Lean Six Sigma Green Belt Certification Course

simplilearn

Project Management Basics

Learning Objectives

By the end of this lesson, you will be able to:

- List the elements of a project charter
- List the components of a project plan
- Set project objectives, scope, and metrics
- Describe the tools used for scheduling and risk analysis and management
- Define the need for project documentation

Scenario

Project management

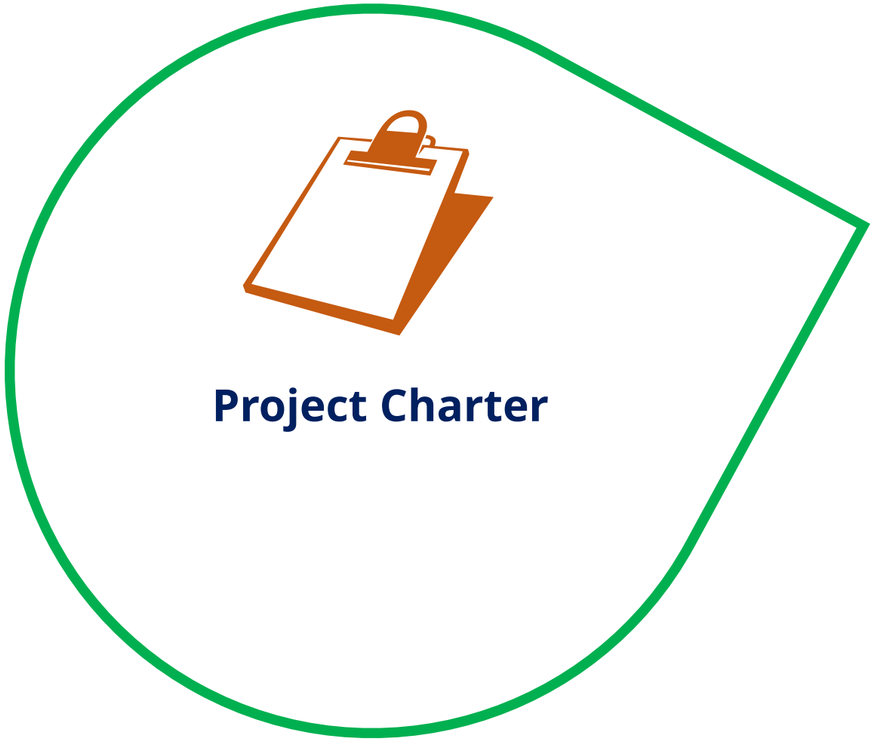
Project A

Project B

DIGITAL OPERATIONS

The Project Charter

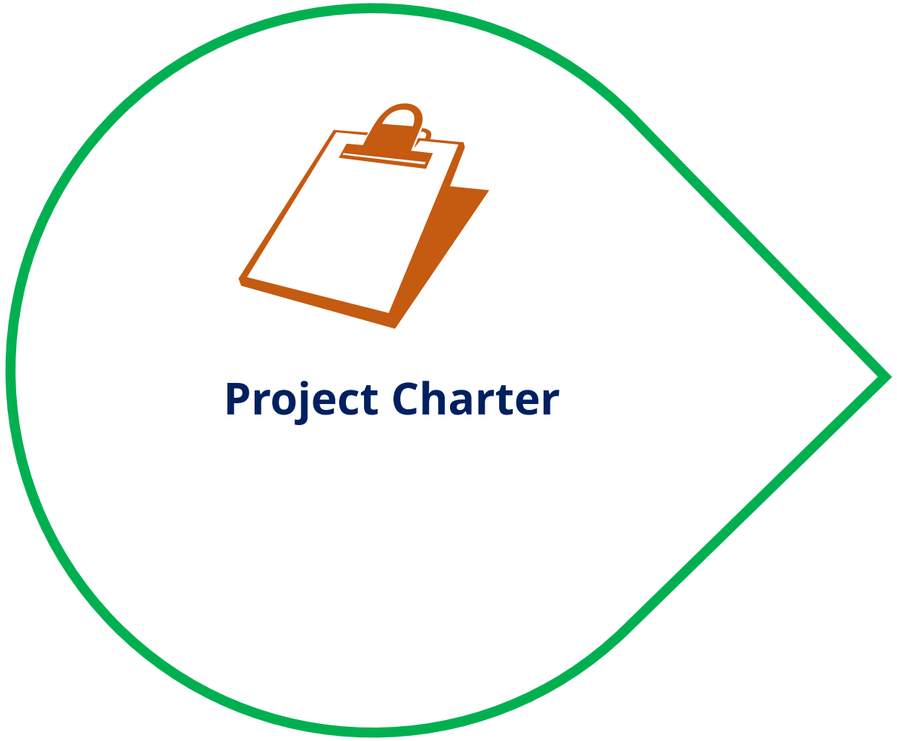
Project Charter



Defines measurable objectives and scope

- Team Mission
- Operation Scope
- Project Objectives
- Time Frame
- Project Consequences

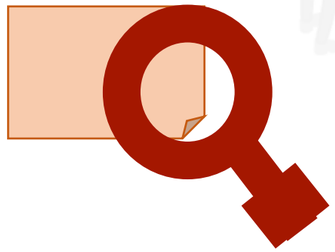
Project Charter



Green Belt writes the charter

Black Belt reviews the charter

Champion or Top Management approves the charter



Sections in a Six Sigma Project Charter

Six Sigma Project Charter Template

Product or Service Impacted		**Expected Project Savings ($)**	
Black Belt or Green Belt		**Business Unit**	
Champion		**Phone Number for Belt**	
Master Black Belt		**Email for Belt**	
Start Date		**Target Completion Date**	

Element	Description	Team Charter
1. Process:	The process in which opportunity exists.	
2. Project Description: what is the "Practical Problem"	Problem and goal statement (project's purpose)	
3. Objective:	What improvement is targeted and what will be the impact on Rolled Throughput Yield (RTY), Cost of Poor Quality (COPQ) and Capability index C-P, back orders, costs? The "Statistical Problem" - the measurable variable(s	**Project Y's** / **Baseline** / **GOAL** / **Entitlement** / **units** **Metric 1** / **%** **Metric 2** / **$/A** **Metric 3** / **units /A**
4. Business Cases:	Expected financial improvement, or other justification.	
5. Team members:	Names and roles of team members?	
6. Project Scope:	Which part of the process will be investigated and excluded.	
7. Benefit to External Customers:	Who are the **final** customers, what are their key measures, and what benefits will they see?	
8. Schedule:	Give the key milestones/dates. M- Measurement A- Analysis I- Improvement C- Control Note: Schedule appropriate Safety Reviews.	Project Start "M" Completion "A" Completion "I" Completion "C" Completion Safety Reviews Project Completion
9. Support Required:	Will any special capabilities, hardware, trials, etc be needed?	

- Project Name
- Project Description
- Problem statement
- Business Need
- Team Members
- Deliverables or Project Scope
- Stakeholder Requirements
- Project Timelines
- Project Constraints
- Summary Budget

A Lean Project Charter: Example

Lean Project Charter

Product/Service Impacted		**Team Leader**	
Business Unit		**Phone Number for Team Leader**	
Champion		**Email for Team Leader**	

Element	Description	Specifications				
1. Process	Name of process to be improved.					
2. Project Description	What practical problem will be solved? What is project's purpose?					
3. Objective	What metrics will be improved, what is the current performance for those metrics and how much improvement is targeted? Provide specifics on how metrics are computed.	**Metrics**	**Current**	**GOAL**	**% Improve.**	**units**
		Metric 1				
		Metric 2				
		Metric 3				
4. Process Scope	Which process steps will be considered in this project? What is the first step and what is the last step?					
5. Business Case	Justification for this project. Why is it important? Why is it critical to business success?					
6. Benefit to Internal and External Customers	How will internal or external customers benefit from this project? How does improvement in the metrics that you have selected help them improve their performance?					
7. Team members	Names and roles of team members.					
8. Schedule	Project Start					
	Project Charter Approved					
	Current State Value Stream Map					
	Future State Value Stream Map					
	Project Completion					
9. Support Required	What resources, people, departments are required?					

Project Charter: Example

Chapter 7 Bankruptcy Process Improvement Project

Business Case *Establishes the rationale for the project*	**Problem Statement** *Identifies what to measure*
A key growth strategy is to create Special Servicer capabilities. A key factor to obtain that goal is the ability to manage Chapter 7 bankruptcy accounts effectively and efficiently. We must create a Chapter 7 process to optimize reaffirmation rates and reduce company losses. By incorporating best practices and better utilization of tools we will be better positioned to effectively collect on delinquent portfolios.	Our current reaffirmation rate is 35%; with $574.65 million dollars of Chapter 7 filings, a 5% improvement would result in $28.73 million increase in reaffirmations. The MFR process is incurring $100,000 per month in expenses. Also, since 2001 there has been no standard process executed consistently by employees.

Scope *Establishes boundaries*	
IN	**OUT**
• Active Chapter 7 accounts • Discharged Chapter 7 accounts • Reaffirmation processing • Reaffirmation letters • Reaffirmation modifications • Attorney negotiation • Fidelity processing • Modification strategy • Foreclosure processing	• Chapter 11, 12 or 13 accounts

Goals & Objectives *What is success?*

- Increased reaffirmation rates by 5%
- Reduction in expenses in filing MFRs by $100,000 per month
- Detailed documentation of all procedures
- Improved controls and reporting to ensure compliance.
- Eliminate reaffirmations filed after discharge date
- Eliminate returned reaffirmation due to wrong docs
- Identify & eliminate compliance risks (trying to collect on reaffs after discharge date)

SBO Linkage: Growth, Revenue, Losses, Expenses, Customer Satisfaction, and Relationship Risk Management

- Losses = High
- Customer Satisfaction = High
- Expenses = High
- Relationship Risk Mgmt = High

Team Members

Name		
Champion:		Technical Writers
Team Lead:		Technology
Quality Lead:		Training
Credit Risk:		Foreclosure Review:
Project Mgr:		Audit/CO:

Completion Dates *List when phase complete*

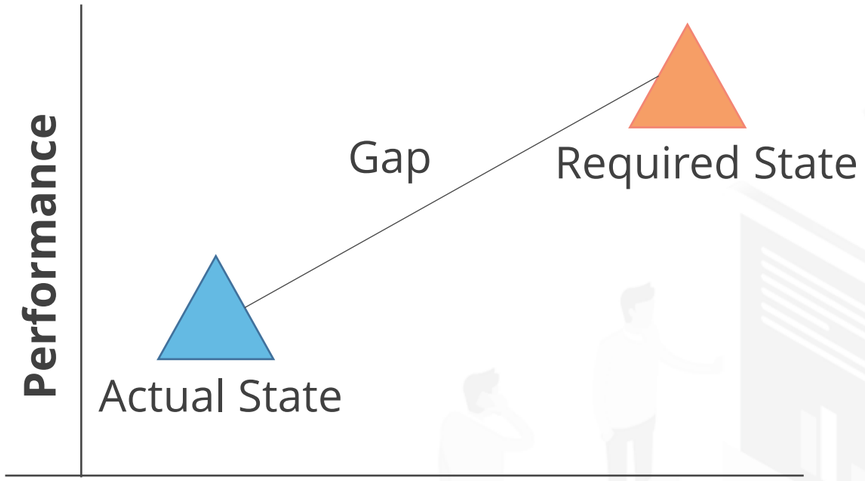
Define	May 12, 20XX
Measure	May 31, 20XX
Analyze	Jun 30, 20XX
Improve	Aug 31, 20XX
Control	Aug 31, 20XX
Comments	

Project Charter: The Problem Statement

States the problem clearly and concisely

Identifies and specifies the observed gap in performance

Is quantifiable with metrics



The problem statement cannot contain solutions or causes for the problem.

Defining a Good Problem Statement

Poor Problem Statement

In recent months, our claim success rate has decreased a lot.

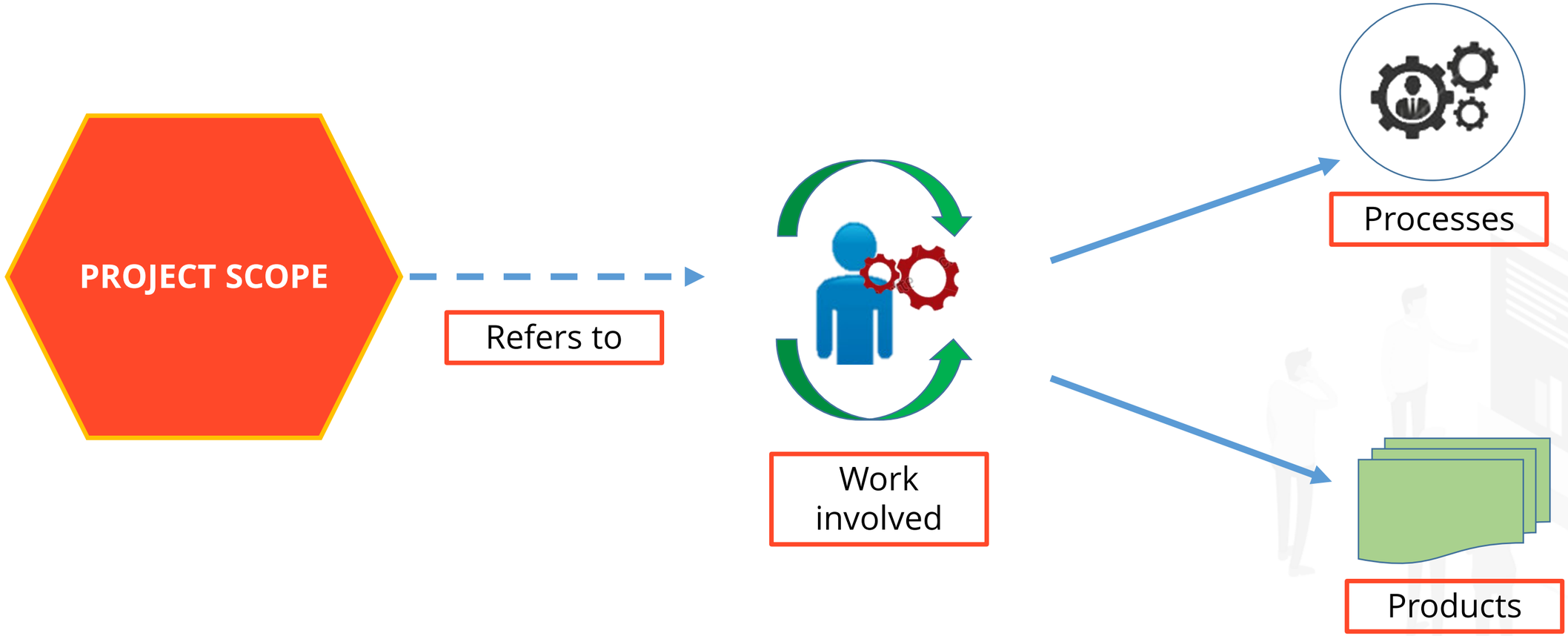
Good Problem Statement

Over the last 5 months we have seen a 10% reduction in our claim success rate which corresponds to $1.5M and a 5% improvement is required to meet a 70% claim rate requirement.

Project Charter: Project Objectives

S Specific	**M** Measurable	**A** Attainable	**R** Relevant	**T** Time-based	**S** Stretched	
Clear and concise	Quantifiable	Practical and realistic	Directly aligned to problem	Time frame for completion	Not easily achievable	

The Project Charter: Project Scope



The Project Charter: Project Scope

1. Define, verify, and control project scope

Steps Involved

PROJECT SCOPE

Scope Planning

Scope Definition

2. Review project charter

Work Breakdown Structure

3. Divide project into smaller tasks

Scope Verification

4. Receive scope acceptance from management

Scope Control

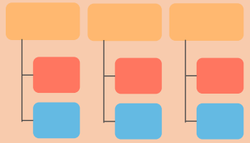
5. Control and manage change to scope

The Project Charter: Interpretation of Project Scope

Project scope is interpreted from the Problem Statement and the Project Charter using a variety of tools.

Pareto chart

A Pareto chart helps identify the causes that have a major impact on the project.



SIPOC

The SIPOC helps team members understand the process functions at different levels.

Is/Is Not

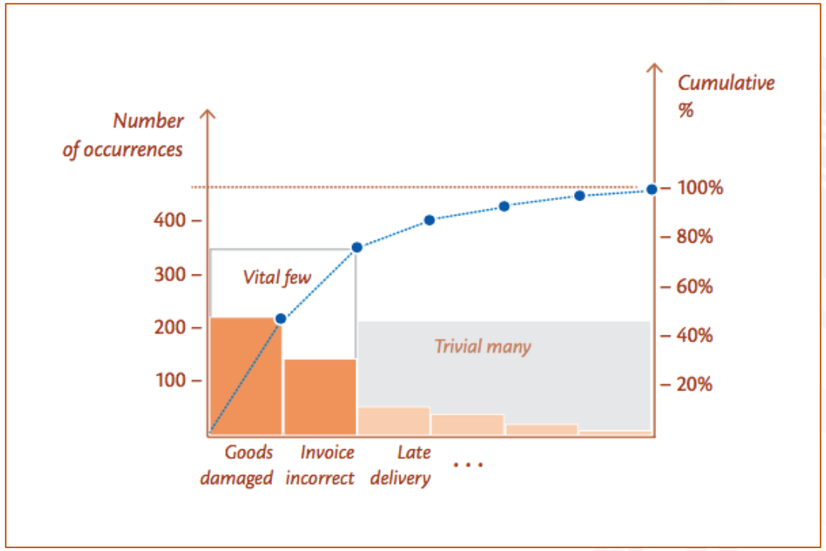
The Is/Is Not matrix helps define the scope, problem, or decision being addressed.

Interpretation of Project Scope: Pareto Chart

Pareto chart

Helps teams focus on the factors that have the most significant impact on a project

- It plots all the causes for defects in a product or service.
- Values are represented in descending order by bars.
- Cumulative total is represented by the line.
- It shows 80% of the effects come from 20% of the causes.



Pareto charts are helpful only if data is available.

Interpretation of Project Scope: Pareto Chart Example

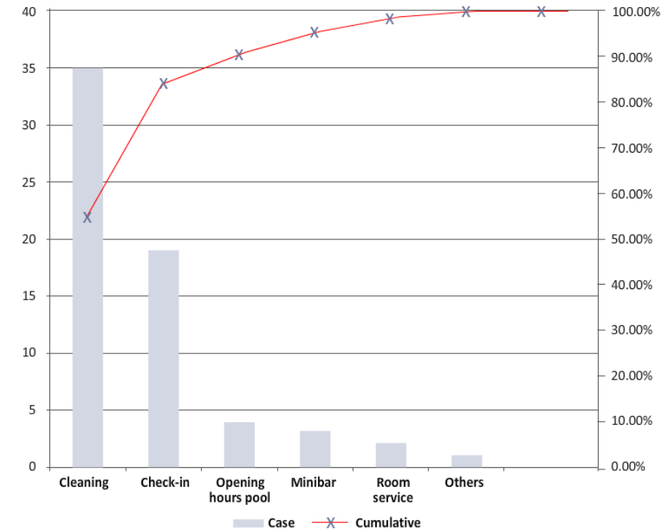
Problem

A hotel receives several complaints from its customers and the manager wants to identify the key complaint areas.

Data

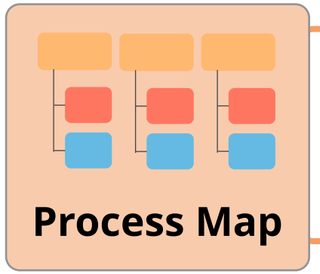
Cause	Number	Percentage	Cumulative
Cleaning	35	54.69%	54.69%
Check-in	19	29.69%	84.38%
Pool timings	4	6.25%	90.63%
Minibar	3	4.69%	95.31%
Room service	2	3.13%	98.44%
Other	1	1.56%	100.00%
Total	64	100.00%	

Pareto Chart



Note that the 80/20 rule is a general rule of thumb.

Interpretation of Project Scope: Process Maps and SIPOC



A process map is a micro-level flow chart that provides the details of a process.

- It covers details at all levels of a project.
- It provides a walk-through-the-current-process experience.
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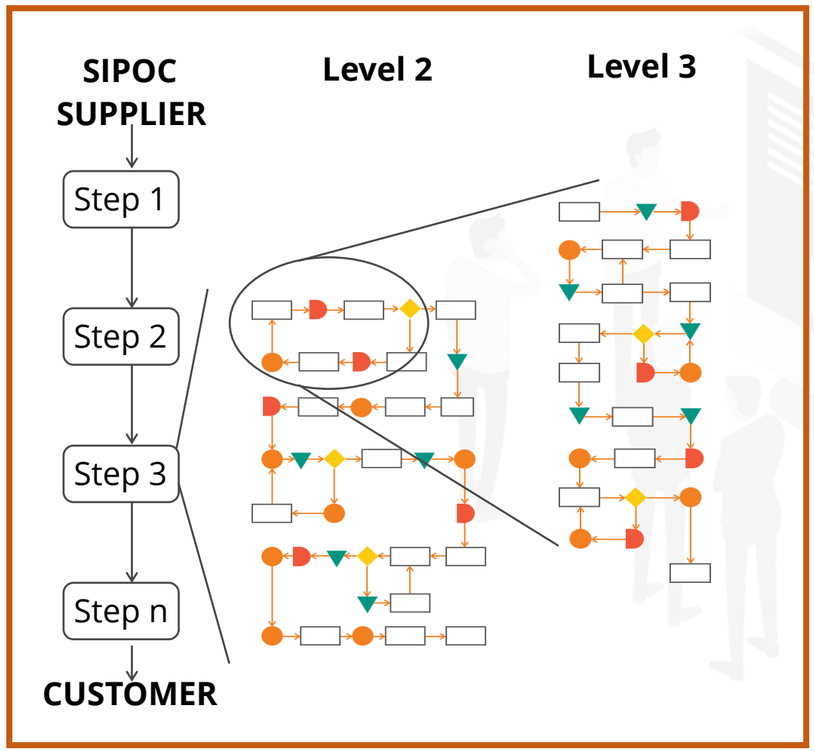
- It helps identify which parts in the process flow is the focus of the project.
- The SIPOC map is used as a blueprint while drawing a process map.



Interpretation of Project Scope: Is/Is Not Matrix

Is/Is Not Matrix

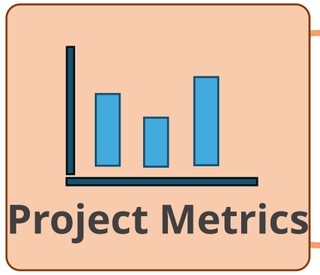
The Is/Is Not matrix helps define the scope, problem, or decision being addressed.

Example

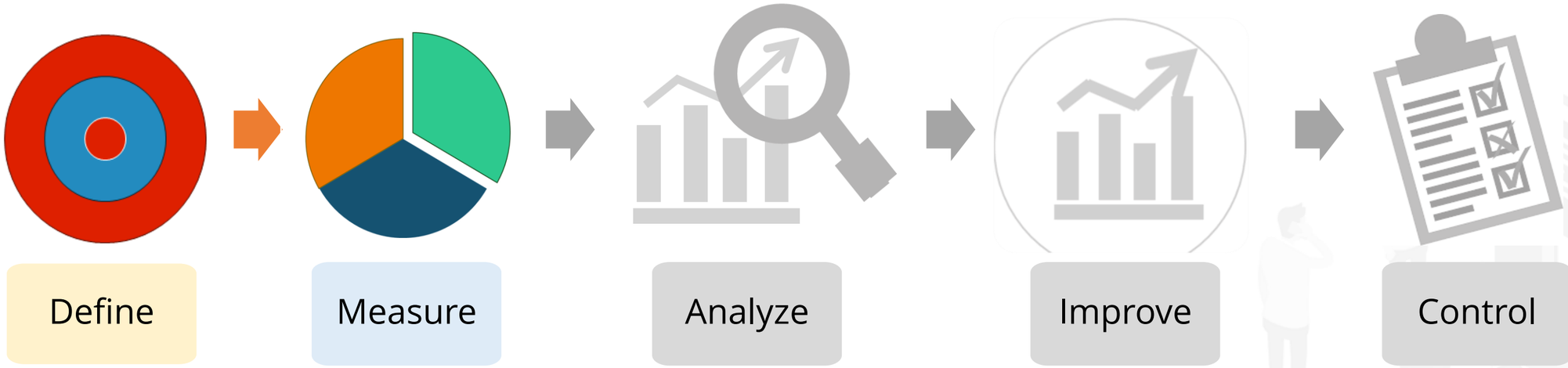
Problem statement: Paper cup leaks

	IS	IS NOT
What	Slow leaks; 12 oz. paper cups	Visible gaps in seams; Styrofoam cups; plastic cups; 16 oz. or 20 oz. paper cups
Where	Bottom of cup; at joint of vertical seam with bottom; less than 5 mm from bottom	6 mm above the bottom; anywhere else along the bottom away from the vertical seam
When	Second shift production; two weeks ago and 1 year ago	First shift production; between 11 months ago and 3 weeks ago
To What Extent	10% of production overall; 20-30% on second shift; drip rate of 30/min	Same extent on both shifts; all the time; barely noticeable (1/min) or immediately obvious (60+/min)

Project Charter: Project Metrics



Project metrics are used to measure a project's progress and performance.



- Project metrics are **identified** in the **Define** phase of the project.
- They are **finalized** in the **Measure** phase of the project.

Project Charter: Types of Project Metrics

Primary Project Metrics

- Describe one primary output
- Suppliers, internal processes, and customers are the sources
- Some examples include Quality, Timeliness, Cost, Value, and Labor

Secondary Project Metrics

- Are numerical representations of the primary metrics
- Some examples include DPU, DPMO, average age of receivables, number of lines of error-free code, and reduction in amount of scrap

Consequential Project Metrics

- Measure possible negative effects of improving primary metrics
- An example – if primary metric is Cost, consequential metrics could be Timeliness, and Quality
- Help understand cause-and-effect between primary and secondary metrics

Consequential Project Metrics: Example

SCENARIO

A project is carried out to increase the pace of introducing product offers to customers.

However, in the current practice, releasing the offers at a faster pace will hamper the quality of the previous offer.

Due to a current offer, the product could be degraded as overpriced or the product margin could be degraded because of the upcoming offer as the product will now be underpriced.

SOLUTION

Instead of increasing the pace of introducing offers and calling it as an improvement to the process, the team can create and introduce a new design or modify the process to benefit the organization.

By increasing the pace of introducing product offers, the project can show the profit it makes, but it fails to record the loss and downfall of the previous offers.

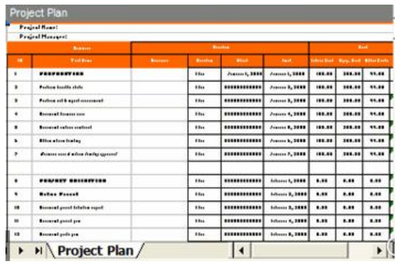
This is where consequential metrics help understand the cause-and-effect relationship between primary and the secondary metrics and the impact it has on the organization.

DIGITAL OPERATIONS

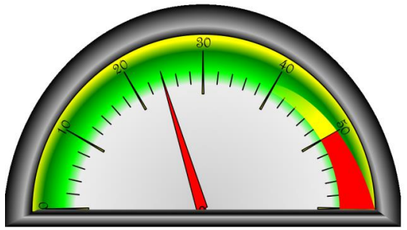
Project Planning

Project Documentation

Project Charter



Project Plan

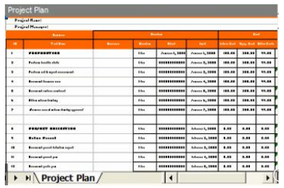


Project Status Report

Final Project Report

Project Documentation Vehicles

Project Charter



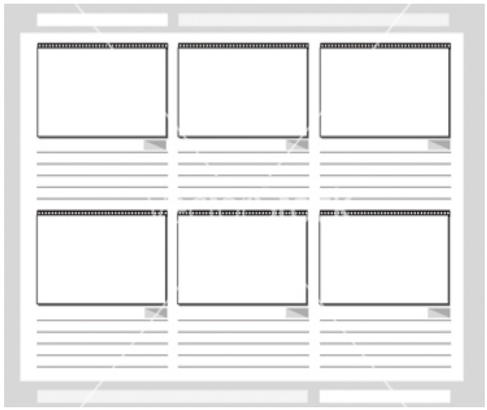
Project Plan

Project Status Report

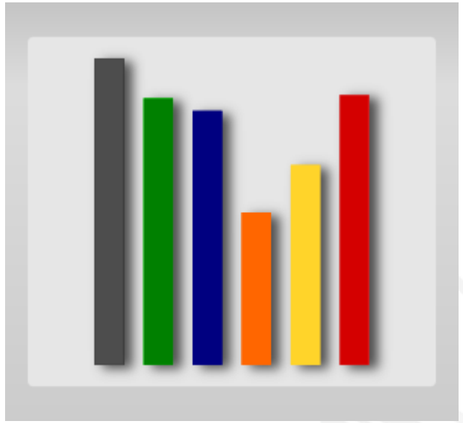
Final Project Report

PROJECT DOCUMENTS

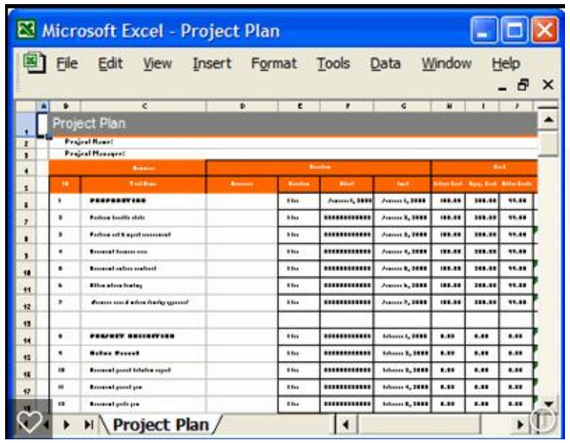
Project Documentation Vehicles



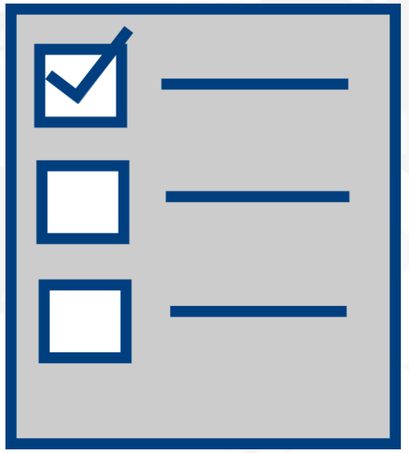
Project Storyboard



Statistical Tool Output



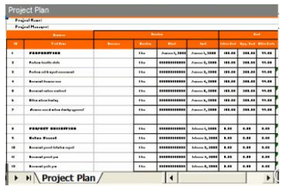
Spreadsheet Output



Checklists

Project Documentation Vehicles

Project Charter



Project Plan

Project Status Report

Final Project Report

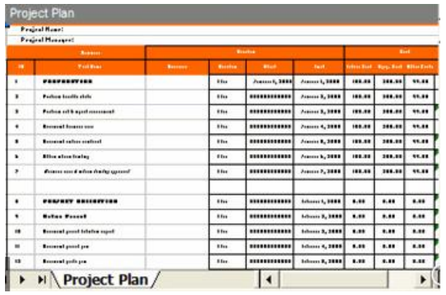
PROJECT DOCUMENTS

WHY?

Project documentation is vital:

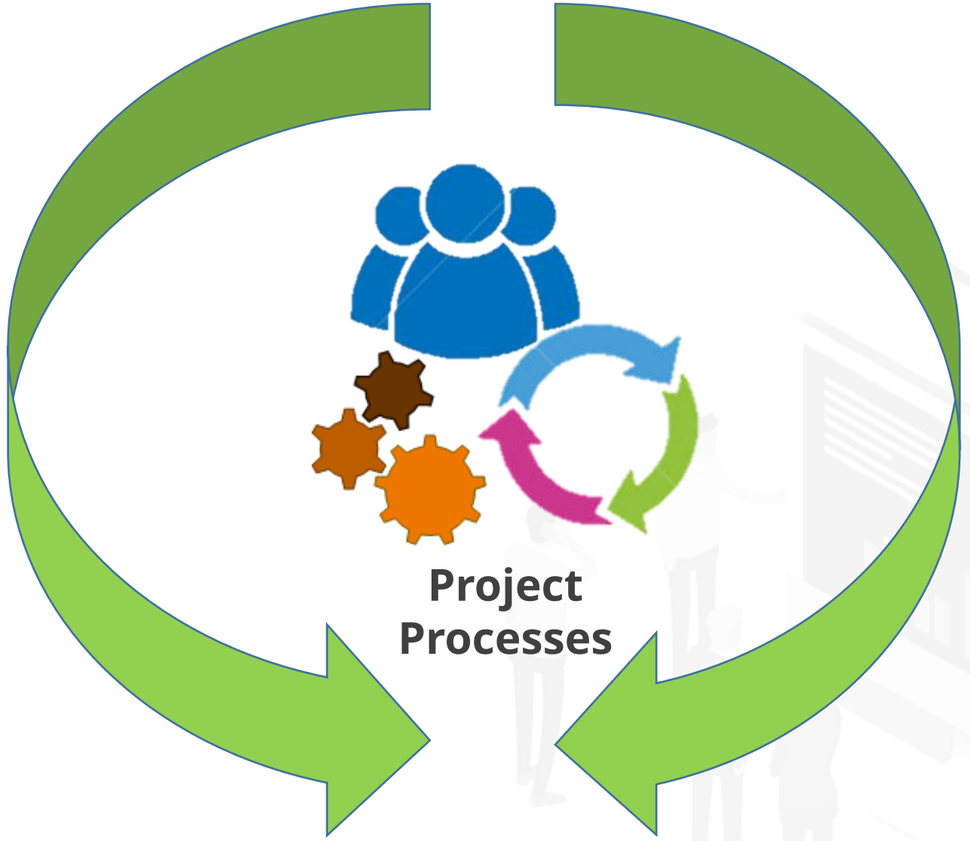
- Provides proof for project execution
- Documents discussions and decisions made
- Ensures common understanding of requirements and status
- Enables project planning

Project Documentation: Project Plan



Project Plan

Control



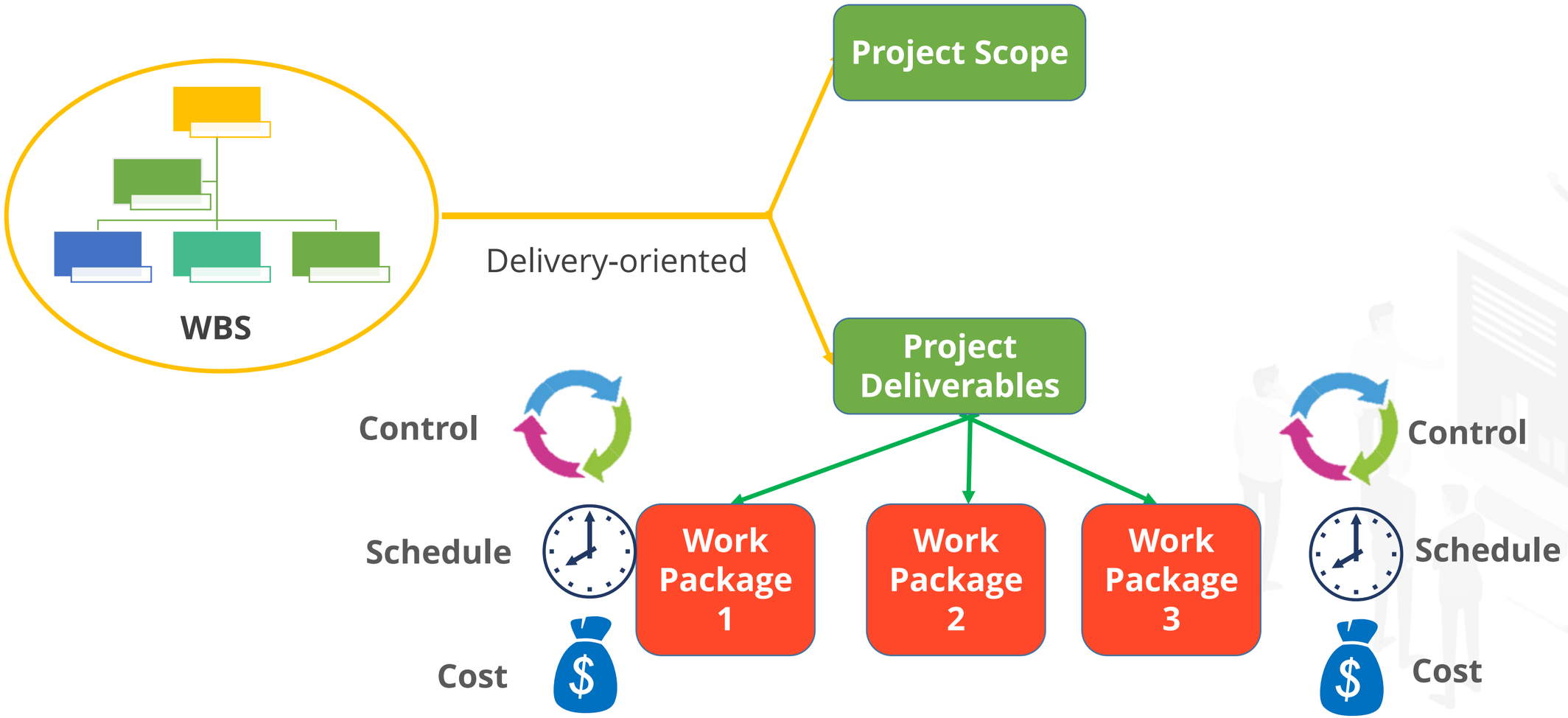
Project Charter

Project Documentation: Project Plan

- Project management approach and scope
- Work breakdown structure
- Cost estimates and schedules
- Performance baselines and milestones
- Staff required for the project
- Open or pending decisions
- Key risks involved in the project

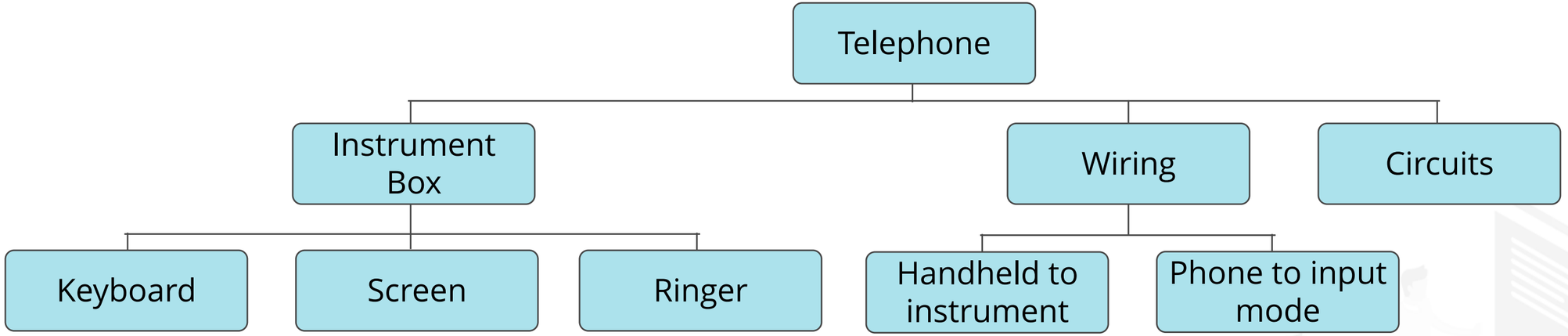
Project Workbook Information	
The project workbook allows project managers, team members, sponsors, and stakeholders to easily track and monitor project activities. Any of th worksheets can easily be broken out into separate documents.	
Suggested Sheets for All Projects	
Data	Filling out the Data sheet completes the header portion of all remaining sheets in the project workbook.
Minicharter	The Project Minicharter sheet can be used as a charter for small projects or a summarization of a full charter for larger projects.
Stoplight	The Stoplight Report sheet contains a status report that can be used to keep sponsors, team members, and stakeholders infor progress.
Budget	The Budget sheet allows you to track original budget, expenditures to date, and any cost variance.
CBA	The Cost/Benefit Analysis sheet allows you to review the proposed project and potential alternatives and make a project select a greater ROI (return on investment).
Risks	The Risk Management Matrix sheet allows you to identify, qualify, quantify, and prioritize risks (events that might happen; the u of a project), create mitigation and contingency plans, and assign risks owners.
Issues	The Issues Log sheet allows you to identify and monitor project issues (unplanned events that have happened).
Action	The Action Items sheet allows you to track and monitor action items assigned to team members. Action items are tasks that mu but are too insignificant from a time perspective to track in your project schedule.
Miles	The Deliverable Milestones sheet allows you to identify major deliverable milestones and the due dates, objectives, assumptio constraints relevant to that deliverable milestone.
WBS	The Work Breakdown Structure sheet includes the activities that must be completed during a project, the effort required, all rel and the resources assigned to do the work.
Roster	The Roster sheet provides contact information for all those involved on the project.
R&R	The Roles and Responsibilities sheet shows the primary role of team members, any deliverables in which they are involved, a percentage of time they are expected to work on the project.
RAM	The Resource Assignment Matrix sheet shows you what type of resource is responsible for, or somehow involved with, each d The tasks listed are samples; you should update the RAM with tasks appropriate for your project.
RCM	The Resource Commitment Matrix sheet shows how many effort hours each person on the project has been allocated by month
A&C	The Assumptions and Constraints sheet allows you to track project assumptions and constraints.
Decision	The Decision Log sheet allows you to track all major decisions made during the course of the project.

Project Plan: Work Breakdown Structure



Project Plan: Work Breakdown Structure Example

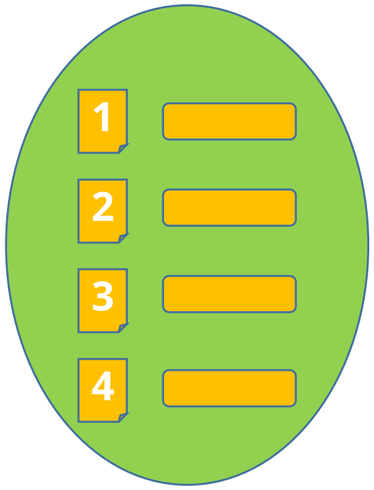
EXAMPLE WBS



This is an example from a telephone manufacturing project.

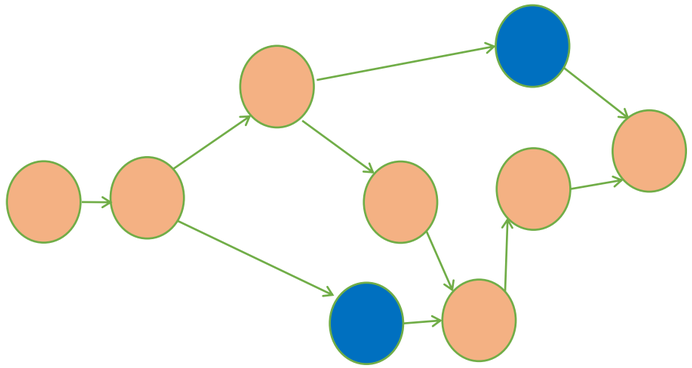
The WBS includes everything that will form the final product. Anything that is not listed in the WBS will not be a part of the final product, in this case, the telephone.

Project Plan Schedule: Network Diagram



Project schedule

Activity Network Diagram

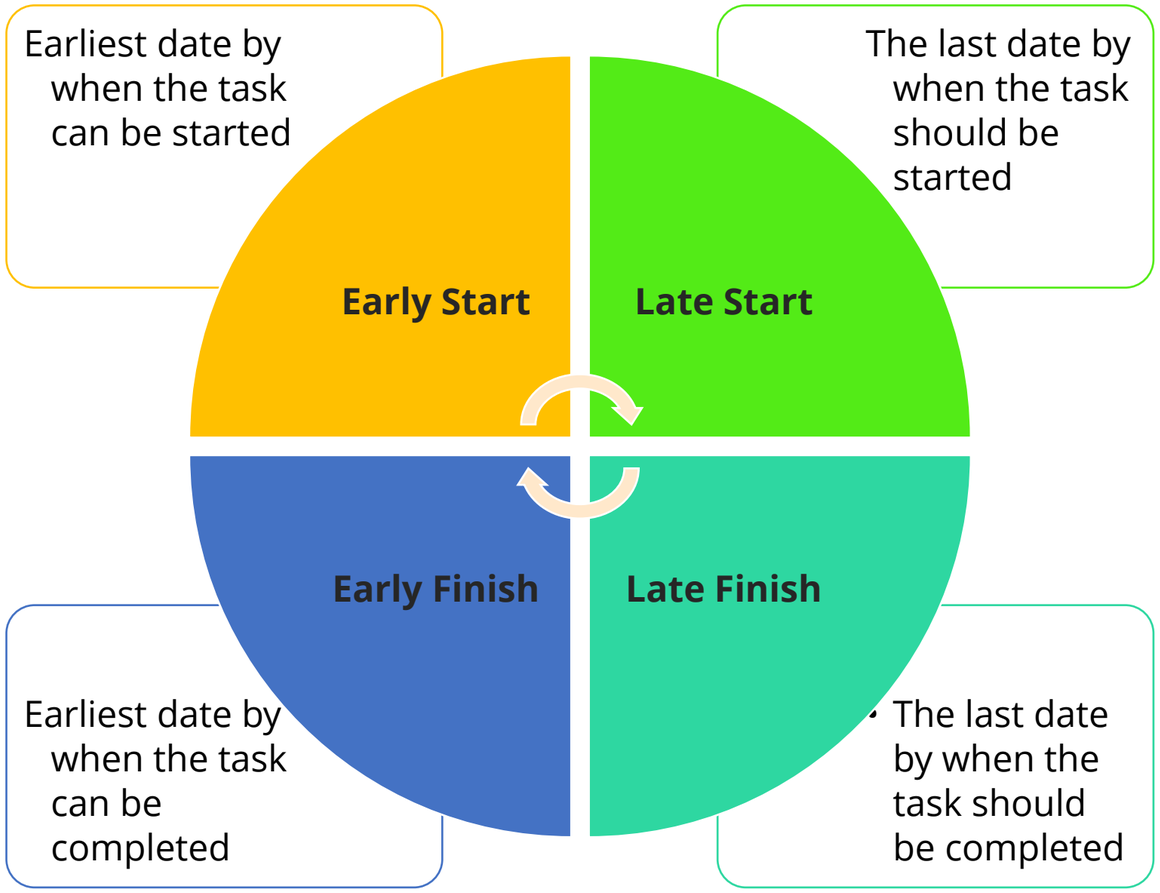


Assumptions made while drawing a network diagram:

- Pending or predecessor activities are completed
- Direction of an arrow represents the sequence for activities
- Start from a single event and end with a single event

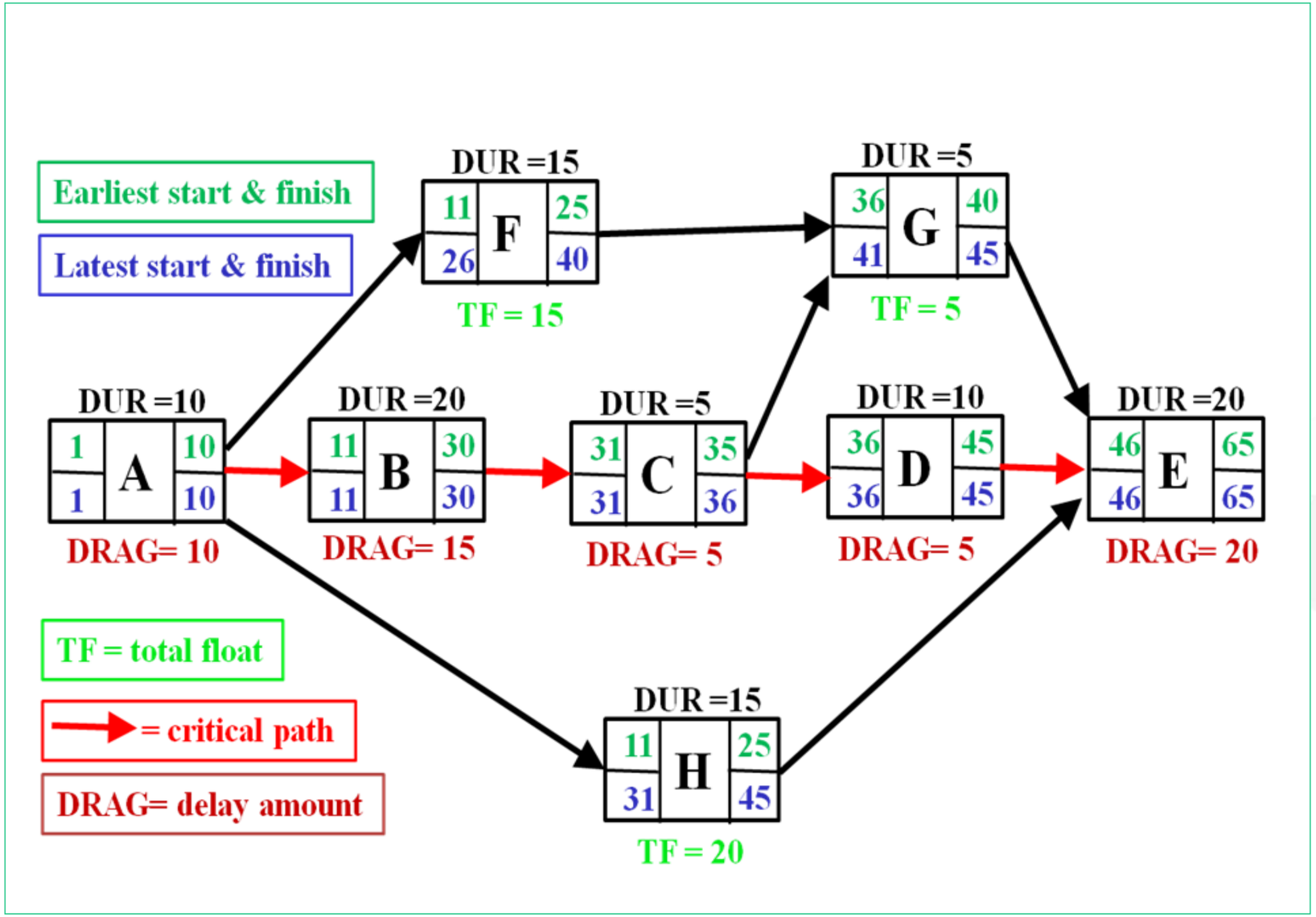
Project Plan Schedule: Network Diagram Terms

Terms associated with activity network diagram



Duration of the task	• The difference between the Early Start and Early Finish of the task
Float time	• The amount of time the task can be delayed before it causes a delay in the overall project timeline

Project Plan Schedule: Network Diagram Example



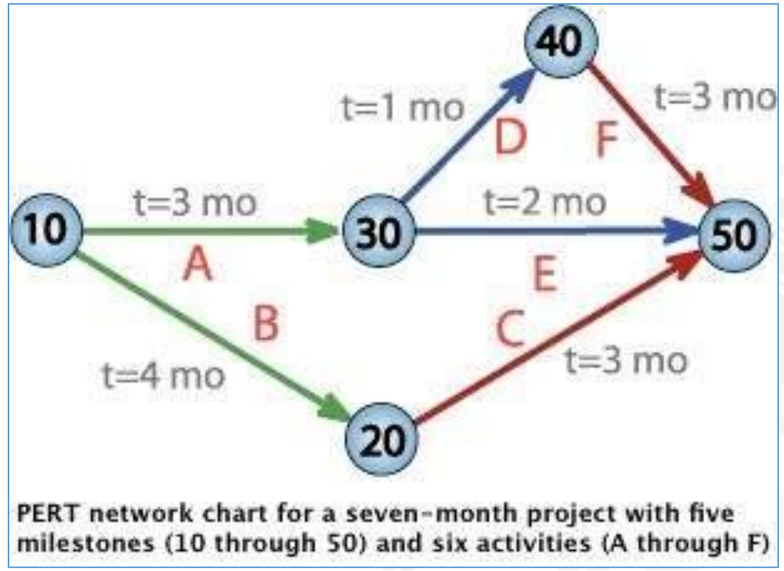
Project Plan Schedule: Critical Path Method

Critical path is the longest sequence of tasks on the network diagram.

Tasks on the critical path have zero slack.

Resources from tasks not on the critical path can be diverted to tasks on the critical path.

A complex project can have multiple critical paths.



PERT network chart for a seven-month project with five milestones (10 through 50) and six activities (A through F)

Project Plan Schedule: Pert

Activity Duration Estimation Types

Optimistic

- This estimate believes that all the factors that affect the activity will go in favor of the activity.
- Therefore, the estimate is lesser than the other. two.

Most Likely

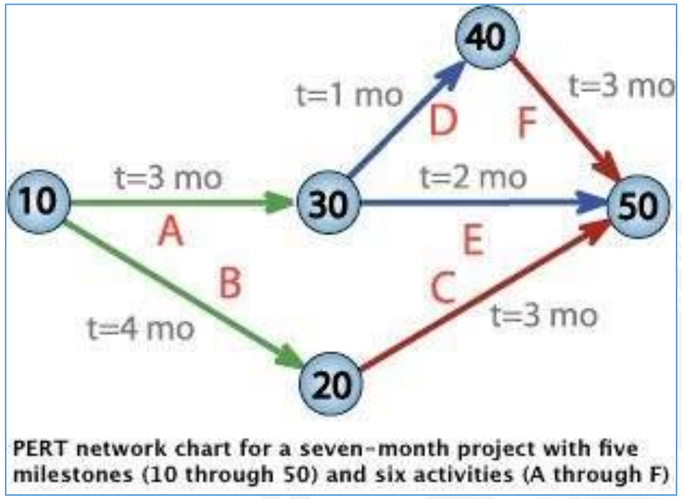
- This estimate assumes the activity will encounter some issues.
- Therefore, the estimate provides some contingency buffers.

Pessimistic

- This estimate assumes that all that can go wrong will go wrong with the activity.
- Therefore, the estimate provides large contingency buffers.

$$\text{Realistic estimate of the activity } (t_e) = \frac{to + 4t_m + t_p}{6}$$

PERT

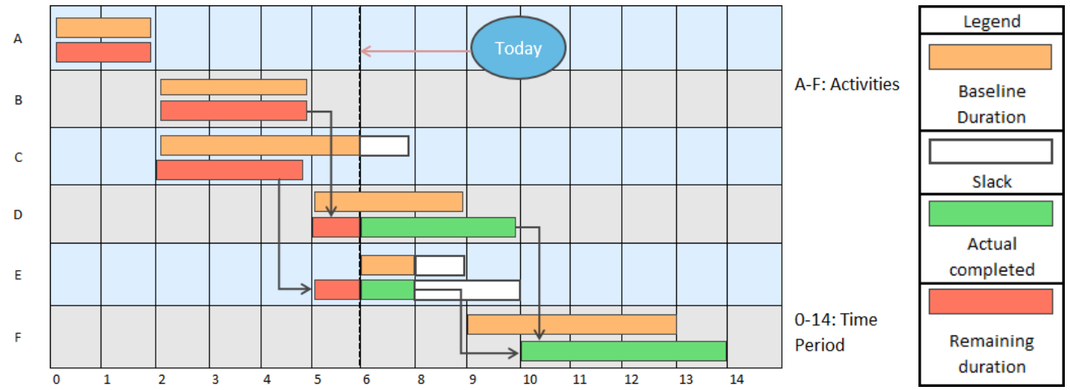


PERT network chart for a seven-month project with five milestones (10 through 50) and six activities (A through F)

Project Plan Schedule: Gantt Chart

GANTT CHART

- A graphic method to schedule, plan, and control a project.
- Project schedule is represented as a bar chart.
- The baseline, actual completed, duration remaining, and slack are indicated using bar length and color.

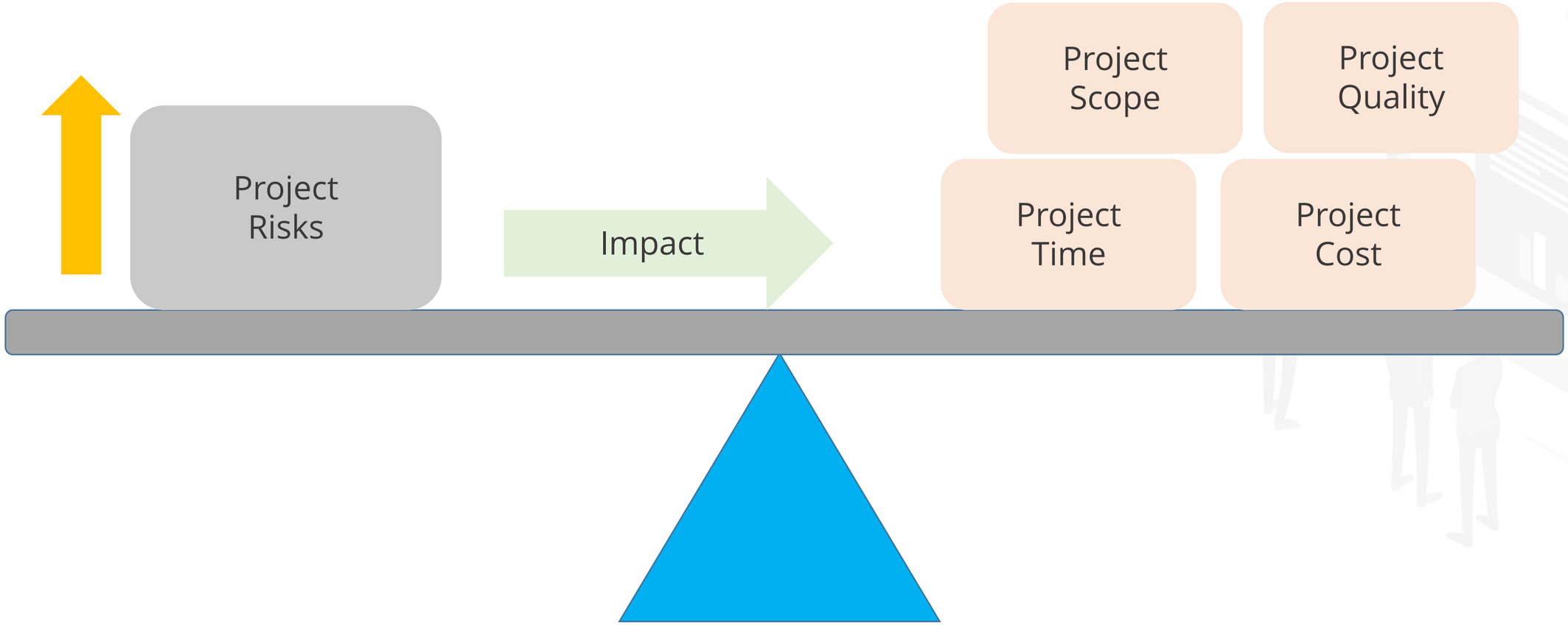


Example:

- Tasks A and B were completed on time.
- Task D is delayed by 1 day.
- Tasks B and C will start after completion of Task A.
- Task F is dependent on task D. Hence, delay of Task D will impact Task F, and it will finish a day late.
- Tasks which do not have slack time are tasks on the critical path. Tasks B, D, and F are tasks on the critical path.

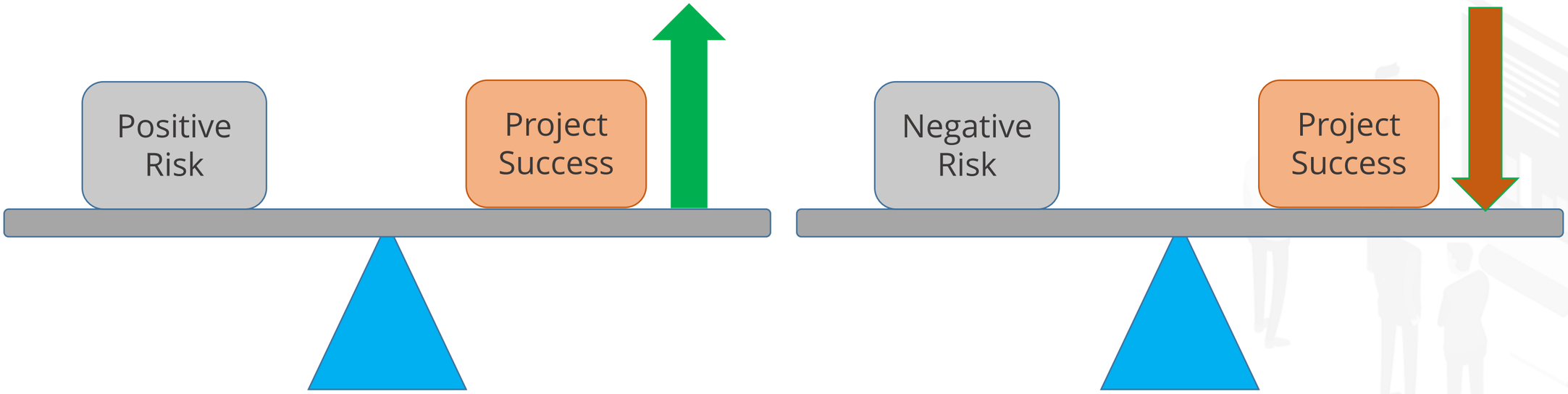
Project Plan: Risks

Risks are uncertain events or consequences that could occur during a project



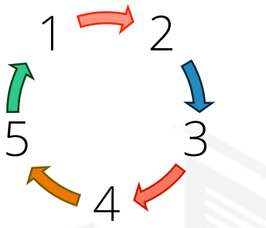
Project Plan: Risks and Types

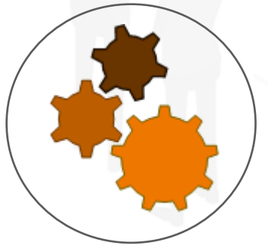
Risks can be positive or negative.



Project Plan: Risks and Terms

Risk Term	Description
Risk Probability	Likelihood that a risk will occur
Issue	Occurrence of a risk
Risk Consequences	Effects on project objectives if the risk occurs

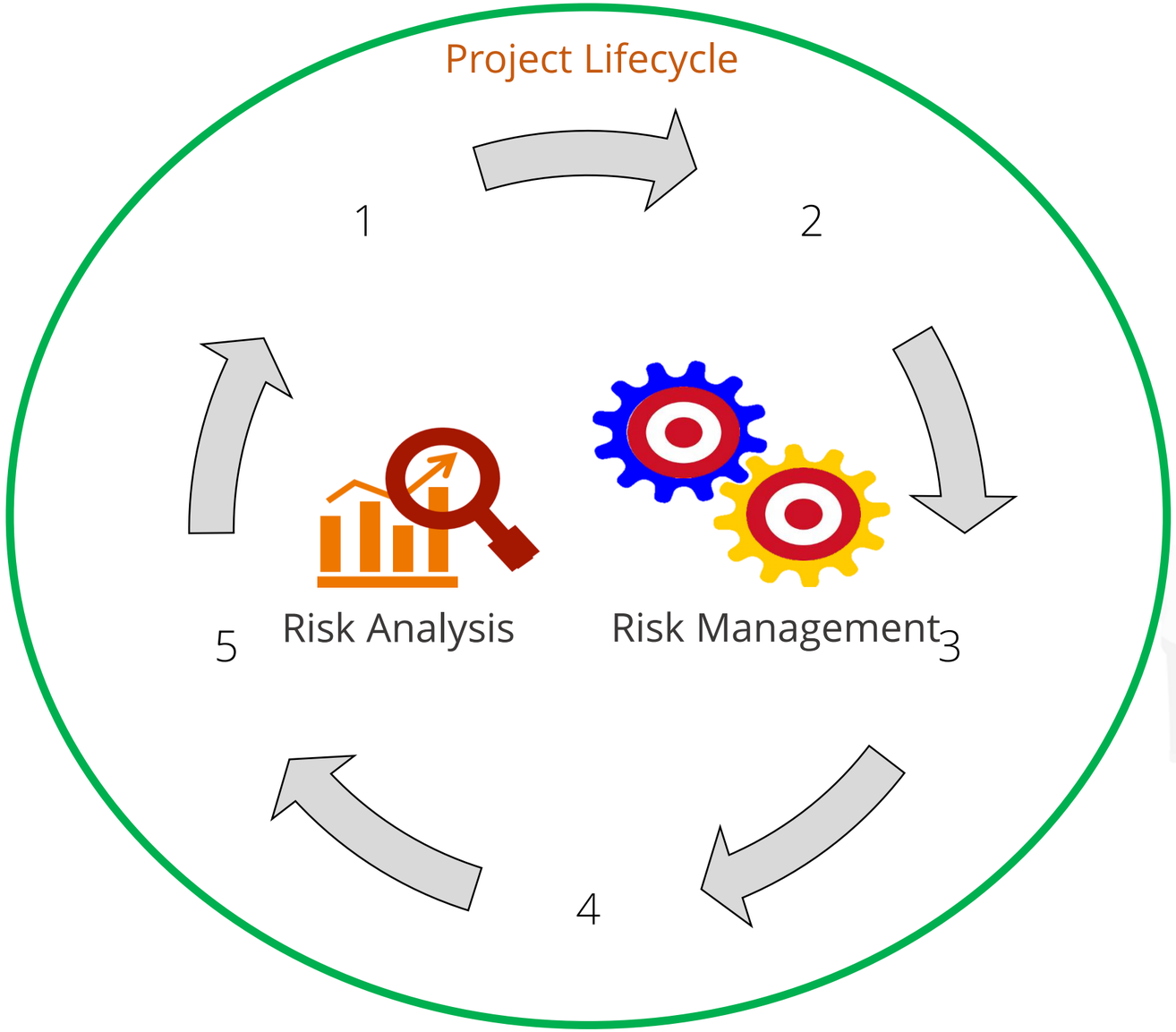




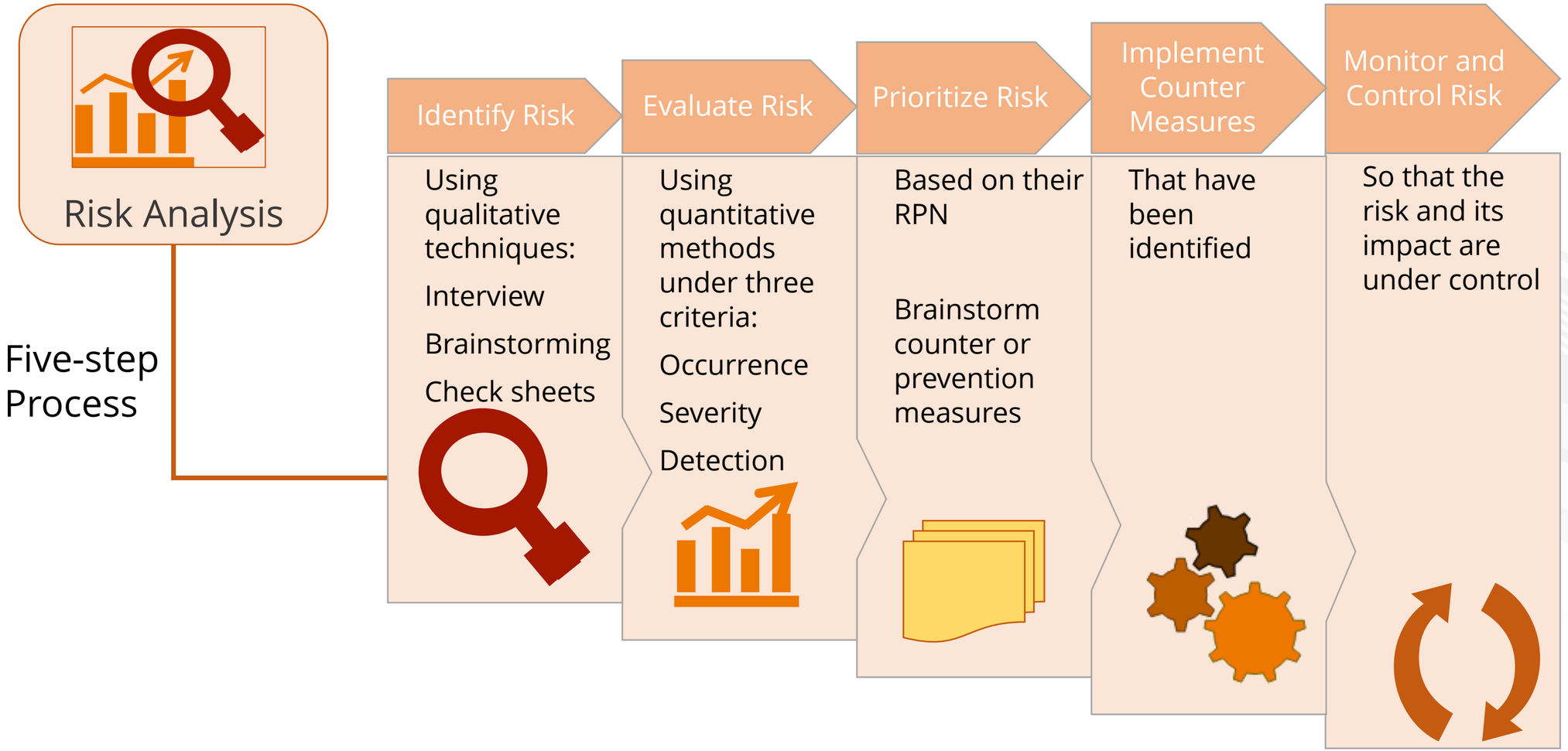
Project Plan: Risks and Additional Elements

Elements	General examples
Risk Factor	• A high cholesterol diet • Living near a fault line of Earth's plates • Slippery driving conditions
Risk event	• Doctor's diagnosis of heart problem • An earthquake • A car accident
Risk outcome	• Diagnosed heart disease exists • Some buildings and roads destroyed • Crash scene: Untreated personal injuries and damaged vehicles
Risk reaction	• Treatment of heart problem • Reconstruction of roads and buildings • Treatment of injuries; purchase new car
Risk Effect	• Hospital stay; cost of medical care • Human lives lost; cost and inconvenience of reconstruction • Medical costs, permanent injury effects; raised insurance premiums
Utility loss	• The net effect of pain, lost time, and expenses by individuals

Project Plan: Risk Analysis And Management



Project Plan: Risk Analysis and Management Process



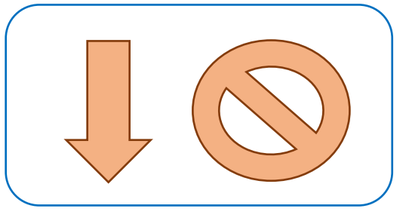
Project Plan: Risk Rating Example

	Defined Conditions for Impact Scales of a Risk on Major Project Objectives (Examples are shown for negative impacts only) Relative or numerical scales are shown here				
Project Objective	Very Low / .05	Low / .10	Moderate /.20	High / .40	Very high / .80
Cost	Insignificant cost increase	<10% cost increase	10-20% cost increase	20-40% cost increase	>40% cost increase
Time	Insignificant time increase	<5% time increase	5-10% time increase	10-20% time increase	>20% time increase
Scope	Scope decrease barely noticeable	Minor areas of scope affected	Major areas of scope affected	Scope reduction unacceptable to sponsor	Project end item is effectively useless
Quality	Quality degradation barely noticeable	Only very demanding applications are affected	Quality reduction requires sponsor approval	Quality reduction unacceptable to sponsor	Project end item is effectively useless

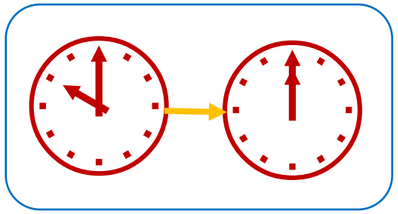
Project Plan: Risk Assessment Matrix

Risk Assessment matrix												
	Risk of monetary loss			Risk of productivity loss			Risk of resources			Risk of customer confidence loss		
Areas of potential risk & its effects	H	M	L	H	M	L	H	M	L	H	M	L
scope of the project												
milestone												
non aligning to business objective												
Team												
selection of team												
availability of the selected resources												
experience of the team members												
cost of the selected team												
Personnel												
misuse or destruction of the information												
modification of information												
non delivery of the service												
refusal of service												
material, facitlity & equipment												
misuse or overuse of resouces												
modifying resources												
refusal of service												
not delivery of the service												
communication												
unwanted & destruction of information												
misrepresentation of information												
not communicating												
denial of service												

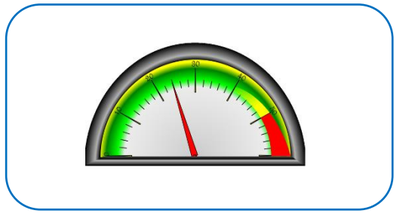
Project Plan: Benefits of Risk Analysis



Risk can be mitigated, avoided, or accepted



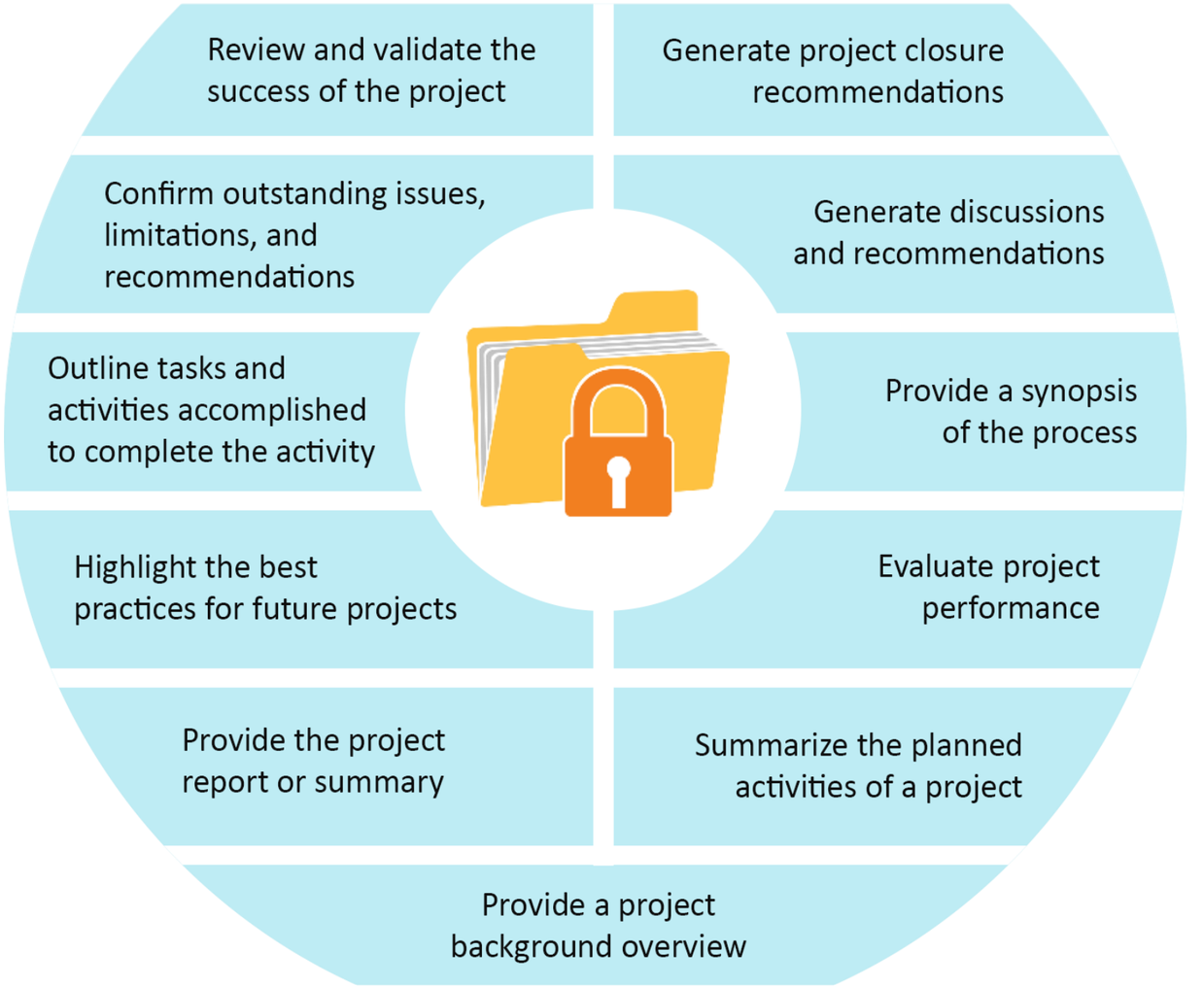
Slack time can be used as a buffer



Helps set realistic expectations from the project

Contingency plans can be developed for identified risks

Project Closure



Key Takeaways

- Project documentation is a vital part of project management.
- A project charter defines a team's mission, scope of operation, objectives, time frame, and consequences for the project.
- Defining the problem statement is the first step in project initiation.
- A project's scope is derived from the problem statement and project charter using a variety of tools.
- A project plan is an approved document used to control and manage a project.
- The WBS, network diagrams, Gantt, and PERT are tools used in project scheduling and monitoring.

Knowledge Check

Knowledge Check

1

You want the scope of your project to be focused on the most impactful issues. What tool would you use?

A. SIPOC

B. Pareto Chart

C. Charter

D. Is/Is Not Matrix

Knowledge Check

1

You want the scope of your project to be focused on the most impactful issues. What tool would you use?

A. SIPOC

B. Pareto Chart

C. Charter

D. Is/Is Not Matrix

The correct answer is **B**

The Pareto Chart shows the vital few issues that cause most of the problem. Therefore, this would be the tool to use.

Knowledge Check

2

What is the first step when starting a project?

A. Defining the problem statement

B. Mapping the process

C. Calculating the financial benefit

D. Identifying the appropriate metrics

Knowledge Check

2

What is the first step when starting a project?

A. Defining the problem statement

B. Mapping the process

C. Calculating the financial benefit

D. Identifying the appropriate metrics

The correct answer is **A**

The first step that must be accomplished when starting a project is clearly defining the problem.

Knowledge Check

3

Which of the following statements is NOT true of a project charter?

A. It needs to be approved by management.

B. It is created from the project plan.

C. It contains the problem statement.

D. It shows the project milestones.

Knowledge Check

3

Which of the following statements is NOT true of a project charter?

A. It needs to be approved by management.

B. It is created from the project plan.

C. It contains the problem statement.

D. It shows the project milestones.

The correct answer is **B**

The project charter is used to create the project plan and not the other way around.

Knowledge Check

4

What is the critical path in a project schedule?

A. The hardest path to follow

B. The path with the most important activities

C. The series of activities with no slack time

D. None of the options

Knowledge Check

4

What is the critical path in a project schedule?

A. The hardest path to follow

B. The path with the most important activities

C. The series of activities with no slack time

D. None of the options

The correct answer is **C**

The critical path is the series of activities with no slack time or, in other words, the path of activities that would result in the project being delayed if any one of the activities is delayed.

Knowledge Check

5

Which tool can be used to help identify and prioritize project risk?

A. SIPOC

B. IS/ IS NOT matrix

C. Gantt Chart

D. FMEA

Knowledge Check

5

Which tool can be used to help identify and prioritize project risk?

A. SIPOC

B. IS/ IS NOT matrix

C. Gantt Chart

D. FMEA

The correct answer is **D**

The FMEA (Failure Modes and Effects Analysis) is a risk prioritization tool.