determine Budget

As per *Guide to PMBOK*® Sixth Edition:

Determine budget is

The process of aggregating the estimated costs of individual activities or work packages to establish an authorized cost baseline.



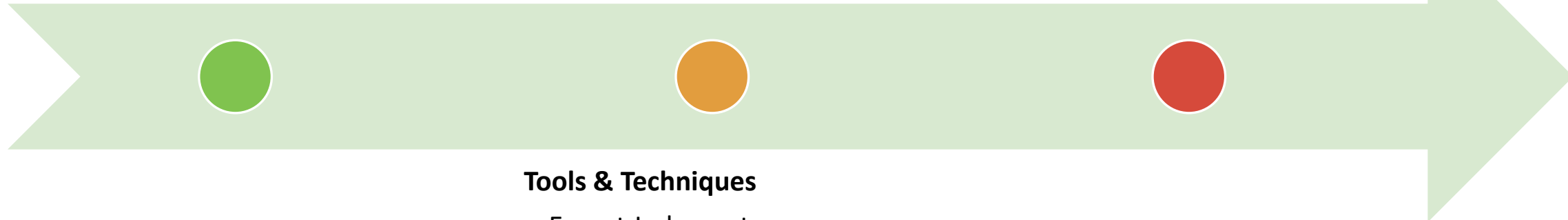
Determine Budget - ITTOs

Inputs

- Project Management Plan
- Project Documents
- Business Documents
- Agreements
- Enterprise Environmental Factors
- Organizational Process Assets

Outputs

- Cost Baseline
- Project Funding Requirements
- Project Documents Updates

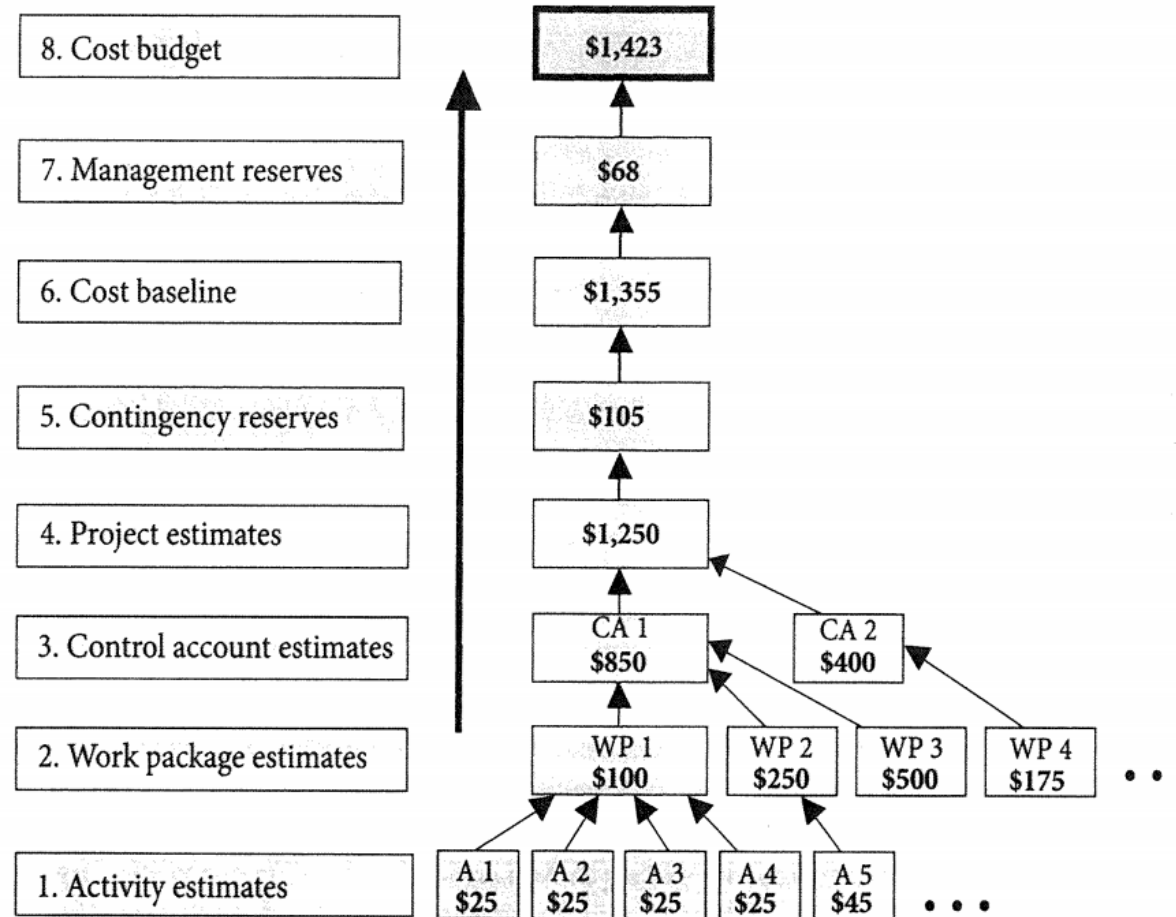


Tools & Techniques

- Expert Judgment
- Cost Aggregation
- Data Analysis
- Historical Information Review
- Funding Limit Reconciliation
- Financing



Determine Budget - Process





Exercises: 5.1 & 5.2

Assessment Test: 5.3 | Page - 57



Project Resource Management - Planning

Guide to PMBOK® Sixth Edition

PROCESS NAME	PROJECT MANAGEMENT PROCESS GROUP
Plan Resource Management	Planning
Estimate Activity Resources	Planning



Plan Resource Management

As per *Guide to PMBOK*® Sixth Edition:

Plan resource management is

The process of defining how to estimate, acquire, manage, and utilize physical and team resources.





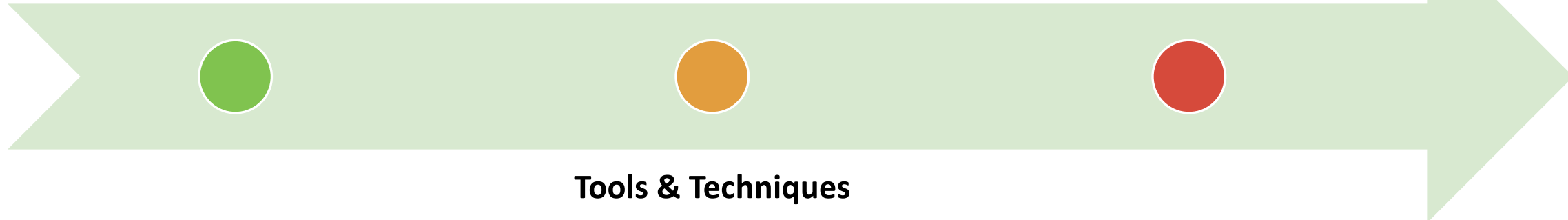
Plan Resource Management - ITTOs

Inputs

- Project Charter
- Project Management Plan
- Project Documents
- Enterprise Environmental Factors
- Organizational Process Assets

Outputs

- Resource Management Plan
- Team Charter
- Project Documents Updates



Tools & Techniques

- Expert Judgment
- Data Representation
- Organizational Theory
- Meetings





RACI Chart Example

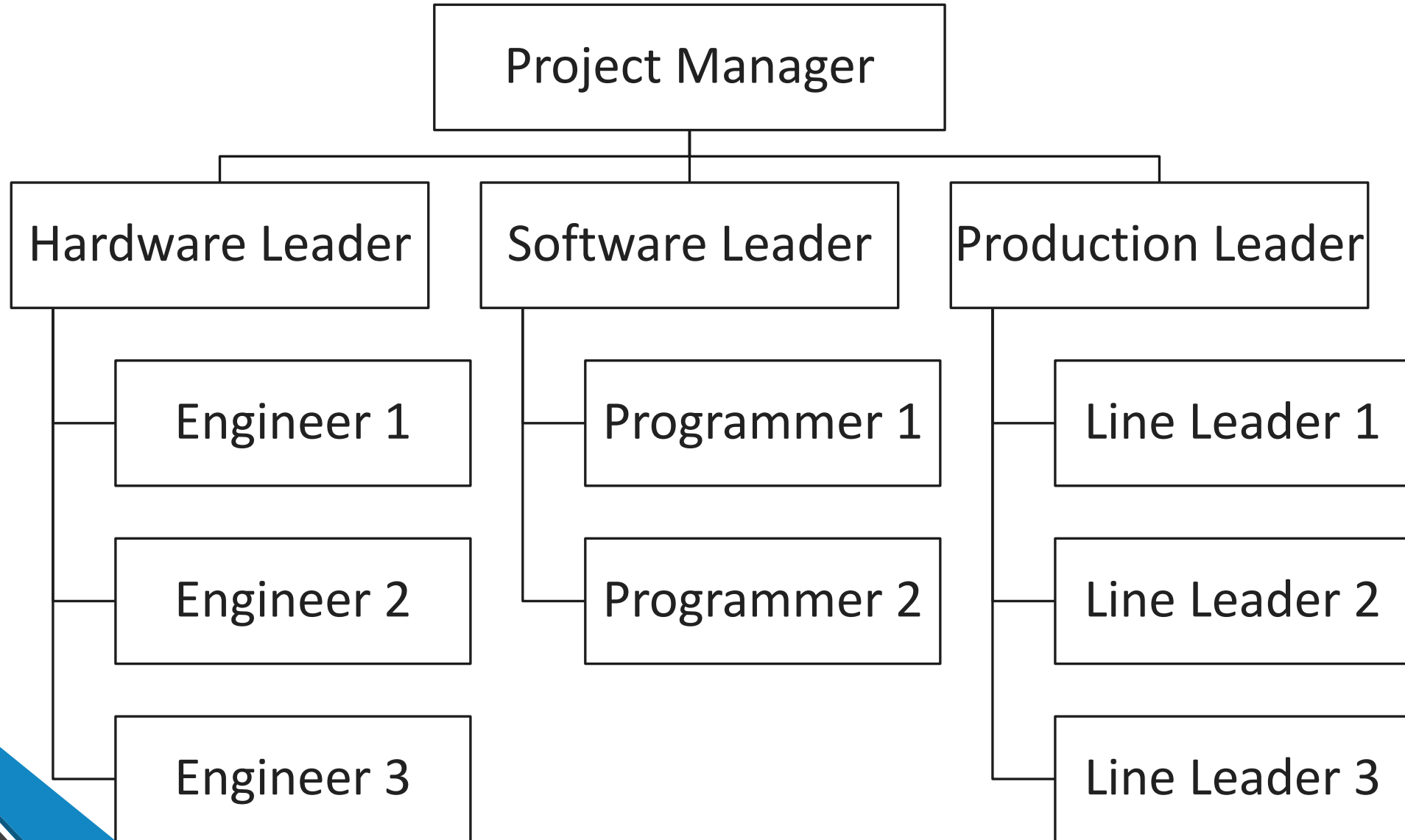
Project Deliverable (or Activity)	Project Manager	Strategist	Designer	Front End Developer	Back End Developer
Design site map	C	R	A	I	I
Design wireframes	C	A	R	I	I
Create style guide	A	C	R	C	I
Code templates	A	I	C	R	C



Hierarchical Chart Example



KNOWLETT LEARNING
KNOWLETTWOODS
KNOWLEDGEWOODS



Team Charter Example





Estimate Activity Resources

As per Guide to PMBOK® Sixth Edition:

Estimate activity resources is

The process of estimating team resources and the type and quantities of material, equipment, and supplies necessary to perform project work.





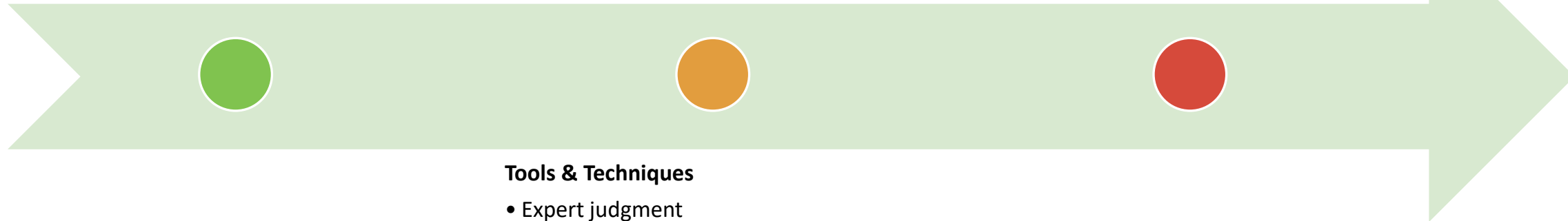
Estimate Activity Resources - ITTOs

Inputs

- Project Management Plan
- Project Documents
- Enterprise Environmental Factors
- Organizational Process Assets

Outputs

- Resource Requirements
- Basis of Estimates
- Resource Breakdown Structure
- Project Documents Updates



Tools & Techniques

- Expert judgment
- Bottom-up Estimating
- Analogous Estimating
- Parametric Estimating
- Data Analysis
- Project Management Information System
- Meetings



Project Communications Management - Planning

Guide to PMBOK® Sixth Edition

PROCESS NAME	PROJECT MANAGEMENT PROCESS GROUP
Plan Communications Management	Planning



Plan Communications Management

As per *Guide to PMBOK®* Sixth Edition:

Plan communications management is

The process of developing an appropriate approach and plan for project communication activities based on the information needs of each stakeholder or group, available organizational assets, and the needs of the project.





Plan Communications Management - ITTOs

Inputs

- Project Charter
- Project Management Plan
- Project Documents
- Enterprise Environmental Factors
- Organizational Process Assets

Outputs

- Communication Management Plan
- Project Management Plan Updates
- Project Document Updates

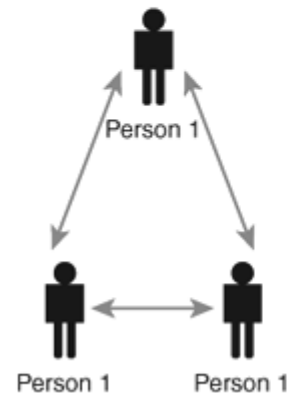
Tools & Techniques

- Expert Judgment
- Communications Requirements Analysis
- Communication Technology
- Communication Models
- Communication Methods
- Interpersonal & Team Skills
- Data Representation
- Meetings

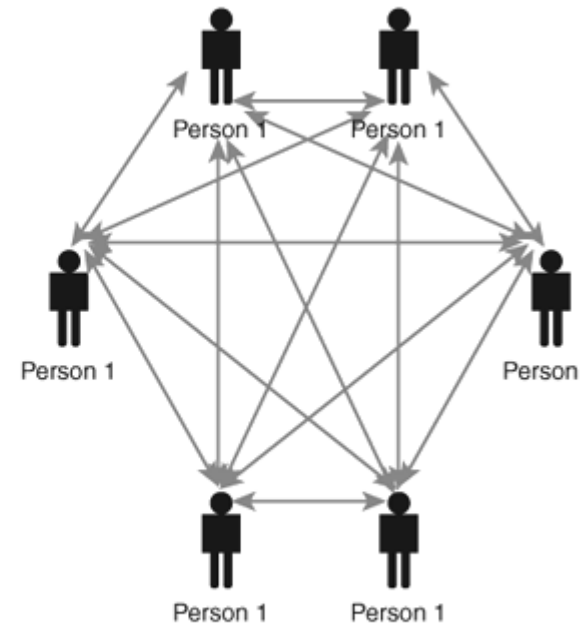


Communication Channels

$$\text{Number of Channels} = n(n-1)/2$$

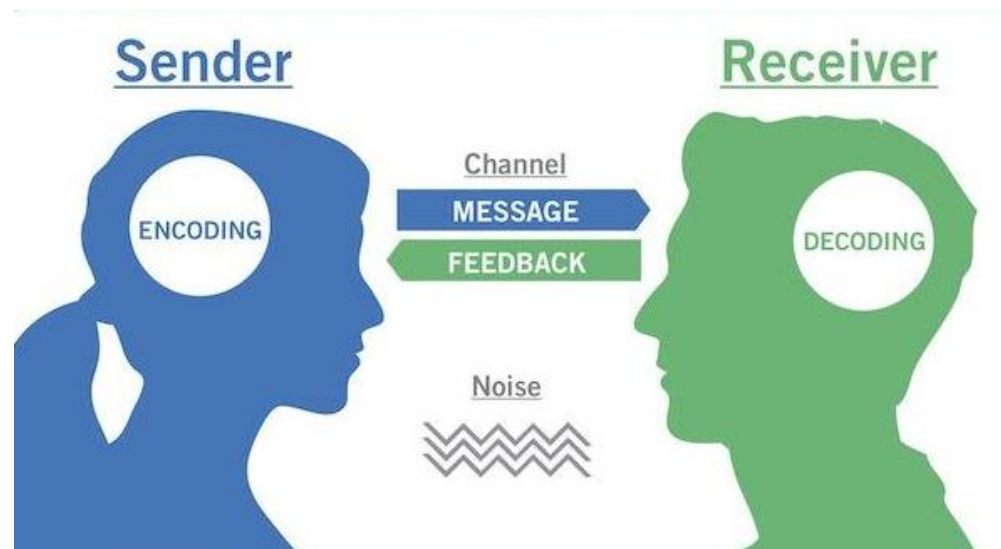


3 people, 3 channels



6 people, 15 channels

Communication Model





Additional Information

- **NONVERBAL COMMUNICATION**

- Means gestures, facial expressions, and physical appearance while you are communicating your message

- **PARA LINGUAL COMMUNICATION**

- Is the tone and pitch of your voice when you are telling people what's going on with your project

- **FEEDBACK**

- Is when you respond to communication. When you give a lot of feedback to someone who is speaking, that's called active listening.





Exercise 8.1

Communication Model: Page No - 71





Communication Methods

Interactive

- A Multidirectional exchange of information.
- It is the most efficient way to ensure a common understanding
- Meetings, phone calls, video conferencing, etc..

Push

- Sent to specific recipients who need to know the information.
- Information is distributed.
- Does not certify that it actually reached or was understood.
- letters, memos, reports, emails, faxes, voice mails, press releases etc..

Pull

- Used for very large volumes of information, or for very large audiences,
- Recipients can access information at their own discretion.
- intranet sites, e-learning, and knowledge repositories, etc..





Formal vs Informal

Formal Written

- System Requirement
- Contract

Informal Written

- Emails
- Chat

Formal Verbal

- Presentation
- Seminars

Informal Verbal

- Meetings
- calls



Exercise 8.2

Kinds of communication used : Page No – 73



Assessment Test: 8.3 | Page - 75



Project Stakeholder Management - Planning

Guide to PMBOK® Sixth Edition

PROCESS NAME	PROJECT MANAGEMENT PROCESS GROUP
Plan Stakeholder Engagement	Planning



Plan Stakeholder Engagement

As per *Guide to PMBOK®* Sixth Edition:

Plan stakeholder management is

The process of developing approaches to involve project stakeholders based on their needs, expectation, interests, and potential impact on the project.



Plan Stakeholder Engagement - ITTOs

Inputs

- Project Charter
- Project Management Plan
- Project Documents
- Agreements
- Enterprise Environmental Factors
- Organizational Process Assets

Outputs

- Stakeholder Engagement Plan



Tools & Techniques

- Expert Judgment
- Data Gathering
- Data Analysis
- Decision Making
- Data Representation
- Meetings



KNOWLETT LEARNING
KNOWLETTWOODS
KNOWLEDGEWOODS

Assessment Test: 11.1 | Page - 97





Project Quality Management - Planning

Guide to PMBOK® Sixth Edition

PROCESS NAME	PROJECT MANAGEMENT PROCESS GROUP
Plan Quality Management	Planning



Quality vs Grade

Quality	Grade
Degree to which set of characteristics fulfil requirements	Category assigned to product or services having the same functional use but different technical characteristics
Low quality is a problem	Low grade may not be a problem



Prevention vs Inspection

Prevention	Inspection
Proactive	Corrective
Keeping errors out from process	Keeping errors out of hands of customers





Exercises – 6.1 & 6.2

Quality Vs. Grade : Page No. 63
Prevention Vs. Inspection - Page No. 65





Plan Quality Management

As per *Guide to PMBOK*® Sixth Edition:

Plan quality management is

The process of identifying quality requirements and/or standards for the project and its deliverables, and documenting how the project will demonstrate compliance with quality requirements and/or standards.





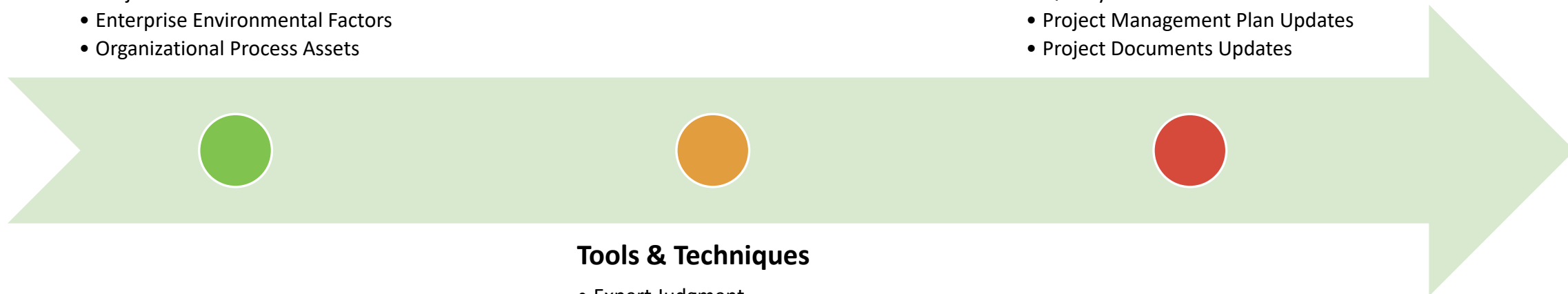
Plan Quality Management - ITTOs

Inputs

- Project Charter
- Project Management Plan
- Project Documents
- Enterprise Environmental Factors
- Organizational Process Assets

Outputs

- Quality Management Plan
- Quality Metrics
- Project Management Plan Updates
- Project Documents Updates



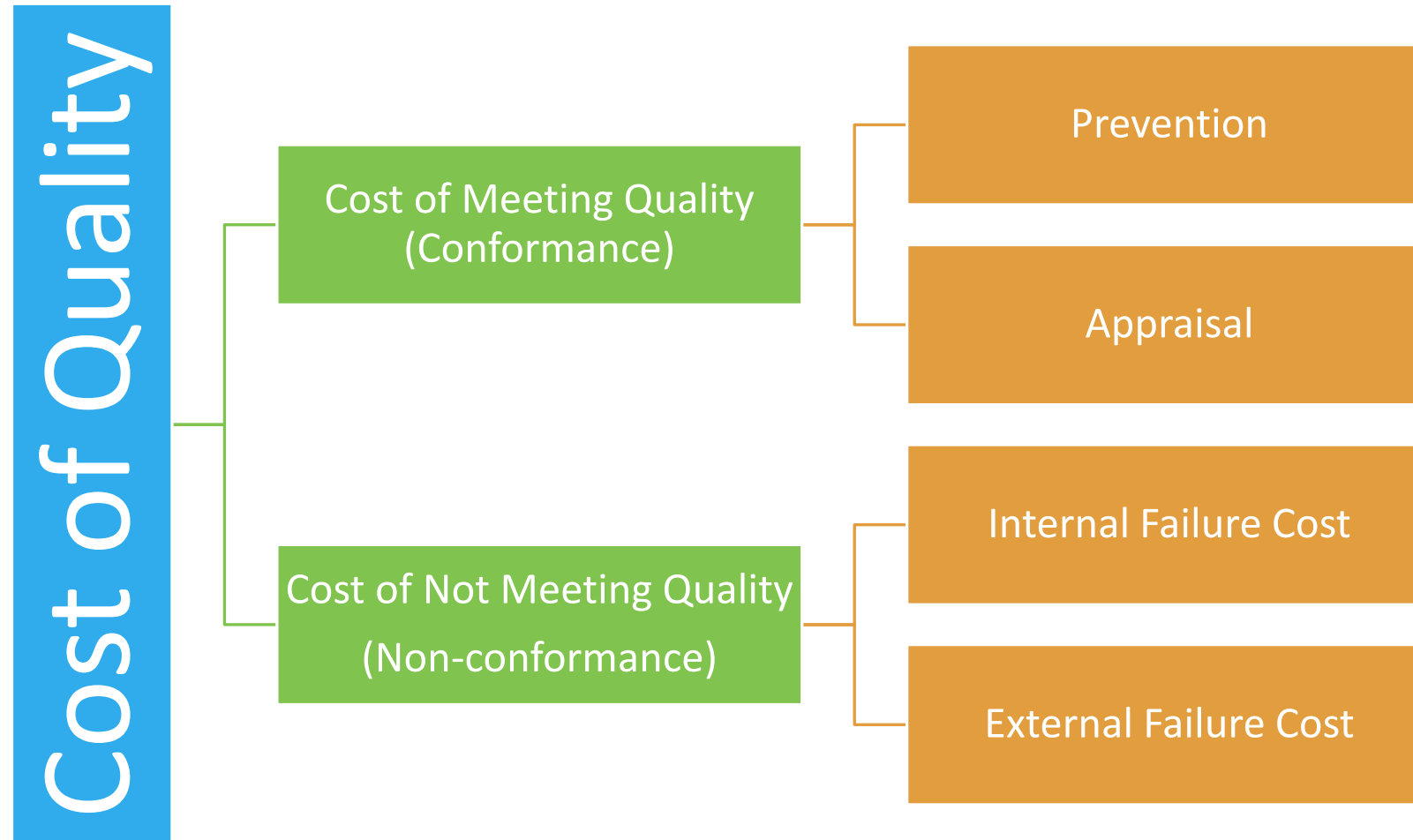
Tools & Techniques

- Expert Judgment
- Data Gathering
- Data Analysis
- Decision Making
- Data Representation
- Test and Inspection Planning
- Meetings



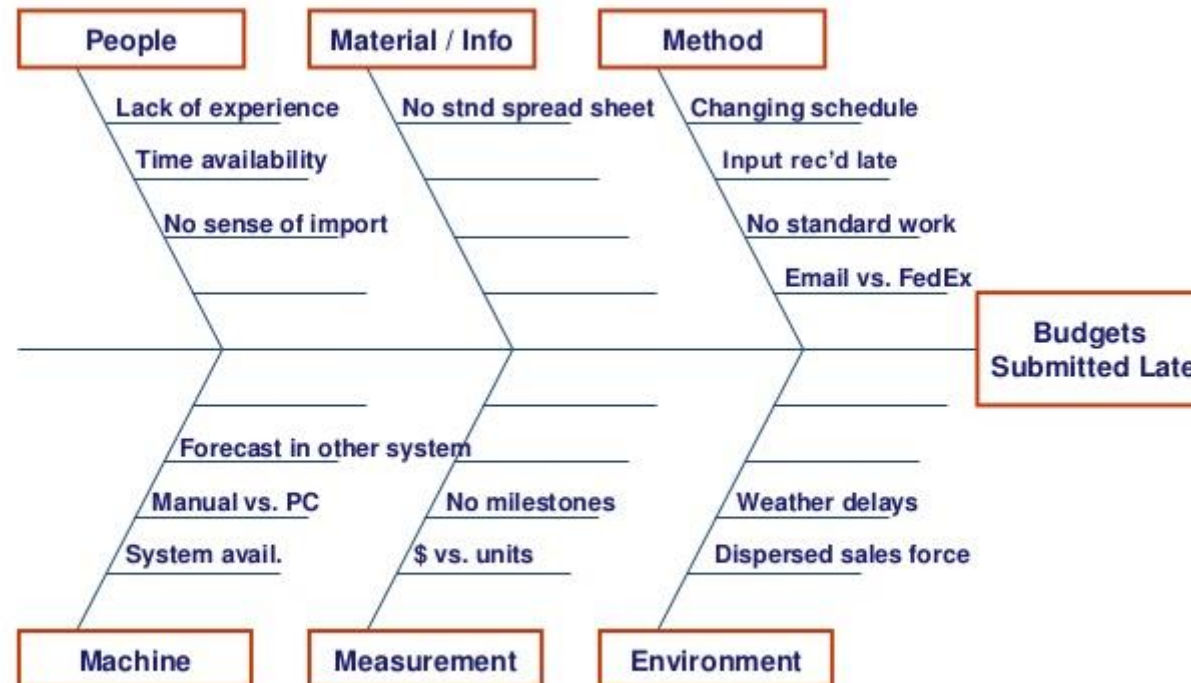


Cost of Quality





Cause & Effect Diagram

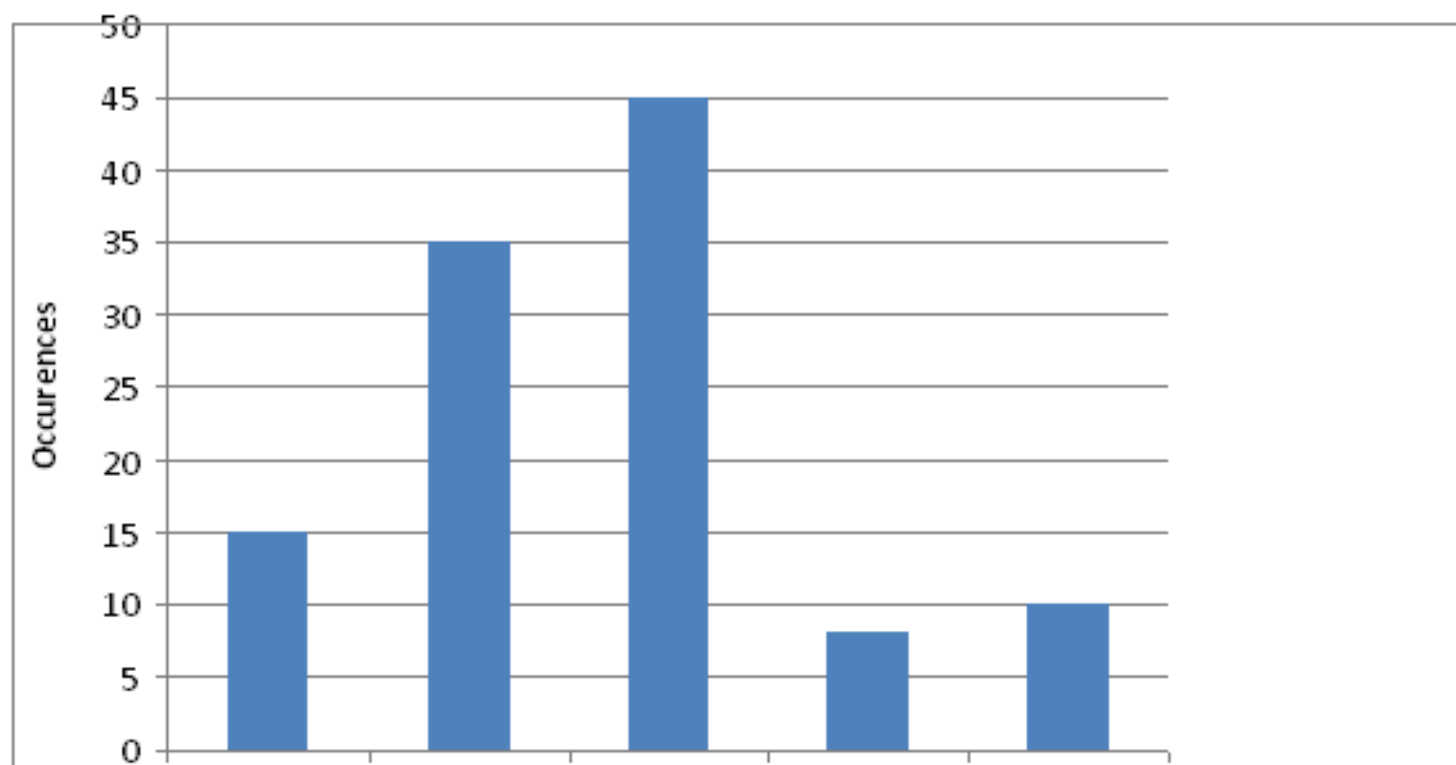


Checksheets

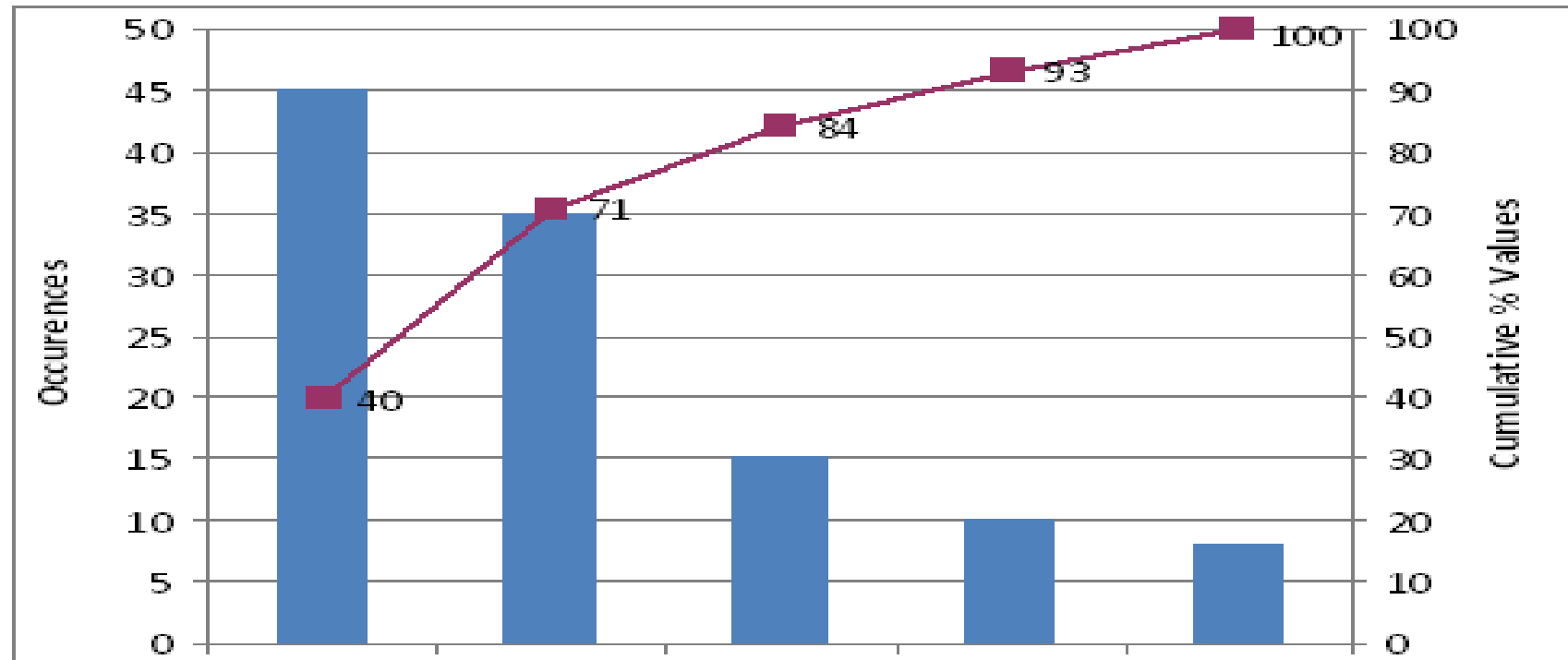
Issues	Week 1	Week 2	Week 3	Week 4
Machine Breakdown				I
Defective Supply of Materials				
Resources Unavailable				
Process Misinterpretation				
Resources Not Skilled				



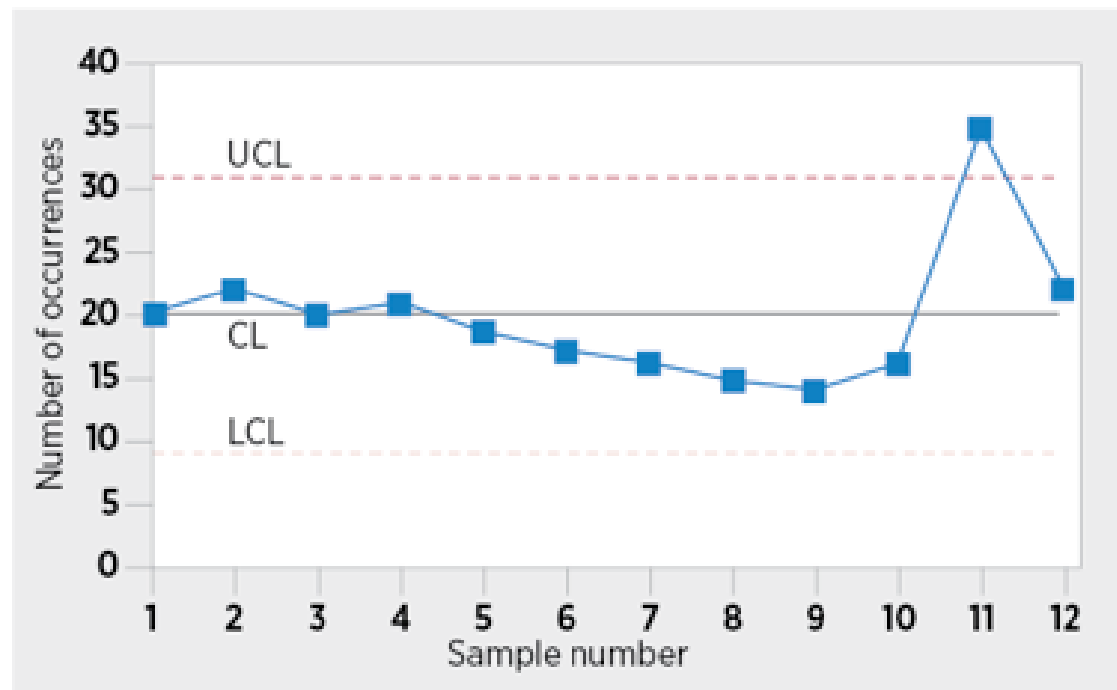
Histogram



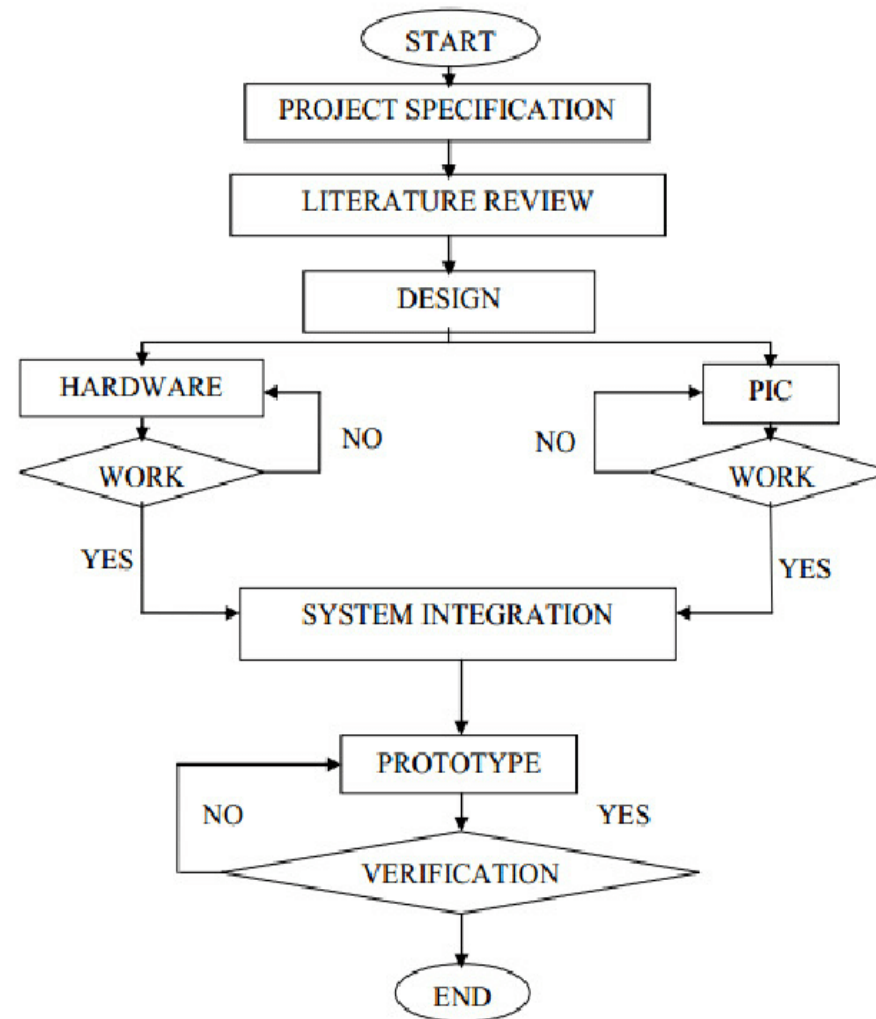
Pareto Chart



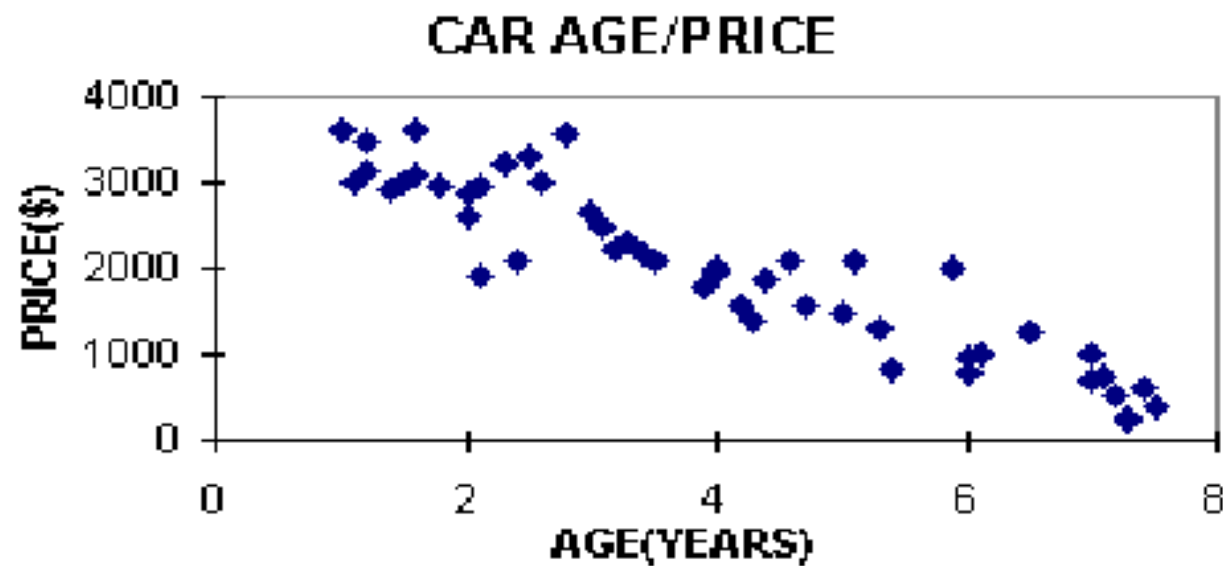
Control Chart



Flowchart



Scatter Diagram





Assessment Test: 6.3 | Page - 67





Project Risk Management - Planning

Guide to PMBOK® Sixth Edition

PROCESS NAME	PROJECT MANAGEMENT PROCESS GROUP
Plan Risk Management	Planning
Identify Risks	Planning
Perform Qualitative Risk Analysis	Planning
Perform Quantitative Risk Analysis	Planning
Plan Risk Responses	Planning





Plan Risk Management

As per *Guide to PMBOK*® Sixth Edition:

Plan risk management is

The process of defining how to conduct risk management activities for a project.





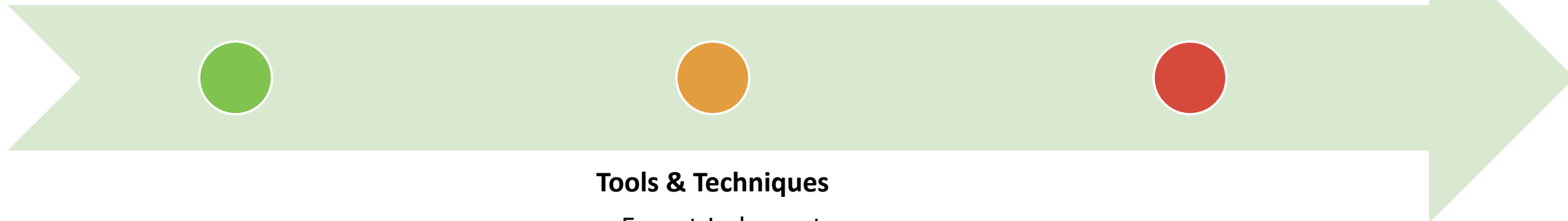
Plan Risk Management - ITTOs

Inputs

- Project Charter
- Project Management Plan
- Project Documents
- Enterprise Environmental Factors
- Organizational Process Assets

Output

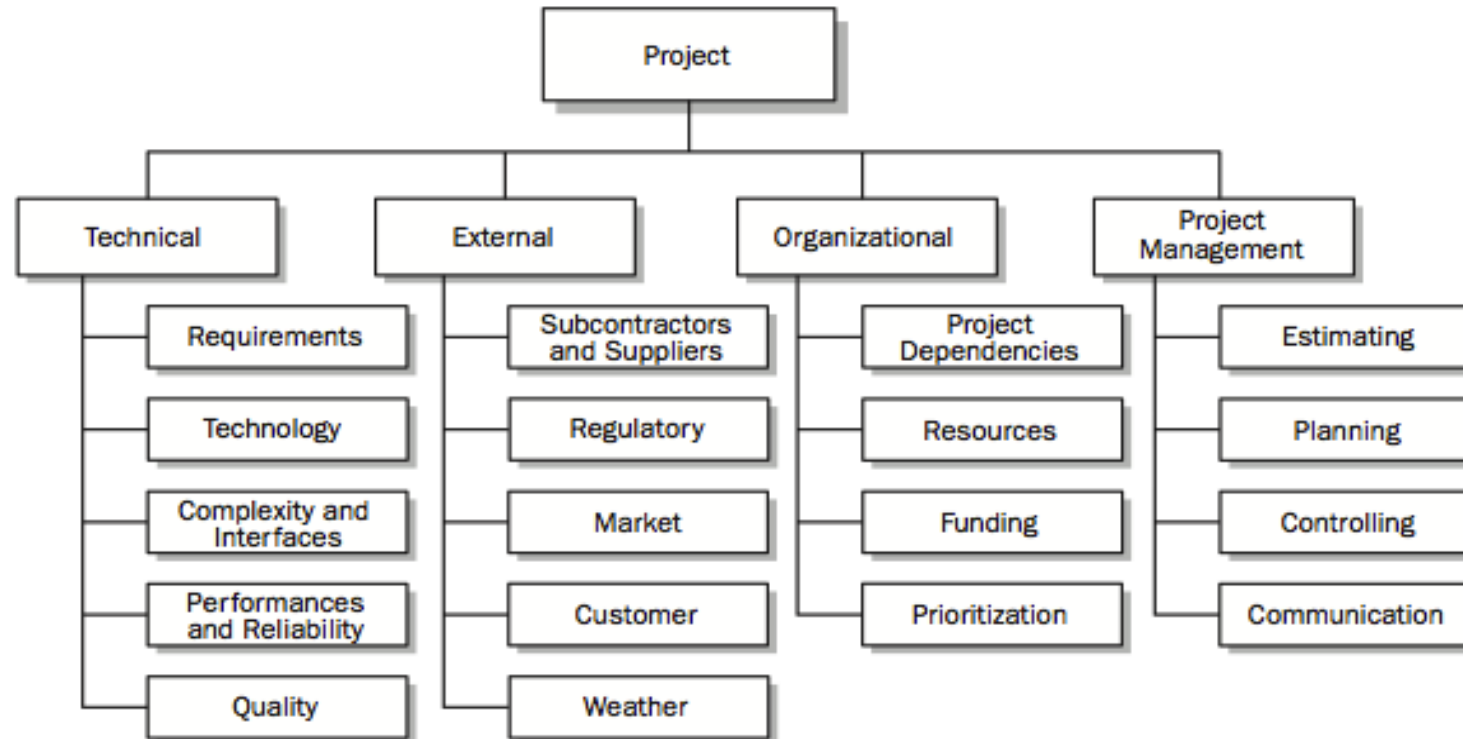
- Risk Management Plan



Tools & Techniques

- Expert Judgment
- Data Analysis
- Meetings

Risk Breakdown Structure



The Risk Breakdown Structure (RBS) lists the categories and sub-categories within which risks may arise for a typical project. Different RBSs will be appropriate for different types of projects and different types of organizations. One benefit of this approach is to remind participants in a risk identification exercise of the many sources from which project risk may arise.



Identify Risks

As per *Guide to PMBOK*® Sixth Edition:

Identify risk is

The process of identifying individual project risks as well as sources of overall project risk, and documenting their characteristics.





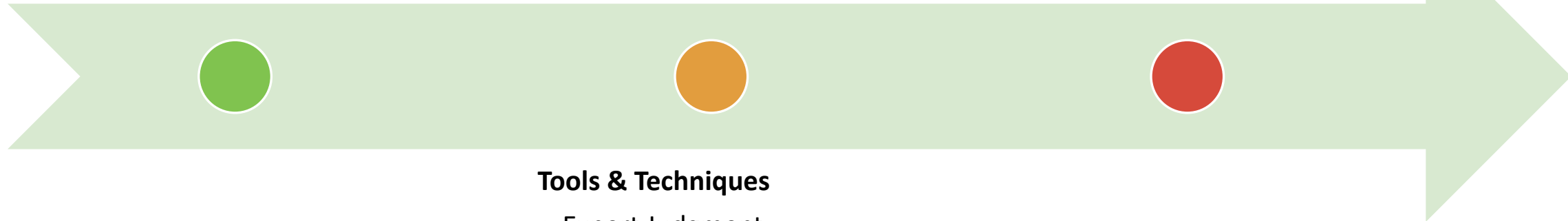
Identify Risks - ITTOs

Inputs

- Project Management Plan
- Project Documents
- Agreements
- Procurement Documentation
- Enterprise Environmental Factors
- Organizational Process Assets

Outputs

- Risk Register
- Risk Report
- Project Documents Updates



Tools & Techniques

- Expert Judgment
- Data Gathering
- Data Analysis
- Interpersonal & Team Skills
- Prompt Lists
- Meetings





Exercise 9.1

Identify Risks: Page No – 79





Perform Qualitative Risk Analysis

As per *Guide to PMBOK®* Sixth Edition:

Perform qualitative risk analysis is

The process of prioritizing individual project risks for further analysis or action by assessing their probability of occurrence and impact as well as other characteristics.





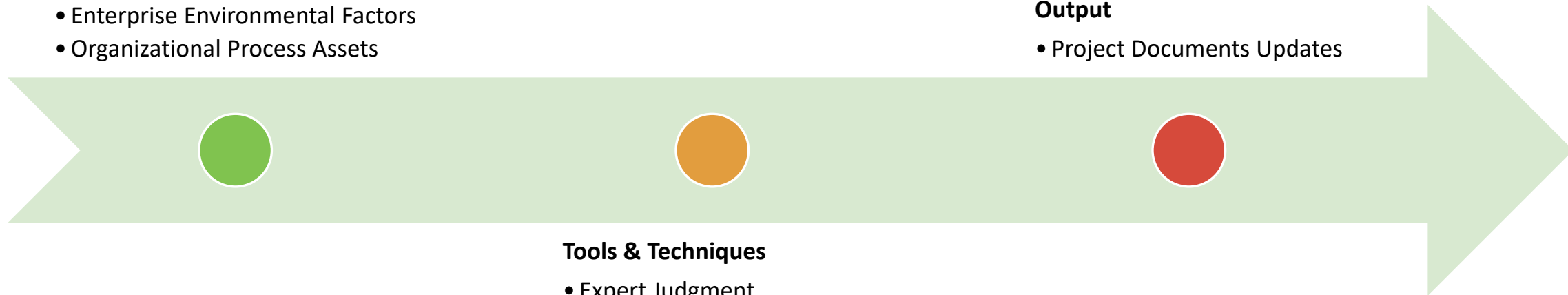
Perform Qualitative Risk Analysis - ITTOs

Inputs

- Project Management Plan
- Project Documents
- Enterprise Environmental Factors
- Organizational Process Assets

Output

- Project Documents Updates



Tools & Techniques

- Expert Judgment
- Data Gathering
- Data Analysis
- Interpersonal & Team Skills
- Risk Categorization
- Data Representation
- Meetings





Perform Quantitative Risk Analysis

As per *Guide to PMBOK*® Sixth Edition:

Perform quantitative risk analysis is

The process of numerically analyzing the combined effect of Identified individual project risks and other sources of uncertainty on overall project objectives.





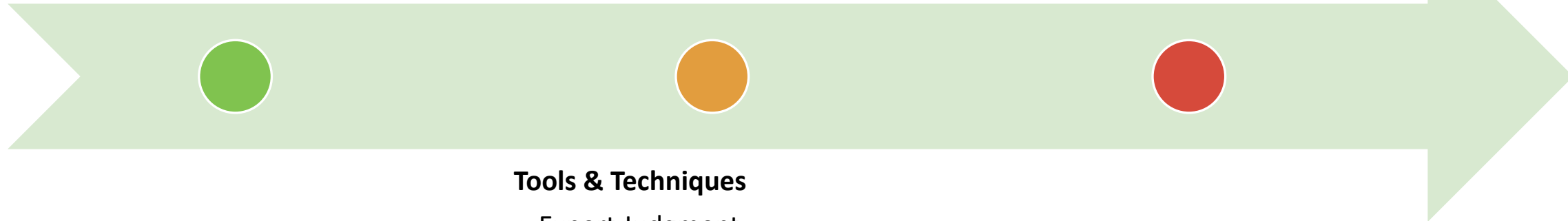
Perform Quantitative Risk Analysis - ITTOs

Inputs

- Project Management Plan
- Project Documents
- Enterprise Environmental Factors
- Organizational Process Assets

Outputs

- Project Documents Updates



Tools & Techniques

- Expert Judgment
- Data Gathering
- Interpersonal & Team Skills
- Representations of Uncertainty
- Data Analysis





Expected Monetary Value (EMV)

- Vendor A has a 50% probability of being on-time, a 30% probability of being late at an additional cost of \$40,000 and a 20% probability of delivering early at a savings of \$20,000.
- Vendor B has a 30% probability of being on-time, a 40% probability of being late at an additional cost of \$40,000 and a 30% probability of delivering early at a savings of \$20,000.
- Which Vendor will you select?





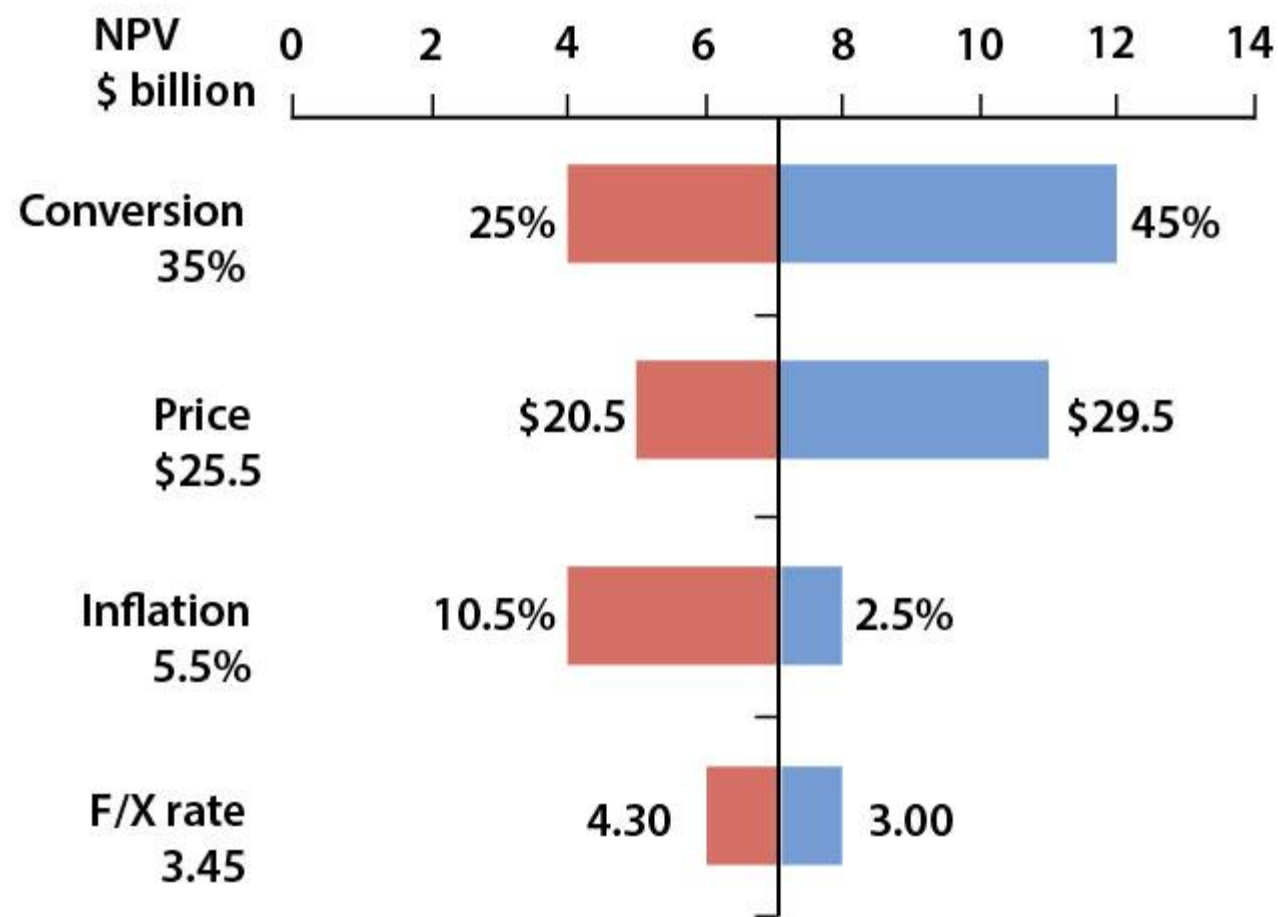
Sensitivity Analysis Tornado Diagram

- Tornado Diagrams are a special type of Bar chart
- Data categories are listed vertically
- Categories are ordered
- Largest bar appears at the top of the chart
- Named as chart looks like half of or a complete tornado.





Sensitivity Analysis Tornado Diagram





Plan Risk Responses

As per *Guide to PMBOK*® Sixth Edition:

Plan risk responses is

The process of developing options, selecting strategies, and agreeing on actions to address overall project risk exposure, as well as to treat individual project risks.





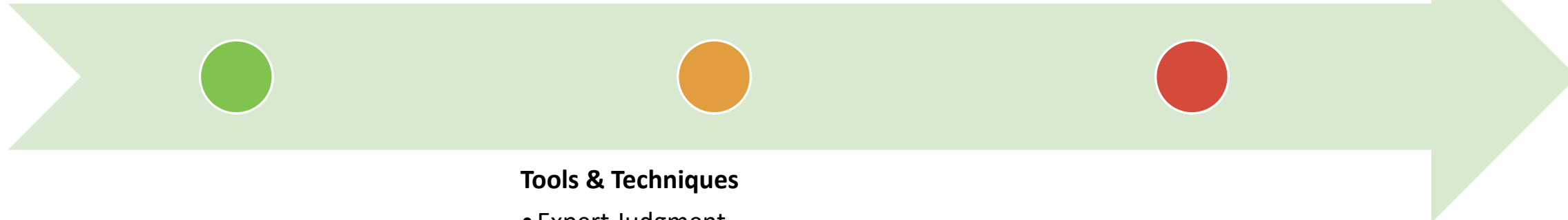
Plan Risk Responses - ITTOs

Inputs

- Project Management Plan
- Project Documents
- Enterprise Environmental Factors
- Organizational Process Assets

Output

- Change Requests
- Project Management Plan Updates
- Project Documents Updates



Tools & Techniques

- Expert Judgment
- Data Gathering
- Interpersonal & Team Skills
- Strategies for Threats
- Strategies for Opportunities
- Contingent Response Strategies
- Strategies for Overall Project Risk
- Data Analysis
- Decision Making





Exercise 9.2

Risk Response: Page No – 81





Assessment Test: 9.3 | Page - 83



Project Procurement Management - Planning

Guide to PMBOK® Sixth Edition

PROCESS NAME	PROJECT MANAGEMENT PROCESS GROUP
Plan Procurement Management	Planning



Plan Procurement Management

As per *Guide to PMBOK*® Sixth Edition:

Plan procurement management is

The process of documenting project procurement decisions, specifying the approach, and identifying potential sellers.





Plan Procurement Management - ITTOs

Inputs

- Project Charter
- Business Documents
- Project Management Plan
- Project Documents
- Enterprise Environmental Factors
- Organizational Process Assets

Outputs

- Procurement Management Plan
- Procurement Strategy
- Bid Documents
- Procurement Statement of Work
- Source Selection Criteria
- Make-or-buy Decisions
- Independent Cost Estimates
- Change Requests
- Project Documents Updates
- Organizational Process Assets Updates

Tools & Techniques

- Expert Judgment
- Data Gathering
- Data Analysis
- Source Selection Analysis
- Meetings





Fixed Price Contracts

Buyers must **precisely specify the product or services** being procured.

➤ **FIRM FIXED PRICE CONTRACTS (FFP)**

- ☐ Price for goods is set at the outset and does not change unless the scope of work changes.
- ☐ Any cost increase due to adverse performance is the responsibility of the seller, who is obligated to complete the effort.

➤ **FIXED PRICE INCENTIVE FEE CONTRACTS (FPIF)**

- ☐ Financial incentives tied to achieving agreed to metrics.
- ☐ Under FPIF contracts, a price ceiling is set, and all costs above the price ceiling are the responsibility of the seller, who is obligated to complete the work

➤ **FIXED PRICE WITH ECONOMIC PRICE ADJUSTMENT CONTRACTS (FP-EPA)**

- ☐ Performance period spans a considerable period of years, as is desired with many long-term relationships.
- ☐ E.g. inflation changes, or cost increases





Cost Reimbursable Contracts

Payments to the seller for **all legitimate actual costs incurred, plus a fee.**

➤ **Cost Plus Fixed Fee Contracts (CPFF)**

- ☐ Fixed fee payment calculated as a percentage of the initial estimated project costs.
- ☐ Fee is paid only for completed work and does not change due to seller performance.

➤ **Cost Plus Incentive Fee Contracts (CPIF)**

- ☐ Predetermined incentive fee based upon achieving certain performance objectives as set forth in the contract.
- ☐ If the final costs are less or greater than the original estimated costs, then both the buyer and seller share costs from the departures based upon a pre-negotiated cost sharing formula, e.g., an 80/20

➤ **Cost Plus Award Fee Contracts (CPAF)**

- ☐ The seller is reimbursed for all legitimate costs, but the majority of the fee is only earned based on the satisfaction of certain broad subjective performance criteria defined and incorporated into the contract.





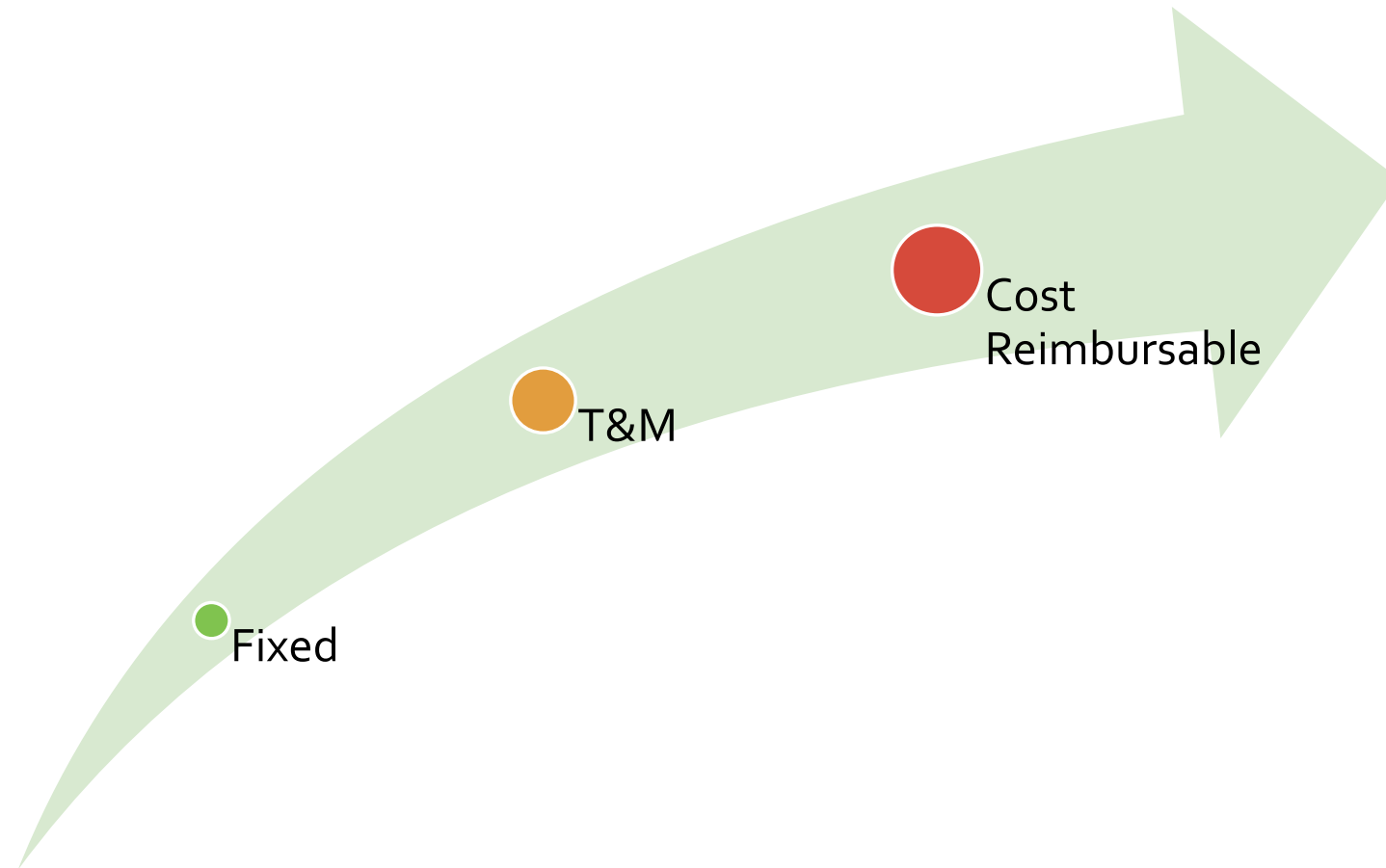
Time & Material Contract

- **Hybrid** type of contractual arrangement that contain **aspects of both cost-reimbursable and fixed-price contracts.**
- Often used for
 - staff augmentation,
 - acquisition of experts,
 - any outside support
- Used when a precise statement of work is not available.
- Buyer pay a rate for Resource.





Contract type vs Risk





Exercises: 10.1 & 10.2

Assessment Test: 10.3 | Page - 93





Project Integration Management - Planning

Guide to PMBOK® Sixth Edition

PROCESS NAME	PROJECT MANAGEMENT PROCESS GROUP
Develop Project Management Plan	Planning





Develop Project Management Plan

As per *Guide to PMBOK*® Sixth Edition:

Develop project management plan is

The process of defining, preparing, and coordinating all plan components and consolidating them into an integrated project management plan.





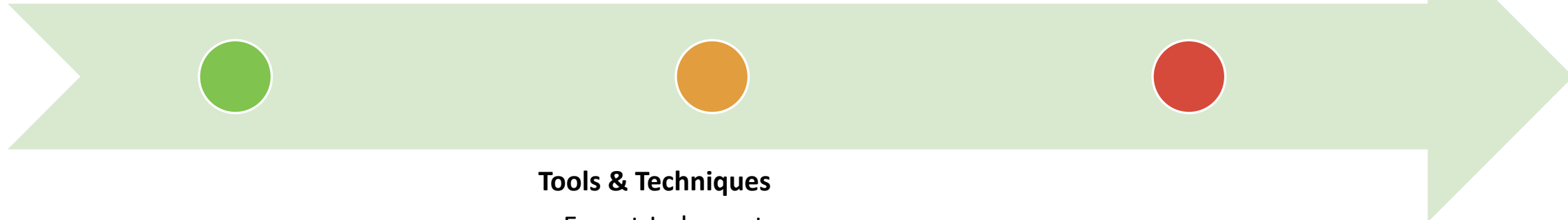
Develop Project Management Plan - ITTOs

Inputs

- Project Charter
- Outputs from other processes
- Enterprise Environmental Factors
- Organizational Process Assets

Output

- Project Management Plan



Tools & Techniques

- Expert Judgment
- Data Gathering
- Interpersonal & Team Skills
- Meetings



Project Executing

Based on Guide to PMBOK® - Sixth Edition



Learning Objectives

- Processes in Executing process Group
- How to implement the plan





Executing Process group

Guide to PMBOK® Sixth Edition

PROCESS NAME	KNOWLEDGE AREA
Acquire Resources	Project Resource Management
Develop Team	Project Resource Management
Manage Team	Project Resource Management
Manage Communications	Project Communications Management
Manage Stakeholder Engagement	Project Stakeholders Management
Manage Quality	Project Quality Management
Implement Risk Responses	Project Risk Management
Conduct Procurements	Project Procurement Management
Direct & Manage Project Work	Project Integration Management
Manage Project Knowledge	Project Integration Management





Project Resource Management - Executing

Guide to PMBOK® Sixth Edition

PROCESS NAME	PROJECT MANAGEMENT PROCESS GROUP
Acquire Resources	Executing
Develop Team	Executing
Manage Team	Executing





Acquire Resources

As per *Guide to PMBOK*® Sixth Edition:

Acquire resources is

The process of obtaining team members, facilities, equipment, materials, supplies, and resources necessary to complete project work.





Acquire Resources - ITTOs

Inputs

- Project Management Plan
- Project Documents
- Enterprise Environmental Factors
- Organizational Process Assets

Outputs

- Physical Resource Assignments
- Project Team Assignments
- Resource Calendars
- Change Requests
- Project Management Plan Updates
- Project Document Updates
- Enterprise Environmental Factors Updates
- Organizational Process Assets Updates

Tools & Techniques

- Decision Making
- Interpersonal & Team Skills
- Pre-assignment
- Virtual Teams





Develop Team

As per *Guide to PMBOK*® Sixth Edition:

Develop team is

The process of improving competencies, team member interaction, and overall team environment to enhance project performance.





Develop Team - ITTOs

Inputs

- Project Management Plan
- Project Documents
- Enterprise Environmental Factors
- Organizational Process Assets

Outputs

- Team Performance Assessments
- Change Requests
- Project Management Plan Updates
- Project Documents Updates
- Enterprise Environmental Factors Updates
- Organizational Process Assets Updates

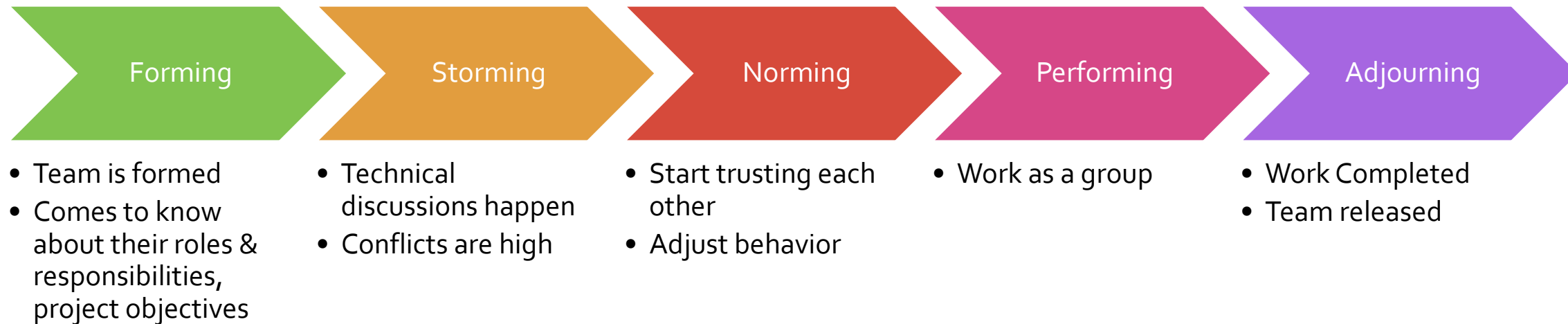
Tools & Techniques

- Co-location
- Virtual Teams
- Communication Technology
- Interpersonal & Team Skills
- Recognition and Rewards
- Training
- Individual & Team Assessments
- Meetings





Stages of Team Development



Manage Team

As per *Guide to PMBOK*® Sixth Edition:

Manage team is

The process of tracking team member performance, providing feedback, resolving issues, and managing team changes to optimize project performance.



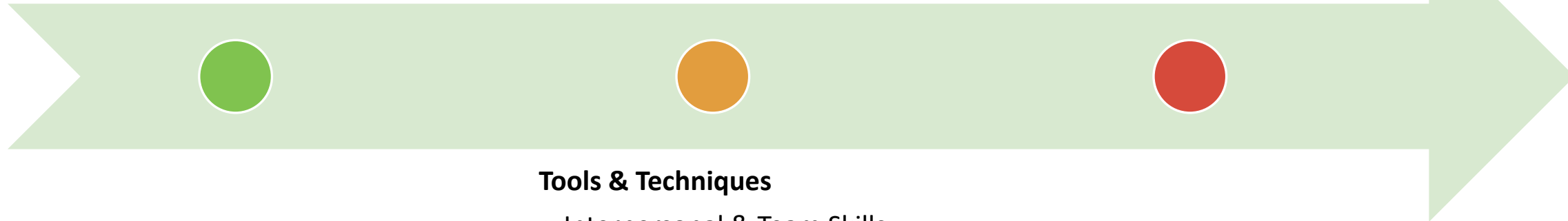
Manage Team - ITTOs

Inputs

- Project Management Plan
- Project Documents
- Work Performance Reports
- Team Performance Assessments
- Enterprise Environmental Factors
- Organizational Process Assets

Outputs

- Change Requests
- Project Management Plan Updates
- Project Document Updates
- Enterprise Environmental Factors Updates



Tools & Techniques

- Interpersonal & Team Skills
- Project Management Information System





Few Reasons of Conflict

Scarcity of
resources

Difference in
priorities

Strict deadlines

Personality traits

Disagreement on
costs – specially in
case of contractual
work

Different technical
opinions



Conflict Management





Exercises – 12.1 & 12.2

Stages - Team Development : Page No- 99

Conflict Management: Page No - 101





Project Communications Management - Executing

Guide to PMBOK® Sixth Edition

PROCESS NAME	PROJECT MANAGEMENT PROCESS GROUP
Manage Communications	Executing





Manage Communications

As per *Guide to PMBOK*® Sixth Edition:

Manage communications is

The process of ensuring timely and appropriate collection, creation, distribution, storage, retrieval, management, monitoring, and the ultimate disposition of project information.





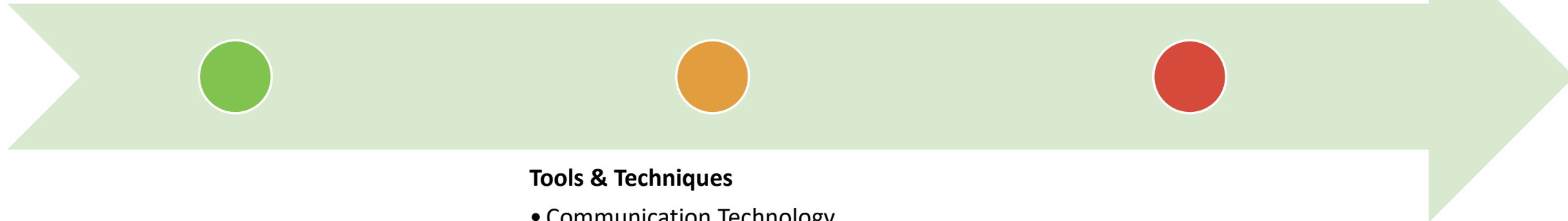
Manage Communications - ITTOs

Inputs

- Project Management Plan
- Project Documents
- Work Performance Reports
- Enterprise Environmental Factors
- Organizational Process Assets

Outputs

- Project Communications
- Project Management Plan Updates
- Project Document Updates
- Organizational Process Assets Updates



Tools & Techniques

- Communication Technology
- Communication Methods
- Communication Skills
- Project Management Information System
- Project Reporting
- Interpersonal & Team Skills
- Meetings





Exercise 13.1

Manage Communications: Page No - 103



Project Stakeholder Management - Executing

Guide to PMBOK® Sixth Edition

PROCESS NAME	PROJECT MANAGEMENT PROCESS GROUP
Manage Stakeholder Engagement	Executing



Manage Stakeholder Engagement

As per *Guide to PMBOK®* Sixth Edition:

Manage stakeholder engagement

The process of communicating and working with stakeholders to meet their needs and expectations, address issues, and foster appropriate stakeholder engagement involvement.





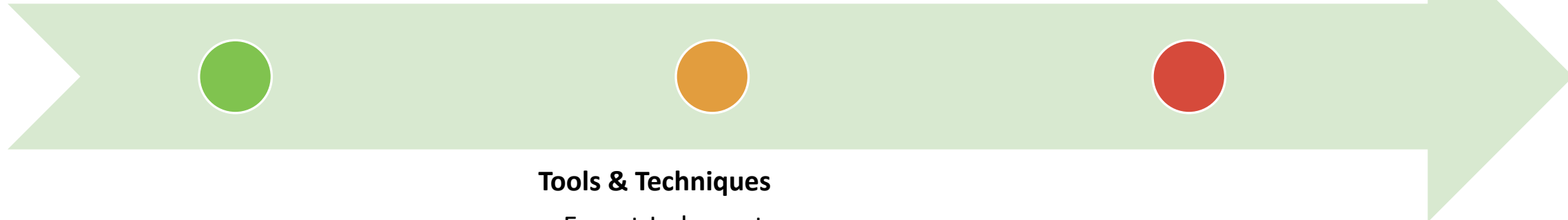
Manage Stakeholder Engagement - ITTOs

Inputs

- Project Management Plan
- Project Documents
- Enterprise Environmental Factors
- Organizational Process Assets

Outputs

- Change Requests
- Project Management Plan Updates
- Project Documents Updates



Tools & Techniques

- Expert Judgment
- Communication Skills
- Interpersonal & Team Skills
- Ground Rules
- Meetings





Project Quality Management - Executing

Guide to PMBOK® Sixth Edition

PROCESS NAME	PROJECT MANAGEMENT PROCESS GROUP
Manage Quality	Executing





Manage Quality

As per *Guide to PMBOK*® Sixth Edition:

Manage quality is

The process of translating the quality management plan into executable quality activities that incorporate the organization's quality policies into the project.





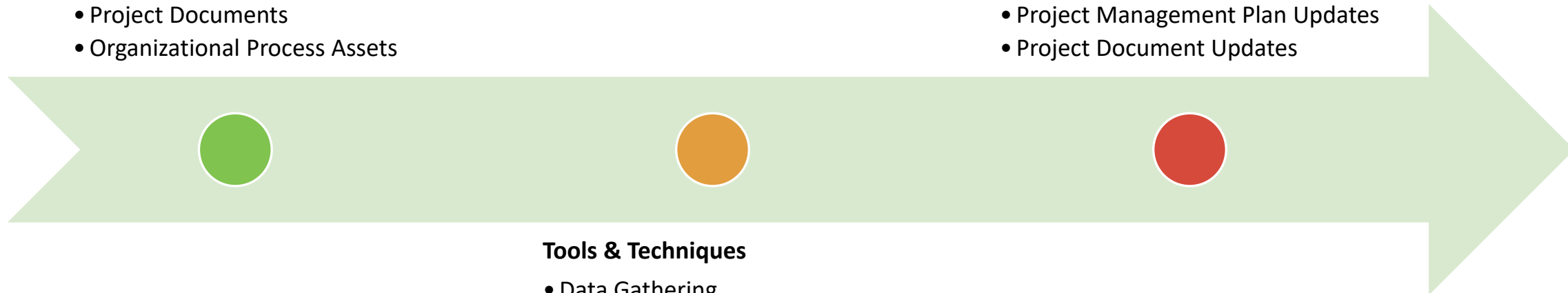
Manage Quality - ITTOs

Inputs

- Project Management Plan
- Project Documents
- Organizational Process Assets

Outputs

- Quality Reports
- Test & Evaluation Documents
- Change Requests
- Project Management Plan Updates
- Project Document Updates



Tools & Techniques

- Data Gathering
- Data Analysis
- Decision Making
- Data Representation
- Audits
- Design for X
- Problem Solving
- Quality Improvement Methods





Project Procurement Management - Executing

Guide to PMBOK® Sixth Edition

PROCESS NAME	PROJECT MANAGEMENT PROCESS GROUP
Conduct Procurements	Executing





Conduct Procurements

As per *Guide to PMBOK*® Sixth Edition:

Conduct procurements is

The process of obtaining seller responses, selecting a seller, and awarding a contract.





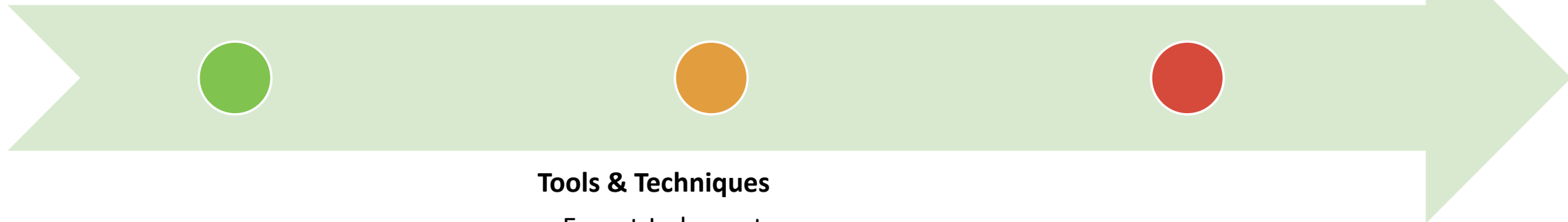
Conduct Procurements - ITTOs

Inputs

- Project Management Plan
- Project Documents
- Procurement Documentation
- Seller Proposals
- Enterprise Environmental Factors
- Organizational Process Assets

Outputs

- Selected Sellers
- Agreements
- Change Requests
- Project Management Plan Updates
- Project Documents Updates
- Organizational Process Assets Updates



Tools & Techniques

- Expert Judgment
- Advertising
- Bidder Conferences
- Data Analysis
- Interpersonal & Team Skills





Project Risk Management - Executing

Guide to PMBOK® Sixth Edition

PROCESS NAME	PROJECT MANAGEMENT PROCESS GROUP
Implement Risk Responses	Executing





Implement Risk Responses

As per *Guide to PMBOK®* Sixth Edition:

Implement risk responses is

The process of implementing agreed-upon risk response plans.





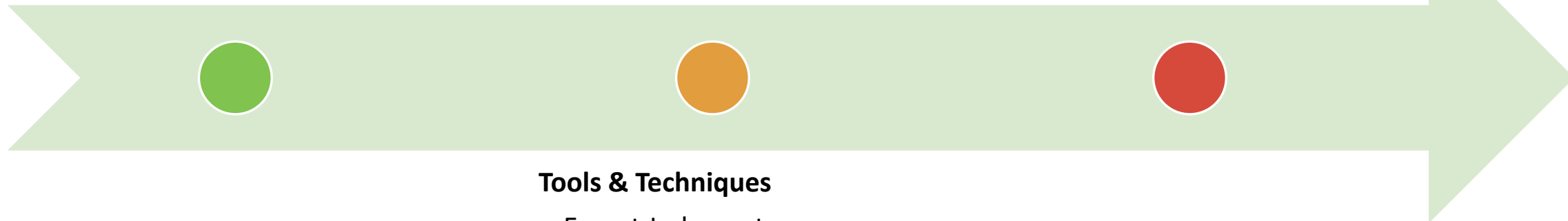
Implement Risk Responses - ITTOs

Inputs

- Project Management Plan
- Project Documents
- Organizational Process Assets

Outputs

- Change Requests
- Project Documents Updates



Tools & Techniques

- Expert Judgment
- Interpersonal & Team Skills
- Project Management Information System



Project Integration Management - Executing

Guide to PMBOK® Sixth Edition

PROCESS NAME	PROJECT MANAGEMENT PROCESS GROUP
Direct & Manage Project Work	Executing
Manage Project Knowledge	Executing



Direct & Manage Project Work

As per *Guide to PMBOK®* Sixth Edition:

Direct and manage project work is

The process of leading and performing the work defined in the project management plan and implementing approved changes to achieve the project's objectives.





Direct & Manage Project Work - ITTOs

Inputs

- Project Management Plan
- Project Documents
- Approved Change Requests
- Enterprise Environmental Factors
- Organizational Process Assets

Outputs

- Deliverables
- Work Performance Data
- Issue Log
- Change Requests
- Project Management Plan Updates
- Project Documents Updates
- Organizational Process Assets Updates

Tools & Techniques

- Expert Judgment
- Project Management Information System
- Meetings





Manage Project Knowledge

As per *Guide to PMBOK*® Sixth Edition:

Manage project knowledge is

The process of using existing knowledge and creating new knowledge to achieve the project's objectives and contribute to organizational learning.





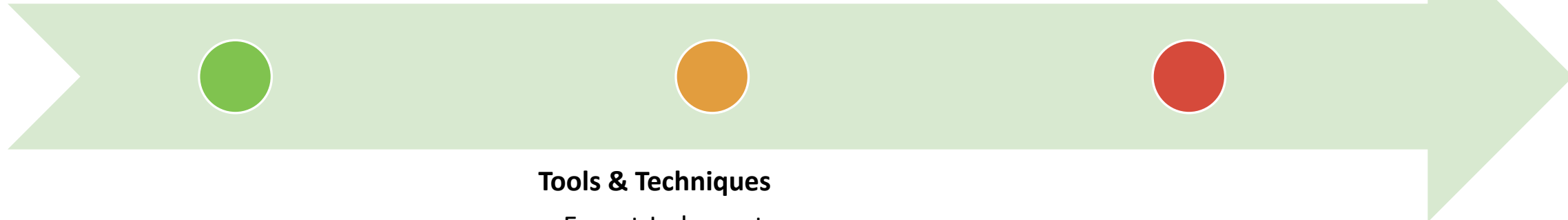
Manage Project Knowledge - ITTOs

Inputs

- Project Management Plan
- Project Documents
- Deliverables
- Enterprise Environmental Factors
- Organizational Process Assets

Outputs

- Lessons Learnt Register
- Project Management Plan Updates
- Project Document Updates



Tools & Techniques

- Expert Judgment
- Knowledge Management
- Information Management
- Interpersonal & Team Skills





Assessment Test: 14.1 | Page - 105





KNOWLETT LEARNING
KNOWLETTWOODS
KNOWLEDGEWOODS

Project Monitoring & Controlling

Based on Guide to PMBOK® - Sixth Edition





Learning Objectives

- Processes in Monitoring & Controlling Process Group
- How to monitor and control the overall project work
- How to manage changes





Monitoring & Controlling Process group

Guide to PMBOK® Sixth Edition

PROCESS NAME	KNOWLEDGE AREA
Control Quality	Project Quality Management
Validate Scope	Project Scope Management
Control Scope	Project Scope Management
Control Schedule	Project Schedule Management
Control Cost	Project Cost Management
Control Resources	Project Resource Management
Monitor Communications	Project Communications Management
Monitor Stakeholder Engagement	Project Stakeholders Management
Monitor Risks	Project Risk Management
Control Procurements	Project Procurement Management
Monitor & Control Project Work	Project Integration Management
Perform Integrated Change Control	Project Integration Management





Project Quality Management – M & C

Guide to PMBOK® Sixth Edition

PROCESS NAME	PROJECT MANAGEMENT PROCESS GROUP
Control Quality	Monitoring & Controlling



Control Quality

As per *Guide to PMBOK*® Sixth Edition:

Control quality is

The process of monitoring and recording the results of executing the quality management activities to assess performance and ensure the project outputs are complete, correct, and meet customer expectations.



Control Quality - ITTOs

Inputs

- Project Management Plan
- Project Documents
- Approved Change Requests
- Deliverables
- Work Performance Data
- Enterprise Environmental Factors
- Organizational Process Assets

Outputs

- Quality Control Measurements
- Verified Deliverables
- Work Performance Information
- Change Requests
- Project Management Plan Updates
- Project Documents Updates

Tools & Techniques

- Data Gathering
- Data Analysis
- Inspection
- Testing/product evaluations
- Data Representation
- Meetings





Project Scope Management – M & C

Guide to PMBOK® Sixth Edition

PROCESS NAME	PROJECT MANAGEMENT PROCESS GROUP
Validate Scope	Monitoring & Controlling
Control Scope	Monitoring & Controlling





Validate Scope

As per *Guide to PMBOK*® Sixth Edition:

Validate scope is

The process of formalizing acceptance of the completed project deliverables.





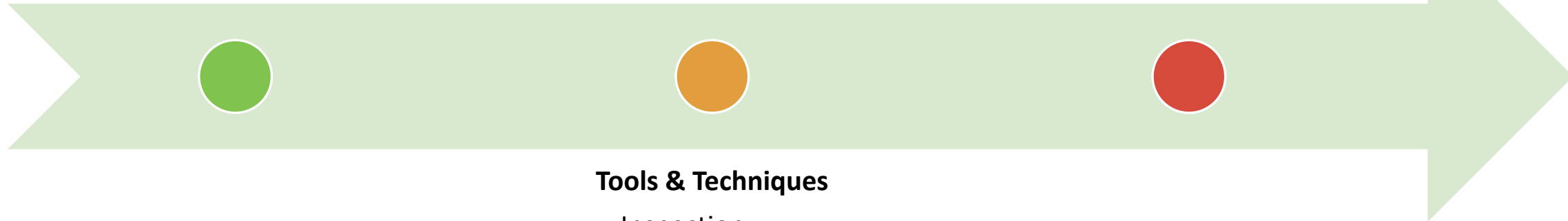
Validate Scope - ITTOs

Inputs

- Project Management Plan
- Project Documents
- Verified Deliverables
- Work Performance Data

Outputs

- Accepted Deliverables
- Work Performance Information
- Change Requests
- Project Documents Updates



Tools & Techniques

- Inspection
- Decision Making





Deliverable Journey

**Direct & Manage
Project Work**

- Deliverables

Control Quality

- Verified Deliverable

Validate Scope

- Accepted Deliverable

Close Project/Phase

- Final Product Transition



Control Scope

As per *Guide to PMBOK*® Sixth Edition:

Control scope is

The process of monitoring the status of the project and product scope and managing changes to the scope baseline.



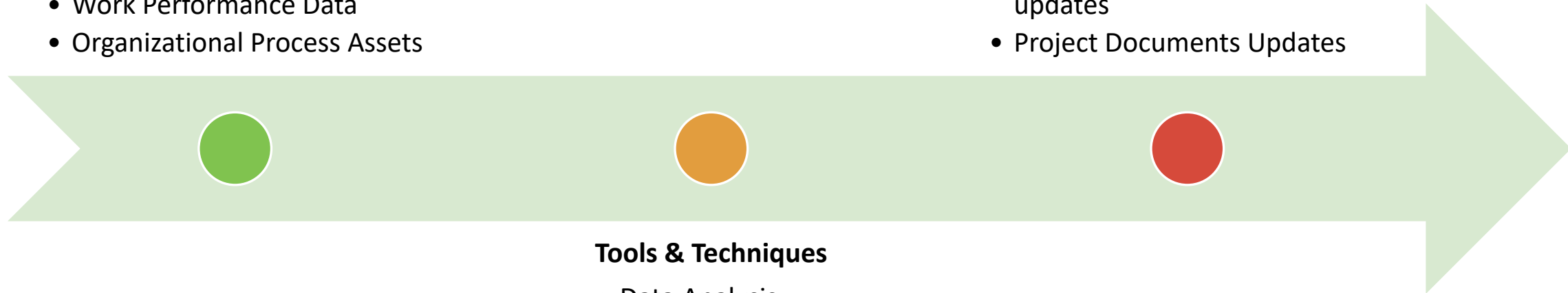
Control Scope - ITTOs

Inputs

- Project Management Plan
- Project Documents
- Work Performance Data
- Organizational Process Assets

Outputs

- Work Performance Information
- Change Requests
- Project Management Plan updates
- Project Documents Updates



Tools & Techniques

- Data Analysis





Project Schedule Management – M & C

Guide to PMBOK® Sixth Edition

PROCESS NAME	PROJECT MANAGEMENT PROCESS GROUP
Control Schedule	Monitoring & Controlling





Control Schedule

As per *Guide to PMBOK*® Sixth Edition:

Control schedule is

The process of monitoring the status of the project to update the project schedule and manage changes to the schedule baseline.





Control Schedule - ITTOs

Inputs

- Project Management Plan
- Project Documents
- Work Performance Data
- Organizational Process Assets

Outputs

- Work Performance Information
- Schedule Forecasts
- Change requests
- Project Management Plan Updates
- Project Documents Updates

Tools & Techniques

- Data Analysis
- Critical Path Method
- Project Management Information System
- Resource Optimization
- Leads & Lags
- Schedule Compression



Exercise 15.1

Control Schedule : Page no - 119



Project Cost Management – M & C

Guide to PMBOK® Sixth Edition

PROCESS NAME	PROJECT MANAGEMENT PROCESS GROUP
Control Costs	Monitoring & Controlling





Control Costs

As per *Guide to PMBOK*® Sixth Edition:

Control costs is

The process of monitoring the status of the project to update the project costs and manage changes to the cost baseline.





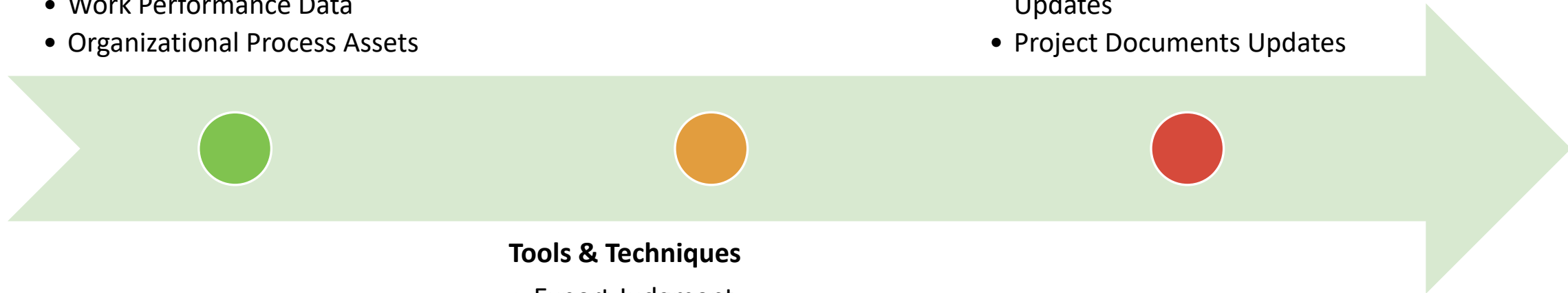
Control Costs - ITTOs

Inputs

- Project Management Plan
- Project Documents
- Project Funding Requirements
- Work Performance Data
- Organizational Process Assets

Outputs

- Work Performance Information
- Cost Forecasts
- Change Requests
- Project Management Plan Updates
- Project Documents Updates



Tools & Techniques

- Expert Judgment
- Data Analysis
- To-complete Performance Index (TCPI)
- Project Management Information System





Earned Value Management (EVM)

You have a project to build a new fence. The fence is four sided as shown at right. Each side is to take one day to build, and \$1000 has been budgeted per side. The sides are planned to be completed one after the other, but circumstances changed on the project, and the work on the sides was able to proceed in parallel. Assume there that the sides have a finish-to-finish relationship instead of finish-to-start relationship, so more than one side can be worked on at the same time. Today is end of day 3.



Using the following project status chart, find the status of the project in terms of schedule and cost, and also calculate the cost forecasts

Activity	Day 1	Day 2	Day 3	Day 4	Status End of Day 3
Side 1	S-----F				Complete, spent \$1000
Side 2		S----F-----PF			Complete, spent \$900
Side 3		S-----	PS-----PF		50% done, spent \$600
Side 4			S-----	PS-----PF	75% done, spent \$600

Key

S = Actual Start
F = Actual Finish
PS = Planned Start
PF = Planned Finish





Misc. Information

Rough Order of Magnitude Estimate

- Accuracy: -25% to +75%
- At initial phases

Definitive Estimate

- Accuracy: -5% to +10%
- As you move forward in project





EVM Key Information

IF	$AC > EV$	$AC = EV$	$AC < EV$
THEN	$CV < 0$	$CV = 0$	$CV > 0$
	$CPI < 1$	$CPI = 1$	$CPI > 1$
The project is	Over Budget	On Budget	Under Budget



EVM Key Information

IF	$PV > EV$	$PV = EV$	$PV < EV$
THEN	$SV < 0$	$SV = 0$	$SV > 0$
	$SPI < 1$	$SPI = 1$	$SPI > 1$
The project is	Behind Schedule	On Schedule	Ahead of Schedule



EVM Key Information

- An Index (CPI/SPI) of Less Than 1 is bad
- A Negative Variance is bad
- **To remember SPI, CPI and SV, CV Formula**
 - EV always comes first or on top of formula
 - Schedule – use PV
 - Cost – use AC



KNOWLETT LEARNING
KNOWLETTWOODS
KNOWLEDGEWOODS

Exercise 16.1





Project Resources Management – M & C

Guide to PMBOK® Sixth Edition

PROCESS NAME	PROJECT MANAGEMENT PROCESS GROUP
Control Resources	Monitoring & Controlling



Control Resources

As per *Guide to PMBOK*® Sixth Edition:

Control resources is

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.



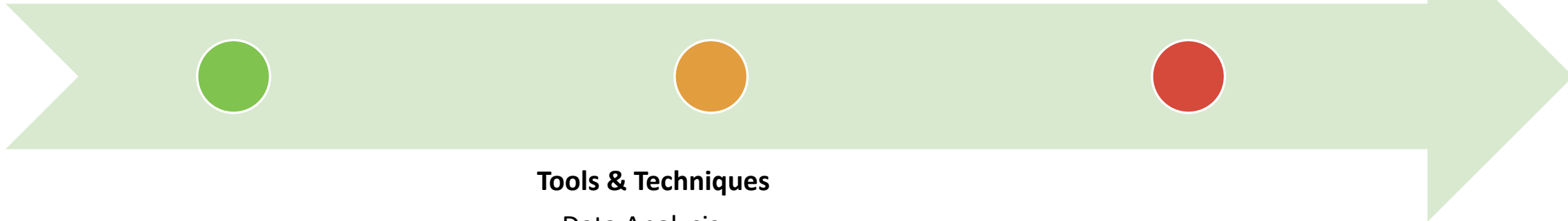
Control Resources - ITTOs

Inputs

- Project Management Plan
- Project Documents
- Work Performance Data
- Agreements
- Organizational Process Assets

Outputs

- Work Performance Information
- Change Requests
- Project Management Plan Updates
- Project Documents Updates



Tools & Techniques

- Data Analysis
- Problem Solving
- Interpersonal & Team Skills
- Project Management Information System





Project Communications Management – M & C

Guide to PMBOK® Sixth Edition

PROCESS NAME	PROJECT MANAGEMENT PROCESS GROUP
Monitor Communications	Monitoring & Controlling





Monitor Communications

As per *Guide to PMBOK*® Sixth Edition:

Monitor communications is

The process of ensuring the information needs of the project and its stakeholders are met.





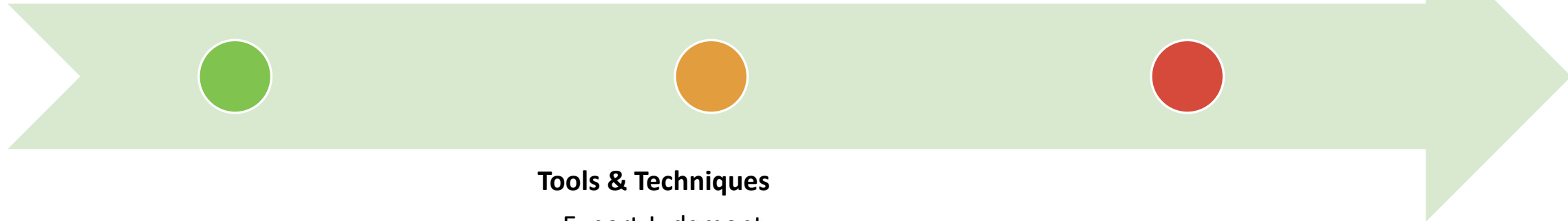
Monitor Communications - ITTOs

Inputs

- Project Management Plan
- Project Documents
- Work Performance Data
- Enterprise Environmental Factors
- Organizational Process Assets

Outputs

- Work Performance Information
- Change Requests
- Project Management Plan Updates
- Project Documents Updates



Tools & Techniques

- Expert Judgment
- Project Management Information System
- Data Analysis
- Interpersonal & Team Skills
- Meetings





Project Stakeholder Management – M & C

Guide to PMBOK® Sixth Edition

PROCESS NAME	PROJECT MANAGEMENT PROCESS GROUP
Monitor Stakeholder Engagement	Monitoring & Controlling





Monitor Stakeholder Engagement

As per *Guide to PMBOK*® Sixth Edition:

Monitor stakeholder engagement is

The process of monitoring project stakeholder relationships and tailoring strategies for engaging stakeholders through the modification of engagement strategies and plans.



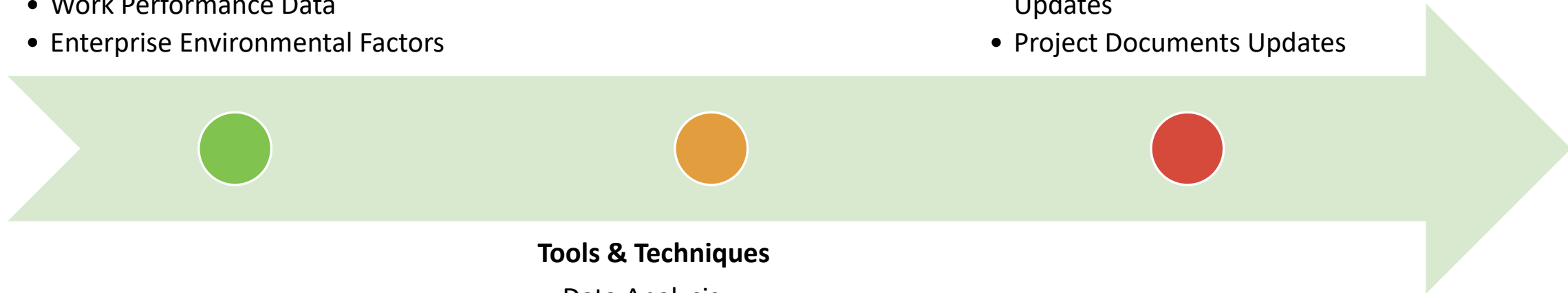
Monitor Stakeholder Engagement - ITTOs

Inputs

- Project Management Plan
- Project Documents
- Work Performance Data
- Enterprise Environmental Factors

Outputs

- Work Performance Information
- Change Requests
- Project Management Plan Updates
- Project Documents Updates



Tools & Techniques

- Data Analysis
- Decision Making
- Data Representation
- Communication Skills
- Interpersonal & Team Skills
- Meetings



Project Risk Management – M & C

Guide to PMBOK® Sixth Edition

PROCESS NAME	PROJECT MANAGEMENT PROCESS GROUP
Monitor Risks	Monitoring & Controlling





Monitor Risks

As per *Guide to PMBOK*® Sixth Edition:

Monitor risks is

The process of monitoring the implementation of agreed-upon risk response plans, tracking identified risks, identifying and analyzing new risks, and evaluating risk process effectiveness throughout the project.





Monitor Risks - ITTOs

Inputs

- Project Management Plan
- Project Documents
- Work Performance Data
- Work Performance Reports

Outputs

- Work Performance Information
- Change Requests
- Project Management Plan Updates
- Project Documents Updates
- Organizational Process Assets Updates

Tools & Techniques

- Data Analysis
- Audits
- Meetings





Project Procurement Management – M & C

Guide to PMBOK® Sixth Edition

PROCESS NAME	PROJECT MANAGEMENT PROCESS GROUP
Control Procurements	Monitoring & Controlling





Control Procurements

As per *Guide to PMBOK*® Sixth Edition:

Control procurements is

The process of managing procurement relationships, monitoring contract performance, and making changes and corrections as appropriate, and closing out contracts.





Control Procurements - ITTOs

Inputs

- Project Management Plan
- Project Documents
- Agreements
- Procurement Documentation
- Approved Change Requests
- Work Performance Data
- Enterprise Environmental Factors
- Organizational Process Assets

Outputs

- Closed Procurements
- Work Performance Information
- Procurement Documentation Updates
- Change Requests
- Project Management Plan Updates
- Project Documents Updates
- Organizational Process Assets Updates

Tools & Techniques

- Expert Judgment
- Claims Administration
- Data Analysis
- Inspection
- Audits





Project Integration Management – M & C

Guide to PMBOK® Sixth Edition

PROCESS NAME	PROJECT MANAGEMENT PROCESS GROUP
Monitor & Control Project Work	Monitoring & Controlling
Perform Integrated Change Control	Monitoring & Controlling





Monitor & Control Project Work

As per *Guide to PMBOK®* Sixth Edition:

Monitor and control project work is

The process of tracking, reviewing, and reporting overall progress to meet the performance objectives defined in the project management plan.





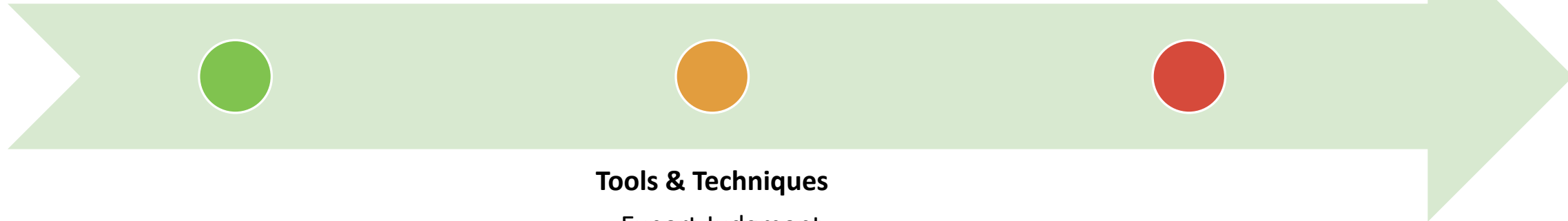
Monitor & Control Project Work - ITTOs

Inputs

- Project Management Plan
- Project Documents
- Work Performance Information
- Agreements
- Enterprise Environmental Factors
- Organizational Process Assets

Outputs

- Work Performance Reports
- Change Requests
- Project Management Plan Updates
- Project Documents Updates



Tools & Techniques

- Expert Judgment
- Data Analysis
- Decision Making
- Meetings



Perform Integrated Change Control

As per *Guide to PMBOK*® Sixth Edition:

Perform integrated change control is

The process of reviewing all change requests; approving changes and managing changes to deliverables, organizational process assets, project documents, and the project management plan; and communicating the decisions.



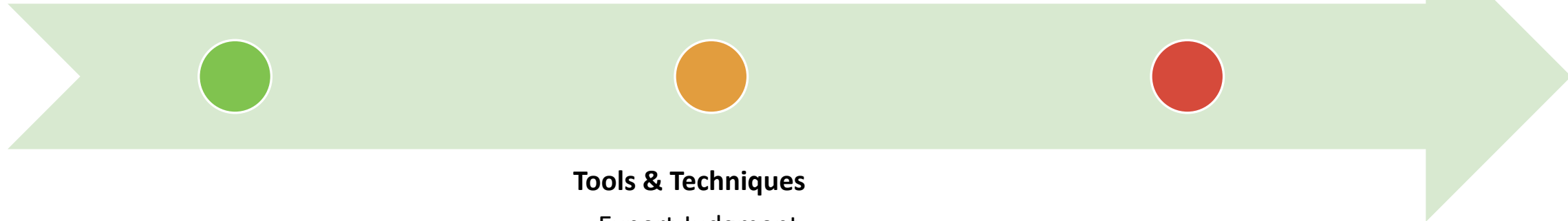
Perform Integrated Change Control - ITTOs

Inputs

- Project Management Plan
- Project Documents
- Work Performance Reports
- Change Requests
- Enterprise Environmental Factors
- Organizational Process Assets

Outputs

- Approved Change Requests
- Project Management Plan Updates
- Project Documents Updates



Tools & Techniques

- Expert Judgment
- Change Control Tools
- Data Analysis
- Decision Making
- Meetings





Change Process





KNOWLETT LEARNING
KNOWLETTWOODS
KNOWLEDGEWOODS

Project Closing

Based on Guide to PMBOK® - Sixth Edition





Learning Objectives

- Processes in Closing process Group
- How to formally close the project/phase
- Closure procedures





Closing Process Group

Guide to PMBOK® Sixth Edition

PROCESS NAME	KNOWLEDGE AREA
Close Project/Phase	Project Integration Management



Close Project/Phase

As per *Guide to PMBOK*® Sixth Edition:

Closing project or phase is

The process of finalizing all activities for the project, phase, or contract.



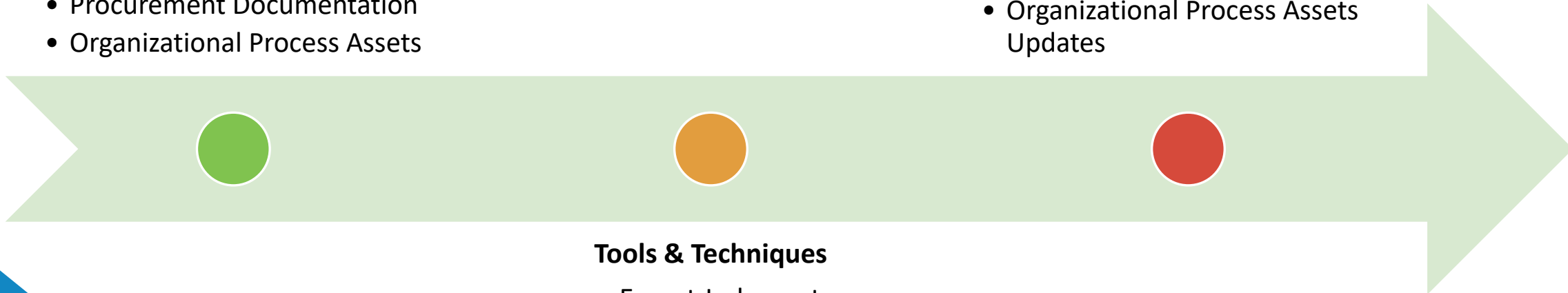
Close Project/Phase - ITTOs

Inputs

- Project Charter
- Project Management Plan
- Project Documents
- Accepted Deliverables
- Business Documents
- Agreements
- Procurement Documentation
- Organizational Process Assets

Outputs

- Project Documents Updates
- Final Product, Service, or Results Transition
- Final Report
- Organizational Process Assets Updates



Tools & Techniques

- Expert Judgment
- Data Analysis
- Meetings





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