PMP Course in Brief

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Chapter 1 : Introduction

1- Projects ’ overview & Characteristics
2- Organizational Process Assets (OPAs)
3- Enterprise Environmental Factors (EEFs)
4- Organizational Project Management (OPM)
5- Project Management Principles and Performance Domain.

Project Overview:

- a project is a temporary endeavour undertaken to create a unique product, service or result.
- Project is temporary in that it has a defined beginning and end in time, and therefore defined scope and resources. But that doesn't mean that the project has short duration.

What is the project management?

- Project management is the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements. Project management is accomplished through the appropriate application and integration of the project management processes identified for the project.

Project Success depend on

- Organizational project maturity
- Project manager effectiveness
- Funding and resource availability
- Team member skill levels
- Collaboration and communication within the team and with key stakeholders.
- Understanding of the core problem and related needs.

Projects ' Characteristics

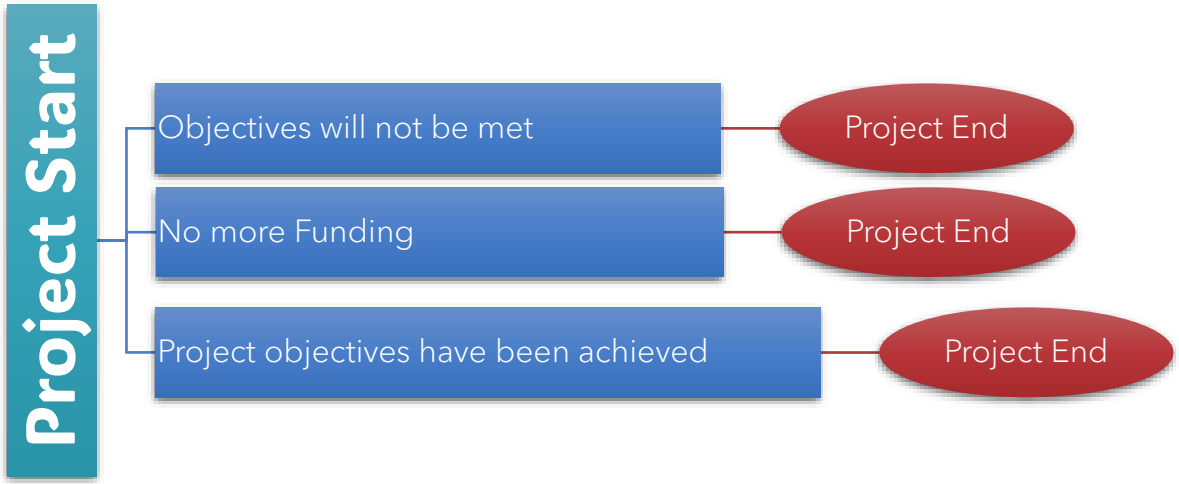
Fulfilment of the project is unique in that it is not a routine operation, but a specific set of operations designed to accomplish a singular goal, product, service or a combination of all results.

Some project activities may include repetitive elements like same material and same team as construction projects. But that's doesn't effect on project's unique characteristics

The benefits of the project could be

- Tangible
- Tangible
- Both

Temporary nature of projects



Tangible Elements

- Monetary Assets
- Stockholder equity
- Utility
- Fixtures
- Tools
- Market Share

Intangible Elements

- Goodwell
- Brand Recognition
- Public Benefits
- Trademarks
- Strategic alignment
- Reputation

1. Organizational Process Assets (OPAs)

- Plans
- processes
- procedures
- policies
- Knowledge bases that are specific to and used by the performing organization.

OPA examples:

- Organizational Standards
- Standard Templates
- Procedures
- Policies
- Evaluation Criteria
- Performance Measurement Criteria
- Communication Requirements

2. Enterprise Environmental Factors (EEFs)

3. Organizational Project Management (OPM):

- strategy execution framework that coordinates project, program, portfolio and operations management, and which enables organizations to deliver on strategy

Portfolio Management

- Collection of projects, programs, subsidiary portfolios and operations managed in a group to achieve strategic objectives .
- Aligns with business strategies

Program Management

- Group of related projects, subsidiary programs and program activities managed in a coordinated manner to obtain benefits not available from managing them individually.
- Controls components and interdependencies to realize benefits

Project Management

- Part of a broader program, portfolio or both
- Enables achievement of organizational goals and objectives

Project Management Principles

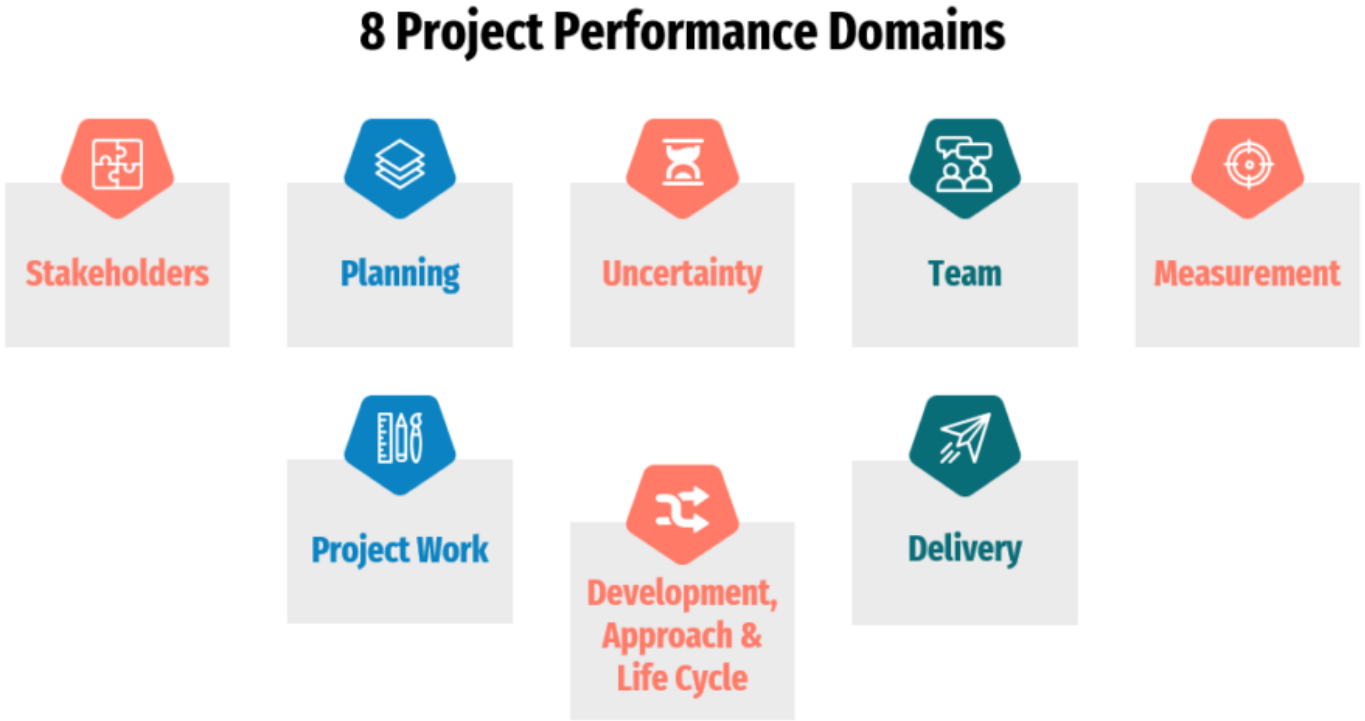
- **Use the 12 principles to guide behaviour in the 8 project performance domains**

1. Be a diligent, respectful and caring steward.
2. Recognize, evaluate and respond to system interactions.
3. Navigate complexity.
4. Create a collaborative project team environment.
5. Demonstrate leadership behaviours.
6. Optimize risk responses.
7. Effectively engage with stakeholders.
8. Tailor based on context.
9. Embrace adaptability and resiliency.
10. Focus on value.
11. Build quality into processes and deliverables.
12. Enable change to achieve the envisioned future state.

project performance domains

A project performance domain is a group of related activities that are critical for the effective delivery of project outcomes. Collectively, the performance domains represent a project management system of interactive, interrelated and interdependent management capabilities that work in unison to achieve desired project outcomes. As the performance domains interact and react to each other, change occurs.

Each domain addresses activities and functions specific to the domain, resulting in specific desired outcomes. Here is a synopsis of the desired outcomes of working in each of the eight project performance domains:



Chapter 2 : The Agile Manifesto for Software Development

Chapter 2/01 : The Agile Manifesto

Chapter 2/02 : Principles Behind the Agile Manifesto

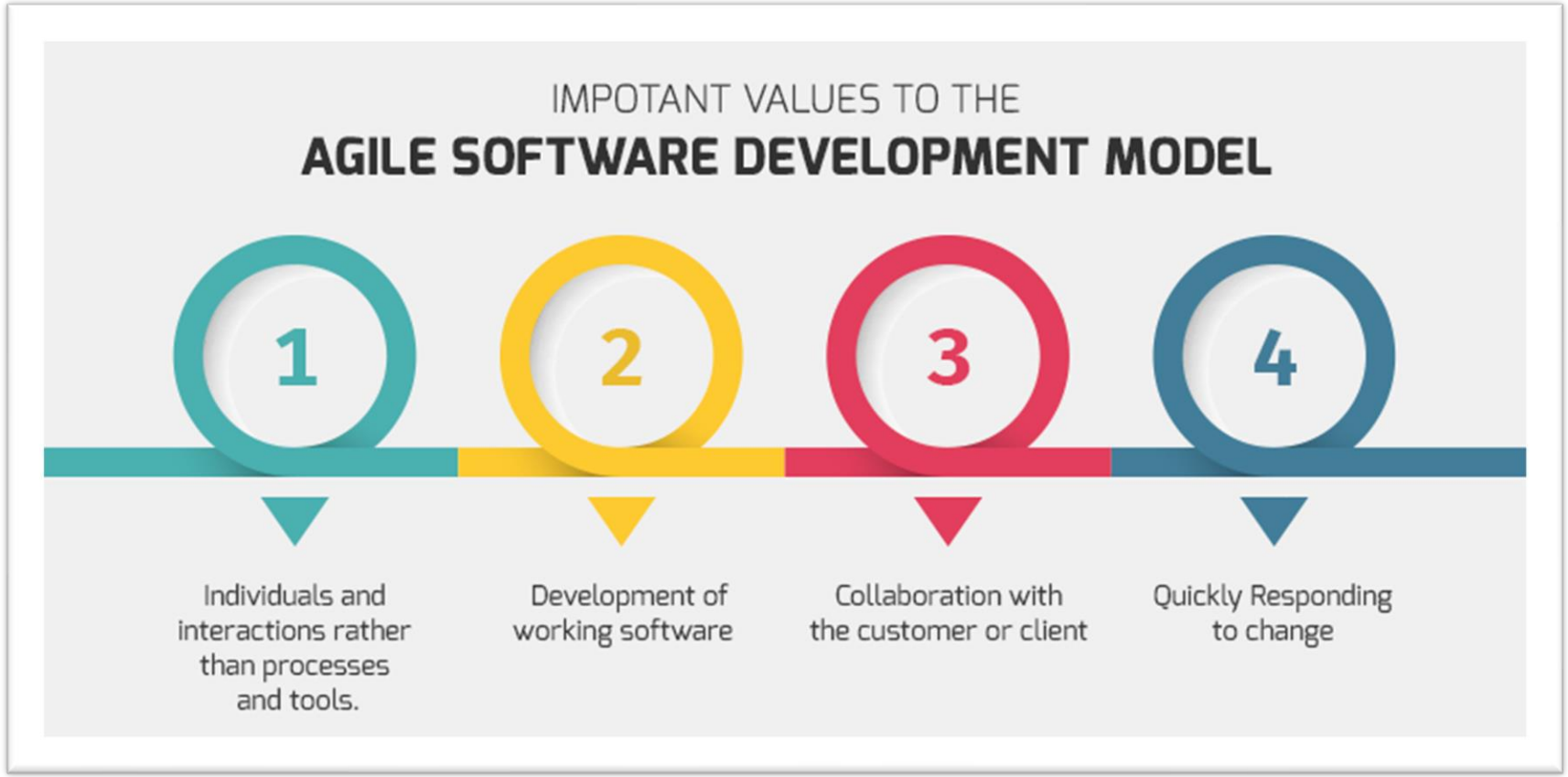
Chapter 2/03 : Tailor Projects to Contexts

The Agile Manifesto

- Agile methodology is a project management approach that prioritizes cross-functional collaboration and continuous improvement. It divides projects into smaller phases and guides teams through cycles of planning, execution, and evaluation.

- The agile approach embraces a flexible and adaptable way of thinking and acting. It involves choosing suitable techniques that match the specific situation at hand.

- The Agile methodology, which are commonly used in software development, have also been employed to facilitate progress in various other types of projects.



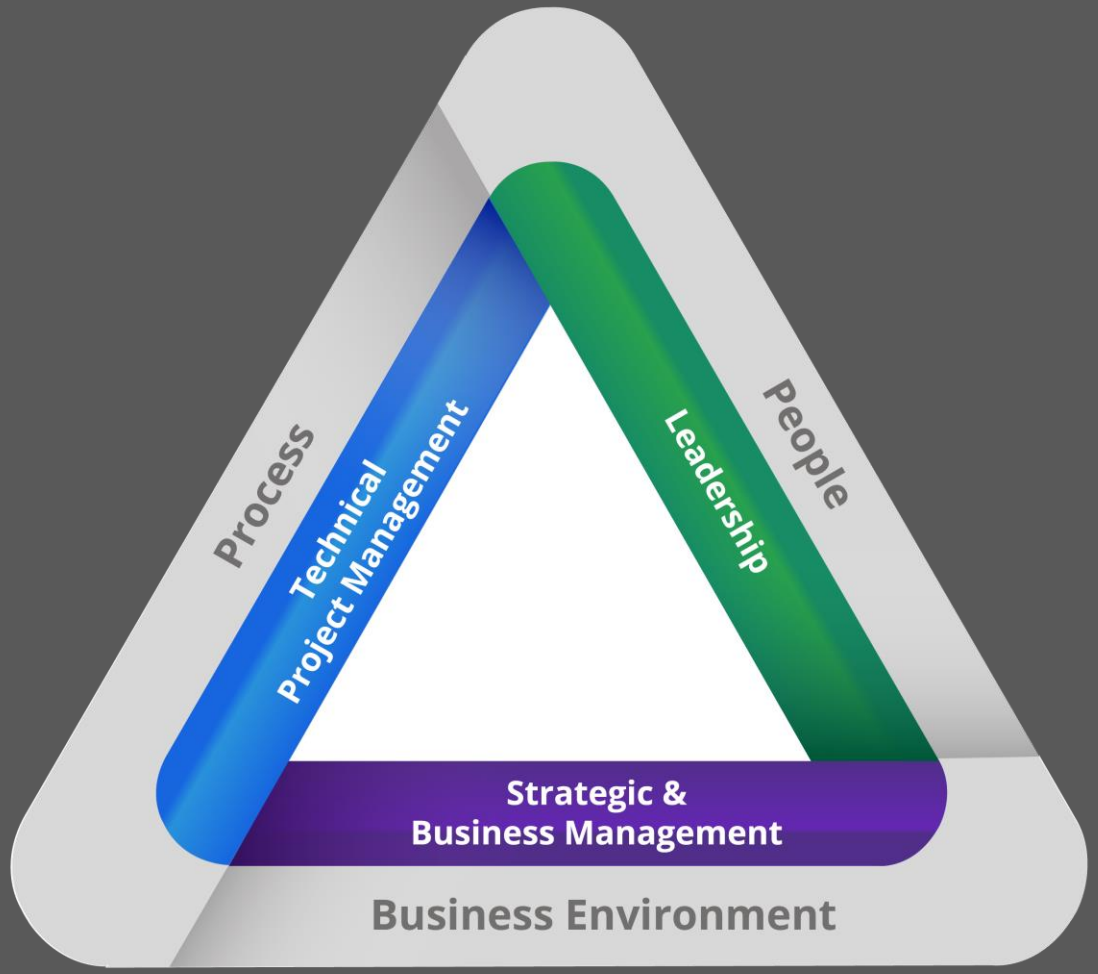
Tailor Projects to Contexts

- Tailoring is the deliberate adaptation of the project management approach, governance, and processes to make them more suitable for the given environment and the work at hand.

1. Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.
2. Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.
3. Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.
4. Businesspeople and developers must work together daily throughout the project.
5. Build projects around motivated individuals. Give them the environment and support they need and trust them to get the job done.
6. The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.
7. Working software is the primary measure of progress.
8. Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.
9. Continuous attention to technical excellence and good design enhances agility.
10. Simplicity – the art of maximizing the amount of work not done –is essential.
11. The best architectures, requirements, and designs emerge from self-organizing teams.
12. At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behaviour accordingly.

Chapter 3 :
PMP ECO (Exam Content Outline)

1 - Creating a High Performing Team
2 - Starting the Project
3 - Doing the work
4 - Keeping the Team on Track
5 - Keeping the Business in Mind



Creating a High Performing Team

Build A Team

Define team ground rules

Negotiate project agreements

Empower Team Members & Stakeholders

Train Team Members and Stakeholders

Engage & support virtual teams

Build a Shared Understanding about a Project

Project team is a set of individuals who support the project manager in performing the work. Ex. PM staff, project workers, customer reps, sellers, business partners.

Project Resource Management includes:

1. Estimate, acquire, and manage teams of people.
2. Estimate the other resources those team members will need to carry out the wc
3. Obtain the people.
4. Develop the team, improve their competencies, facilitate interactions, and creat
5. teaming environment.
6. Track team performance, create and execute improvements based on feedback,
7. issues, and manage team personnel changes

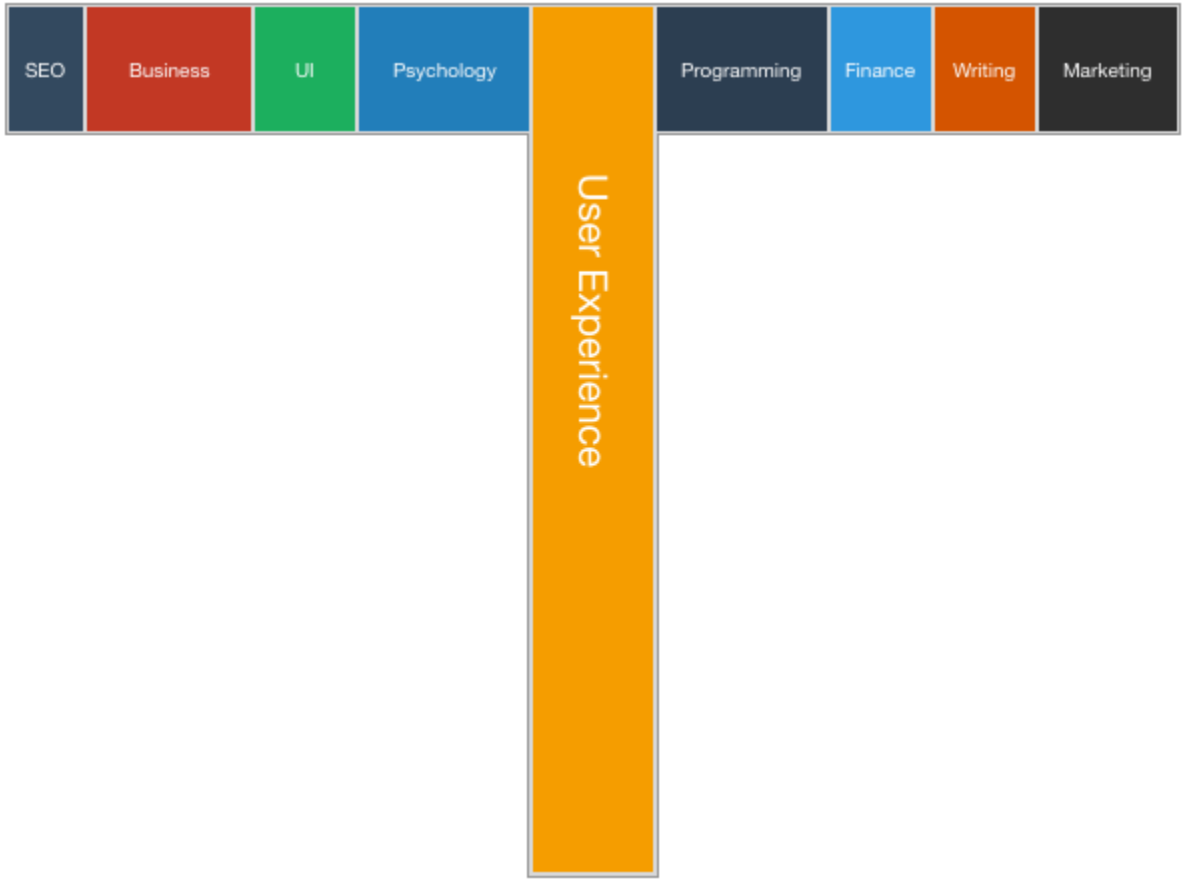
Team Member Considerations:

1. Need the relevant skill sets to perform the work and produce the desired results
2. Avoid single-points-of-failure caused by a single resource having a required skill.
3. Use generalizing specialists who have a core competency and general skills th support other areas of the project.

T-Shaped Skills

1. Agile teams invest in becoming more cross functional.
2. By leveraging all team members to help accomplish the team goals:

- Improves team s efficiency
- More likely to achieve objective



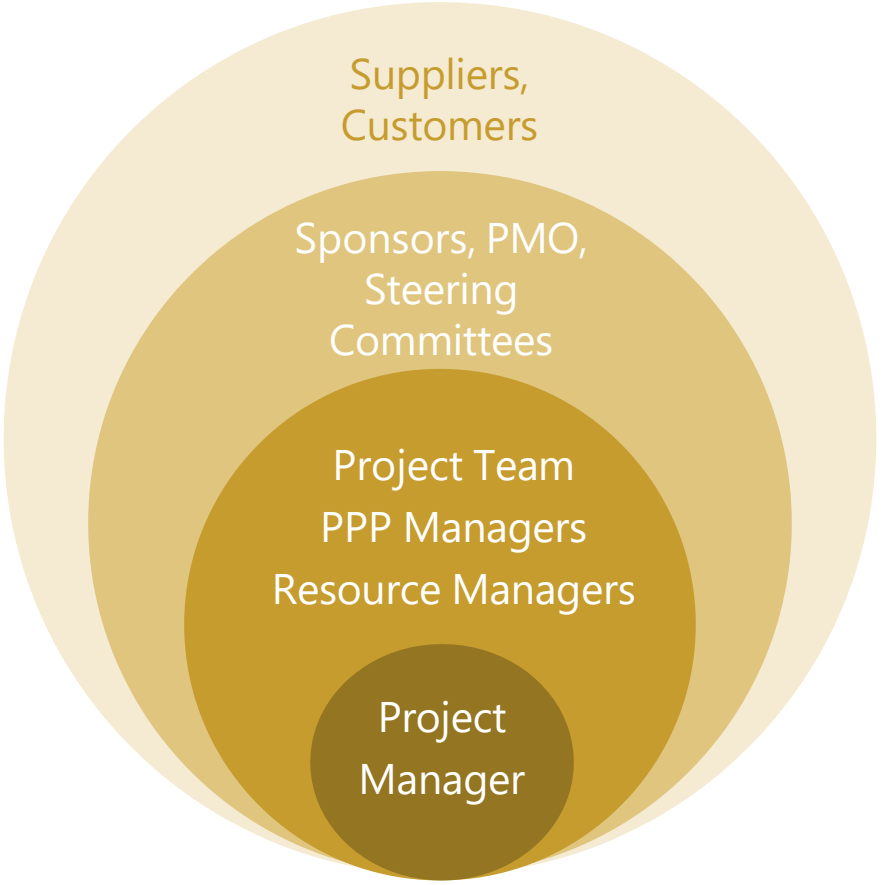
Project Stakeholders

Stakeholders

An individual, group, or organization that may affect, be affected by, or perceive itself to be affected by a decision, activity, or outcome of a project, programs, or portfolio.

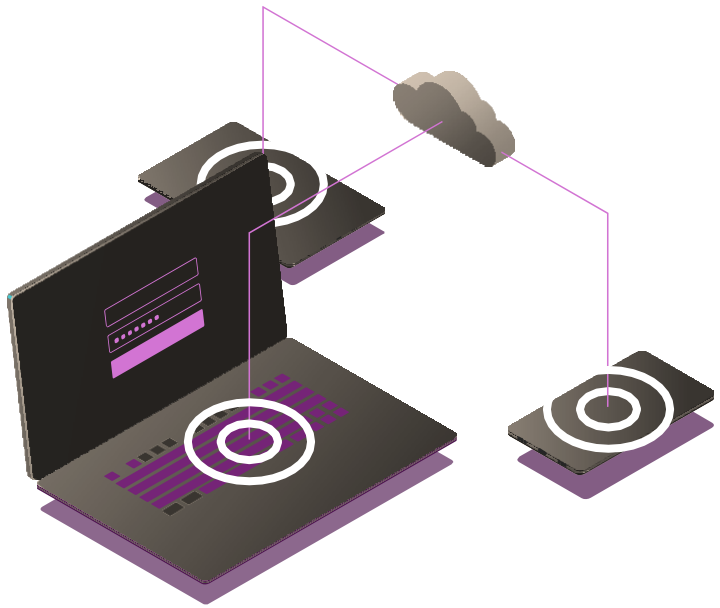
Stakeholders Identification :

1. Identifying stakeholders tends to happen as the project charter is being developed. Acquisition of resources
2. List of identified stakeholders should be reviewed and modified as changes occur throughout the project.
3. The project plans that are developed should describe stakeholders and the planned engagement model.
4. As the project progresses, documents such as change logs, issue logs, or requirement documents can reveal additional stakeholders.
5. The stakeholder list may be affected by organizational environment factors.
6. Referring to stakeholder lists from previous projects might be useful



Skills List

There are a variety of interpersonal skills that each member of the project team will need to establish and maintain relationships with other.



Conflict Mang.

involves intervening before a negative result from a conflict can occur.

Cultural Awareness

Understanding and being aware of the different cultural viewpoints and beliefs of the individuals

Decision Making

the ability to make decisions will show that you can be a strong advocate in any decision-making process, meeting, or group.

Facilitation

skills used to lead or guide an assembled group toward a successful conclusion.

Leadership

The ability to step up and guide others to achieve results.

Meeting Mang.

The ability to conduct productive meetings efficiently and effectively.

Negotiation

an approach used by more than one individual to come to an agreement or resolution.

Networking

Interaction between people to expand their knowledge about business topics.

Team Building

through continuous support and working collaboratively, you can enable a team to work together to solve problems, diffuse interpersonal issues, share information, and tackle project objectives as a unified force.

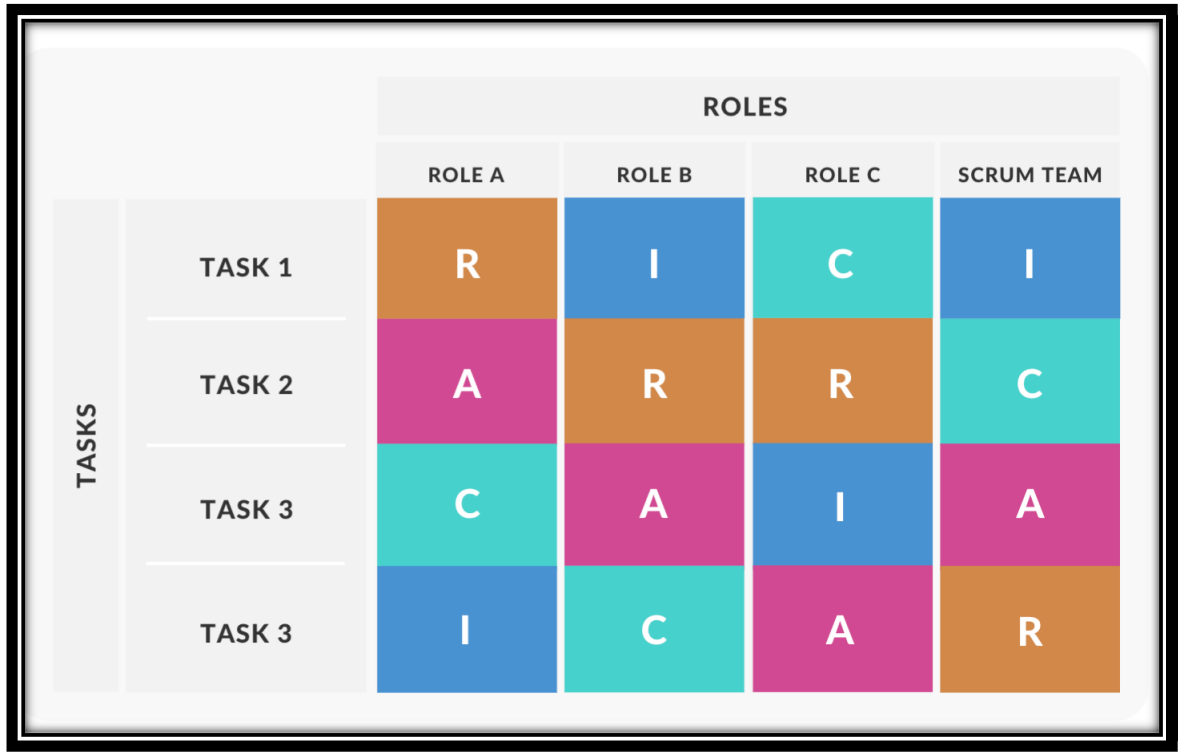
Observation/conversation

involves watching individuals as they perform their daily tasks to obtain first-hand knowledge of a situation or how a process is going.

Servant Leadership

used in agile and other types of projects, which encourages the self-definition, self-discovery, and self-awareness of team members.

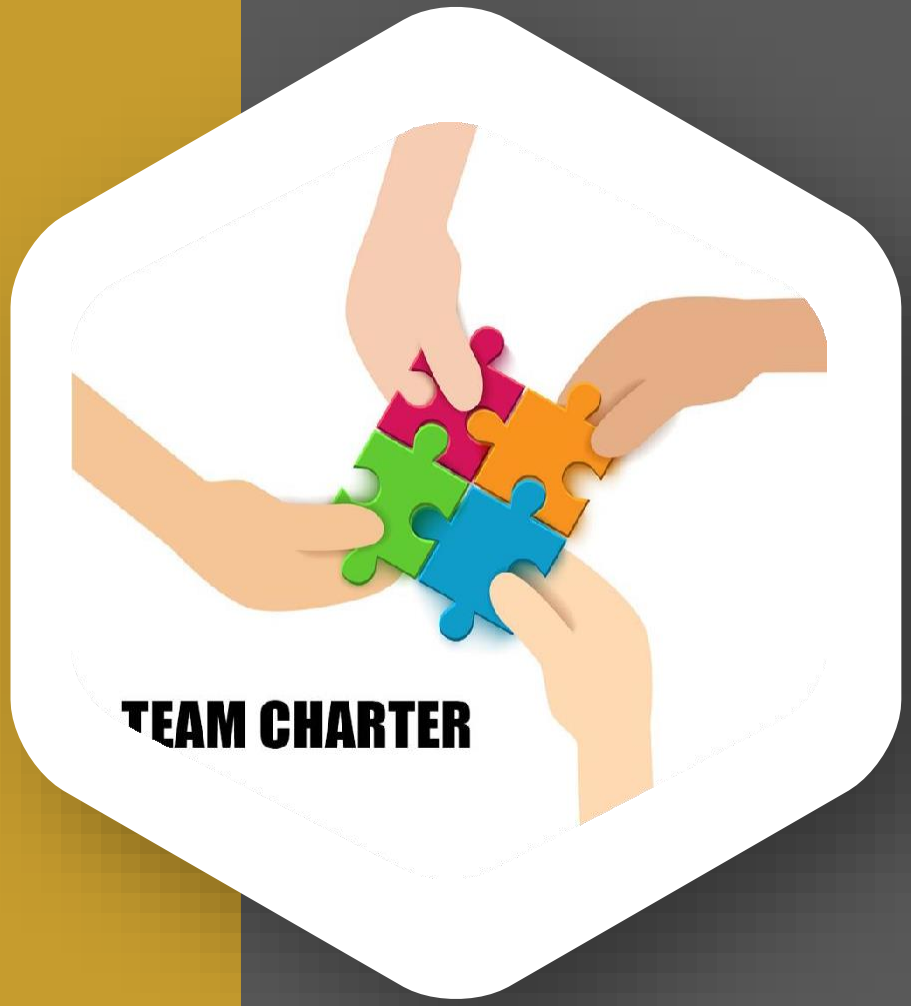
RACI Chart



TASKS	ROLES	ROLE A	ROLE B	ROLE C	SCRUM TEAM
	TASK 1	R	I	C	I
	TASK 2	A	R	R	C
	TASK 3	C	A	I	A
	TASK 3	I	C	A	R

R = Responsible A = Accountable C = Consulted I = Informed

A RACI chart, also known as a RACI matrix or RACI model, is a diagram that identifies the key roles and responsibilities of users against major tasks within a project and A common type of responsibility assignment matrix (RAM) that uses responsible, accountable, consult, and inform statuses to define the involvement of stakeholders in project activities to define the involvement of stakeholders in project activities.



Team Charter

The team charter is a document that enables the team to establish its values, agreements, and practices as it performs its work together.

A good team charter includes:

- The team's shared values.
- Guidelines for team communications and the use of tools.
- How the team makes decisions.
- How the team resolves conflicts when disagreements arise.
- How and when the team meets.
- Other team agreements (such as shared hours, improvement activities).

Project Negotiations

Negotiations are discussions that are aimed at reaching an agreement. As part of an external procurement, it may be specify the rights, obligations, and terms of a purchase in order to facilitate a mutual agreement prior to signing a contract.

Agreement documents include:

- A SOW or major deliverables
- A schedule with milestones and dates
- Performance reporting expectations
- Pricing and payment terms
- Inspection, quality requirements and acceptance criteria
- Warranty and future support
- Incentives or Penalties
- Insurance & Performance Bonds
- Subcontractor approvals
- Terms & Conditions
- Change Request handling
- Termination clauses and Dispute Resolution

Prioritization Techniques to Determine Objectives

01

KANO Model

Identifying certain features as Basic, Performance, or Excitement helps to prioritize

02

MoSCoW (MSCW) Analysis

Categorize features as Must Have, Should Have and Won't Have (for now).

03

Paired Comparison Analysis

Looking at each pair of stories and prioritizing one over the others.

04

100 Points Method

Each stakeholder is given 100 points and can multi-vote their points across all the stories.

Product Backlog is owned by the customer. In Scrum through the role of the Product Owner a list of desired capabilities, written as User Stories are given with the also the list is prioritized, with the highest business value and highest business risk things listed first.

Team Strengths

Strengths

characteristics of the business or project that give it an advantage over others.

Weaknesses

characteristics that place the business or project at a disadvantage relative to others.

Opportunities

elements in the environment that the business or project could exploit to its advantage.

Threats

elements in the environment that could cause trouble for the business or project.

Estimates

The people doing the work should perform the estimating tasks because they ha
best knowledge of:

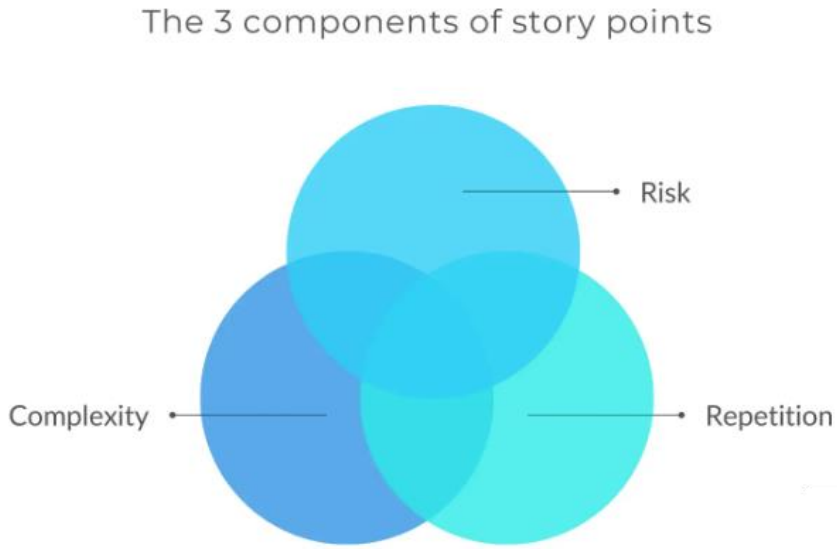
- The risks
- Level of effort
- Potential pitfalls

Traditional project managers use hours of effort

- Three-point estimating is one example.

Agile projects avoid using absolute time estimates.

- Story Point technique provides a unit less measure estimation.



Retrospective

A Retrospective is a time specifically set aside for the team to reflect on its performance and practices, identify and solve problems, There are literally hundreds of different methods and techniques for running a retrospective, but they generally follow a model like this:

Elements of Training

Training is an activity in which team members acquire new or enhanced skills, knowledge, or attitudes. Training may be provided to teams, small groups, or individuals and can cover management, technical or administrative topics.

Training delivery models include:

- Instructor-led classroom
- Victual classroom
- Self-paced e-learning
- Document reviews
- Interactive simulations
- On-the-job training

Training Options

Virtual Instructor-led training

Live online instructor-led training through a virtual meeting or virtual training environment.

Self paced e-learning

E-learning content made available to the students online and generally consumed using a browser, which might include rich-media video, simulated lab exercises, etc.

Document reviews

For certain type of simple knowledge transfer, sharing relevant documents may be sufficient.

Communication Plan

In the same way the project manager established a communications plan for engaging with other project stakeholders, a communication plan for the team itself should be created and executed , Project manager must facilitate and ensure collaboration

Communication Includes

- When the meets. Do they hold daily standup? Grooming meetings to clean backlogs? Sprint Planning, Review & Retro?
- How team members update task status – Kanban/ etc.
- How often do team members update their work status?
- What are the team's shared hours?
- What are their preferred communications approaches? Chat channels? Phone? E-mail? Share task boards?

Project Charter

A project charter A document issued by the project initiator or sponsor that formally authorizes the existence of a project and provides the project manager with the authority to apply organizational resources to project activities.

Project Charter Include:

- Purpose
- Measurable project objectives and related success criteria
- High-level requirements
- High-level project description, boundaries, and key deliverables
- Overall project risk
- Summary milestone schedules
- Pre-approved financial resources
- Key stakeholders list
- Project approval requirements
- Project exit criteria
- Assigned project manager and responsibility/authority level
- Name and authority of the project sponsor

Agile Ceremonies

Sprint Retrospective

A meeting of the team members facilitated by the Scrum Master for the team to identify its own improvements, reviews the team's processes and practices

Sprint Planning

A meeting that facilitates communication and collaboration between a customer and the project team

Sprint Review

A review at the end of each iteration with the Product Owner and other customer stakeholders to review the progress of the product, get early feedback

Daily Standup

A short 10-15 minute meeting held each day for the team to reaffirm commitment to its objectives for the iteration an to surface any potential blockers

Key Terms

Vision

Desired end-state, described as a set of objectives and outcomes.

Kickoff Meeting

- Defining a vision statement
- Defining a team charter
- Assisting product owner / Customer with story writing , create backlog,estimating of effort .

Consensus

A decision-making process used by a group to reach a decision that everyone can support.

- Fist of Five Technique
- Roman Voting
- Polling
- Dot Voting

Product backlog

Prioritization techniques include:

- Kano Model
- MoSCoW
- (MSCW) Analysis
- Paired Comparison Analysis
- 100 Points Method

Overview Statement

Serve as a draft for the project charter. Brevity and clarity are key. Should be less than a page capturing objective, opportunity & success.

Estimation Tech.

- T-Shirt Sizing – S, M, L, XL, XXL
- Story Pointing, Using a relative measure for the level of difficulty or complexity of a feature, individuals assign story points, which are numbers in the Fibonacci sequence, 1, 2, 3, 5, 8, 13, 20, 40 100,.
- Planning Poker: Used to estimate effort or relative size of development effort. Using a deck of cards with modified Fibonacci numbers, individuals vote on user stories. This technique is also called Scrum poker.

Task Boards

- Kanban board
- To-do list
- Procedure checklists
- Scrum Boards etc.

STARTING THE PROJECT

2

- Determine Appropriate Project Methodology/Methods and Practices
- Plan and Manage Scope
- Plan and Manage Budget and Resources
- Plan and Manage Schedule
- Plan and Manage Quality of Products/Deliverables
- Integrate Project Planning Activities
- Plan and Manage Procurement
- Establish Project Governance Structure
- Plan and Manage Project/Phase Closure

Project Methodologies, Methods, and Practices

Agile

- Modern approach where team works collaboratively with the customer to determine the project needs.
- The coordination of the customer and the team drives the project forward.
- Changes are relatively easy, and waste is not costly.
- Complex environment where end product is not fully known, and user feedback is very valuable.

Predictive

- Traditional approach where the project needs, requirements, and constraints are understood, and plans are developed accordingly.
- The plans drive the project forward.
- Changes are expensive due to scrap and waste.
- Predictability and coordinated timing is important.

Hybrid

- A combined approach that uses a strategy from agile or predictive for a specific need.
- Project might switch approaches based on need, changing work requirements, or circumstances.
- There are some costs to changes.
- Stakeholders are interested in another method, but not comfortable to fully adopt one method.

Iterative

- Dynamic requirements and activities are repeated until they are deemed correct.

Incremental

- Dynamic requirements, as well as frequent small deliveries
- Speed to deliver small increments is a major goal.

Key terms

Progressive Elaboration

- The iterative process of increasing the level of detail in a project management plan as greater amounts of information and more accurate estimates become available.

Rolling Wave Planning

- An iterative planning technique in which the work to be accomplished in the near term is planned in detail, while work further in the future is planned at a higher level.

Predictive Life Cycles

- A form of project life cycle in which the project scope, time, and cost are determined in the early phases of the life cycle.

Iterative Life Cycles

- A project life cycle where the project scope is generally determined early in the project life cycle, but time and cost estimates are routinely modified as the project team's understanding of the product

Iterative **Adaptive**

Incremental Life Cycles

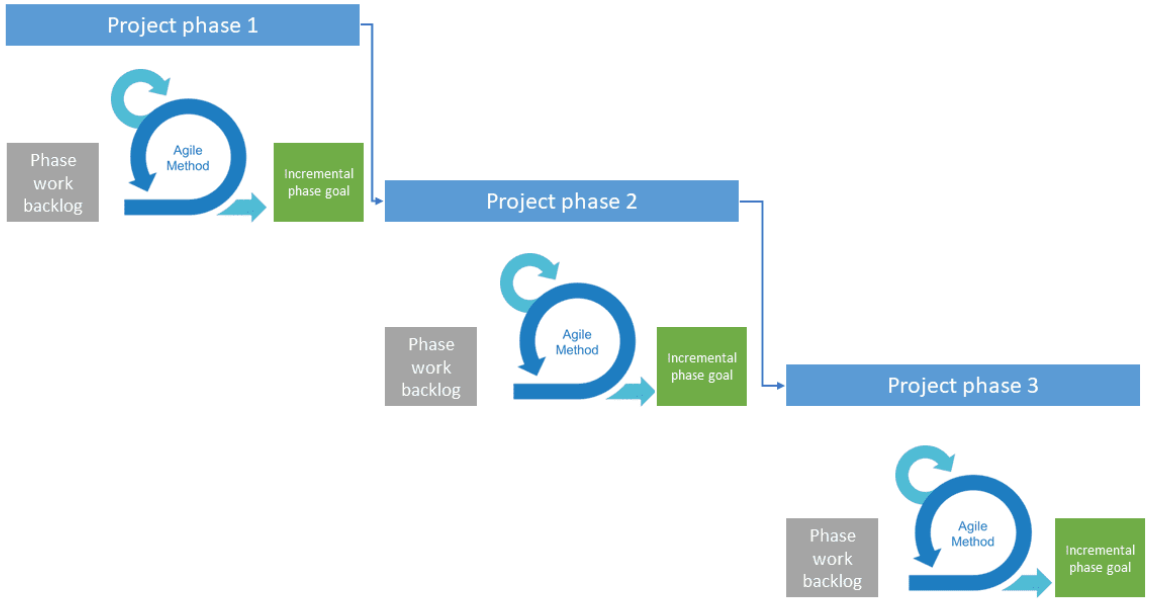
- An adaptive project life cycle in which the deliverable is produced through a series of iterations that successively add functionality within a predetermined time frame. The deliverable contains the necessary and sufficient capability to be considered complete only after the final iteration.

Incremental **Adaptive**

Hybrid Methodologies

Characteristics

1. Includes adaptive and predictive components
2. Shorter, iterative time frames
3. High stakeholder involvement
4. More in depth requirements



Agile Life Cycles

A project life cycle that is iterative or incremental. Also referred to as change driven or adaptive.

Characteristics

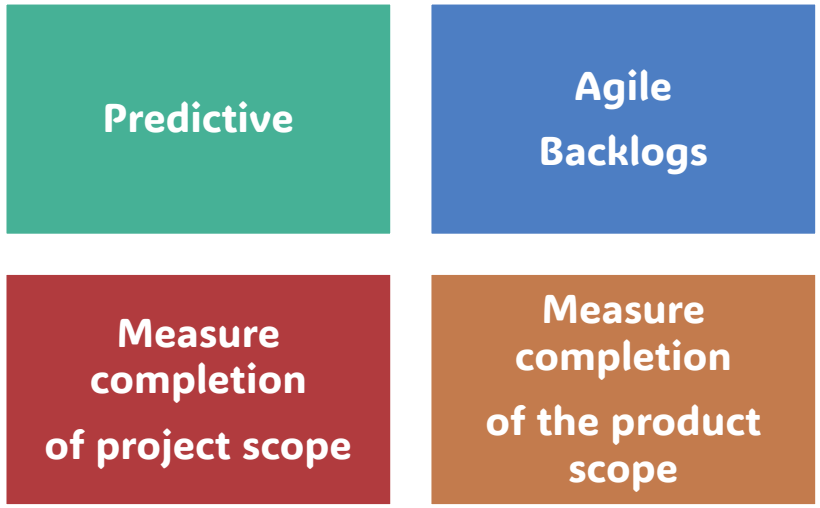
1. Dynamic requirements
2. Combines iterative repetition of activities with incremental deliveries
3. Goal: Customer value

Project Scope

Project Scope: The work performed to deliver a product, service, or result with the specified features and functions. Project scope ” may include product scope.

Product Scope

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



Requirements management plan

A component of the project or program management plan that describes how requirements will be analysed, documented, and managed.

1. How requirements activities will be planned, tracked, and reported
2. Configuration management
3. Requirement's prioritization
4. Traceability structure

Project requirements

The agreed upon conditions or capabilities of a product, service, or outcome that the project is designed to satisfy.

1. High level requirements might be documented in the project charter.

2. Project manager must verify all requirements are determined and documented.

3. Provide the foundation for building the WBS

Elicitation Techniques

- Document analysis
- Questionnaires
- Benchmarking
- Interview

Elicitation Techniques (Decision Making)

- Unanimity
- Majority
- Plurality
- Autocratic

Elicitation Techniques/ Data

Mind mapping

A technique used to consolidate ideas created through individual brainstorming sessions into a single map to reflect commonality and differences in understanding and to generate new ideas

Affinity diagram

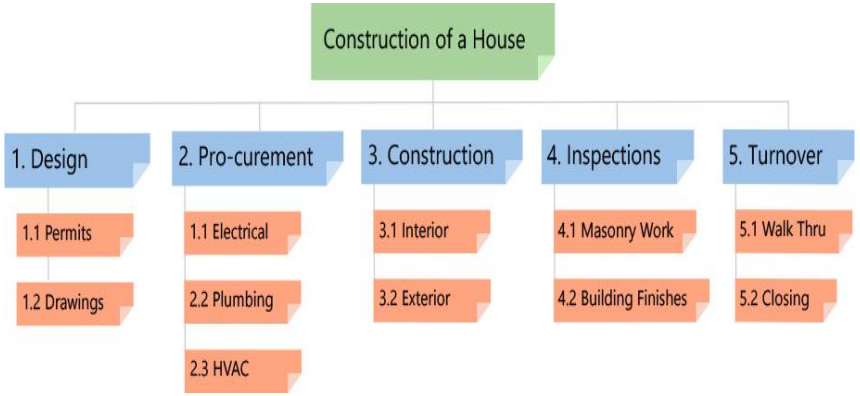
A technique that allows large numbers of ideas to be classified for review and analysis.

Requirements Documentation

- Business requirements
- Stakeholder requirements
- Solution requirements
- Project requirements
- Transition requirements
- Requirements assumptions, dependencies, and constraints

Work Breakdown Structure (WBS)

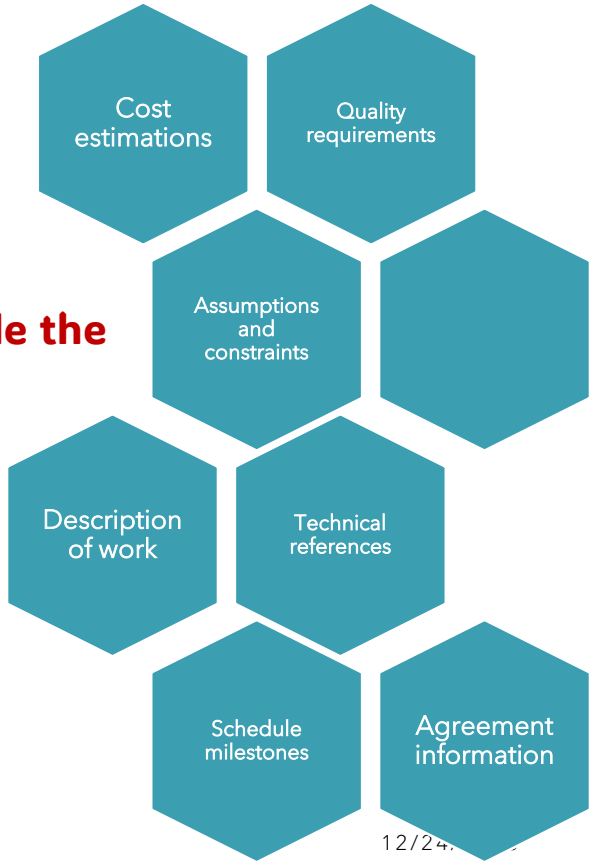
A hierarchical decomposition of the total scope of work to be carried out by the project team to accomplish the project objectives and create the required deliverables.



WBS dictionary

A document that provides detailed deliverable, activity, and scheduling information about each component in the work breakdown structure.

May Include the Following



Scope baseline

is the approved version of a scope statement, WBS, and its associated WBS dictionary, that can be changed using formal change control procedures and is used as a basis for comparison to actual results.

Scope baseline components can include:

1. Project scope statement
2. WBS
3. WBS dictionary

Product and Iteration backlogs

product backlog

1 - essentially a list of the expected work

to deliver the product.

2 - A project's product backlog changes throughout the project.

3 - Grooming and refining the product backlog is an ongoing exercise, typically scheduled in weekly or monthly intervals.

Product backlog items (PBI)

1 - Drop off when work is completed.

2 - PBIs are edited and clarified as more becomes known or as product requirements change.

3 - PBIs are continually added as necessary when more work must be done.

iteration backlog

1 - includes items from the product backlog that can conceivably be completed within the time period based on the team s capacity.

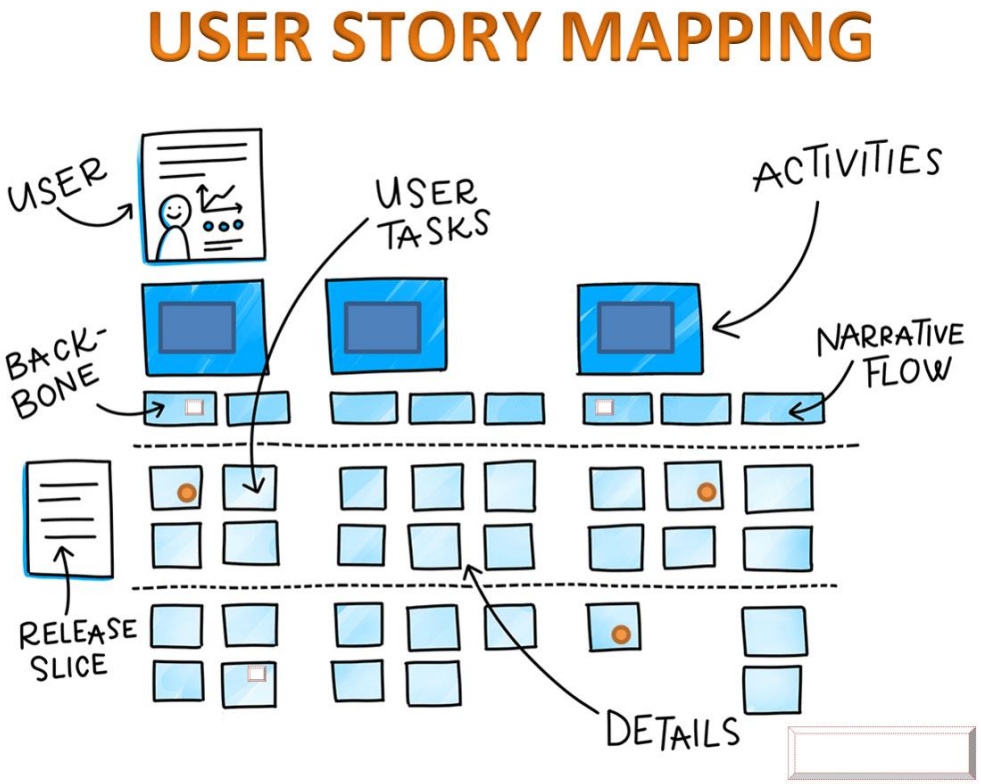
2 - Teams must estimate the effort size of the work and understand the priorities of the business.

User Stories, Story Maps, Roadmaps

1 - A story map organizes user stories into functional groups and within the product roadmap's narrative flow (“the big picture”).

2 - Helpful for discovering, envisioning, and prioritizing the product and away ahead!

3 - Story map technique developed by Jeff Patton.



Plan and Manage Budget and Resources

Cost Estimating Techniques

1. Logical estimates provide basis for making sound decisions and they establish baselines.

Analogous estimating

1- Can ensure no work is inadvertently omitted from work estimates.

2- Can sometimes be difficult for lower-level managers to apportion cost estimates.

Bottom-up estimating

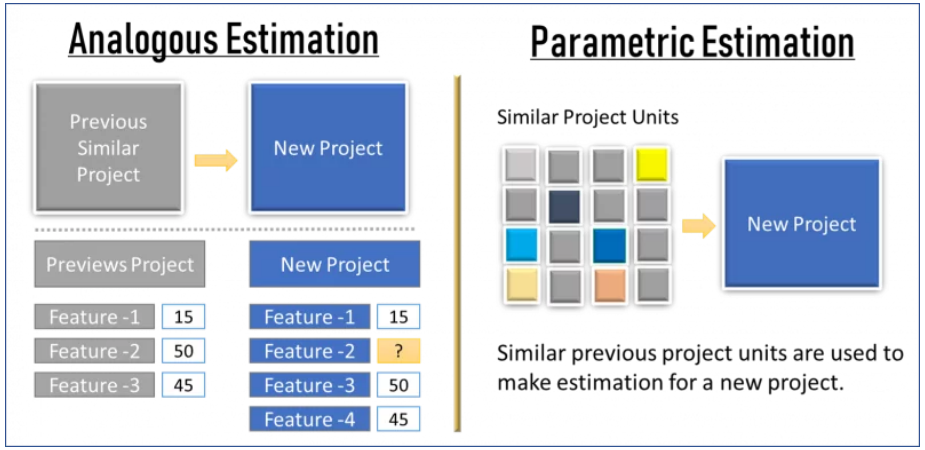
1- Is very accurate and gives lower-level managers more responsibility.

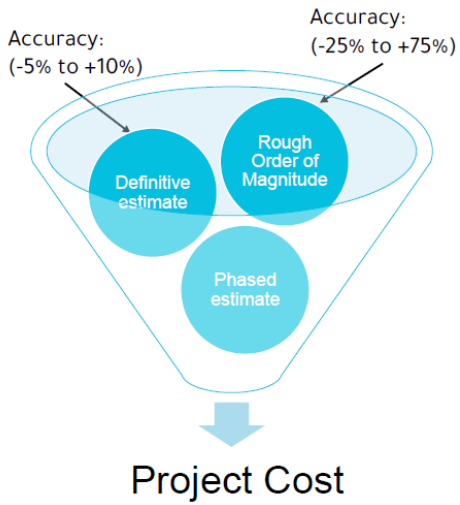
2 - May be very time consuming and can be used only after the WBS has been well defined.

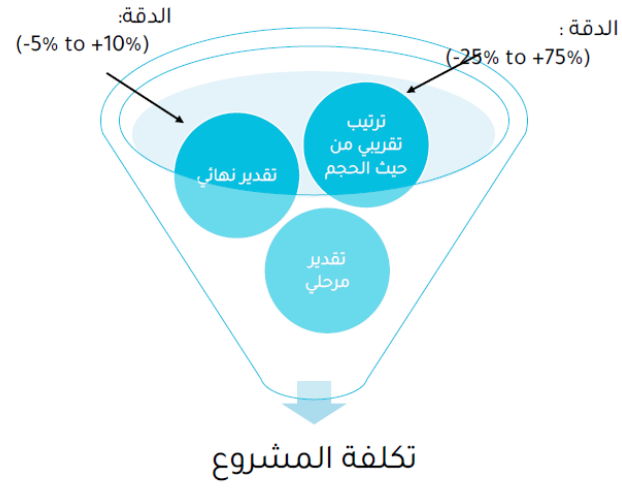
Parametric estimating

1 - Is not time consuming.

2 - May be inaccurate, depending on the integrity of the historical information used.







Funding limit reconciliation

The process of comparing the planned expenditure of project funds against any limits on the commitment of funds for the project to identify any variances (gaps) between the funding limits and the planned expenditures.

1. Most budgets assume steady incoming and outgoing flows.
2. Large, sporadic expenditures are usually incompatible with organizational operations.
3. Funding limits help regulate the outgoing capital flow to protect against overspending

BURN RATE

Agile teams collaborate with stakeholder partners and finance stakeholders to suggest incremental budgeting approaches (agile mindset).

While using burn rate consider the following:

1. Cost as well as value
2. Organization and stakeholder attitudes towards budget and costs

Guidelines to Determine a Budget

1. Review the cost management plan
2. Review the resource management plan
3. Review the scope baseline for project scope statement, WBS, and WBS dictionary.
4. Check the project schedule for type, quantity, and duration of resources.
5. Review the risk register to consider any risks that may impact cost estimation.
6. Review the EEFs.
7. Review the OPAs.
8. Use appropriate tools and techniques.
9. Document the project budget , creating a cost.
10. Understand project funding requirements or cash flow to enable the project.
11. Update project documents, as needed.

How to establish cost baseline and S Curve

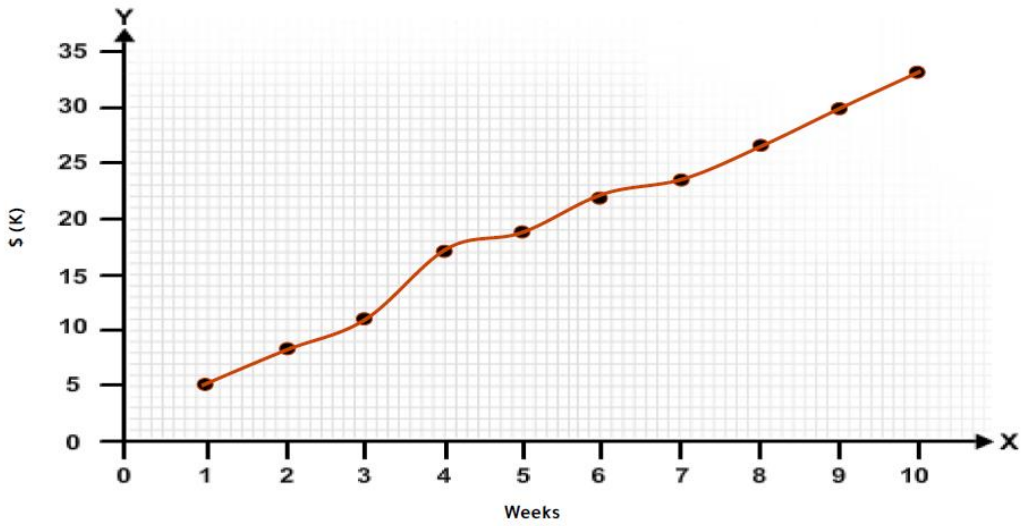
Example

You are ready to move forward with the Public Meeting work package for the shopping centre project The Director of Finance is ready to allocate project funds but is interested in your cash flow Before creating the cash flow document, you review your notes from a recent meeting:

1. Staffing arrangements must be made
2. Contracts for the venue must be completed
3. The location should be selected early in the process and the staffing should happen shortly after the location is secured
4. Five weeks before the event, a promotional newspaper ad will be purchased Subsequent ads will be placed in the final week before the meeting
5. Planned meetings will be scheduled over the next 10 weeks The first meeting will happen right away and another in the fourth week The remaining meetings will occur at two-week intervals until the event
6. A food budget that covers lunch in the first meeting and the third meeting must be set.
7. The project schedule is 10 weeks
8. The cost of holding the event is 3,000 USD.

Completed S-Curve Graph

رسم بياني منحنى Sمكتمل



1.1.4.2		Week									
Public Meeting	**Total Budgeted Cost (K)**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Conduct Planning Meetings	10	3			2		3		2		
Arrange Location	5	2	3								
Arrange Staffing	7			3	4						
Publicize Event	8					1	1	1	1	4	
Hold Event	3										3
Total	33	5	3	3	6	1	4	1	3	4	3
Cumulative		5	8	11	17	18	22	23	26	30	33

Project schedule

An output of a schedule model that presents linked activities with planned dates, durations, milestones, and resources.
1- Includes starting and finishing.
2 – Coordinates activities to form a master plan.
3 – Tracks schedule performance.

Processes involved in Project Schedule Management include

- Plan Schedule Management
- Define Activities
- Sequence Activities
- Estimate Activity Durations
- Develop Schedule
- Control Schedule

Schedule management plan

A component of the project or program management plan that establishes the criteria and the activities for developing, monitoring, and controlling the schedule.

Components of the Schedule Management Plan:

- Project schedule model used
- Accuracy of activity duration estimates
- Units of measure to be used
- Organizational procedure links used with the WBS
- Control thresholds to be used for monitoring schedule performance
- Rules of performance measurements to be used
- Reporting formats to be used
- Process descriptions to explain how schedule management processes are to be documented throughout the project.

Schedule Management Considerations for Agile/Adaptive Environments

Two main iterative approaches

- Iterative scheduling with backlog
- On-demand scheduling

Project Activities

A distinct, scheduled portion of work performed during a project.

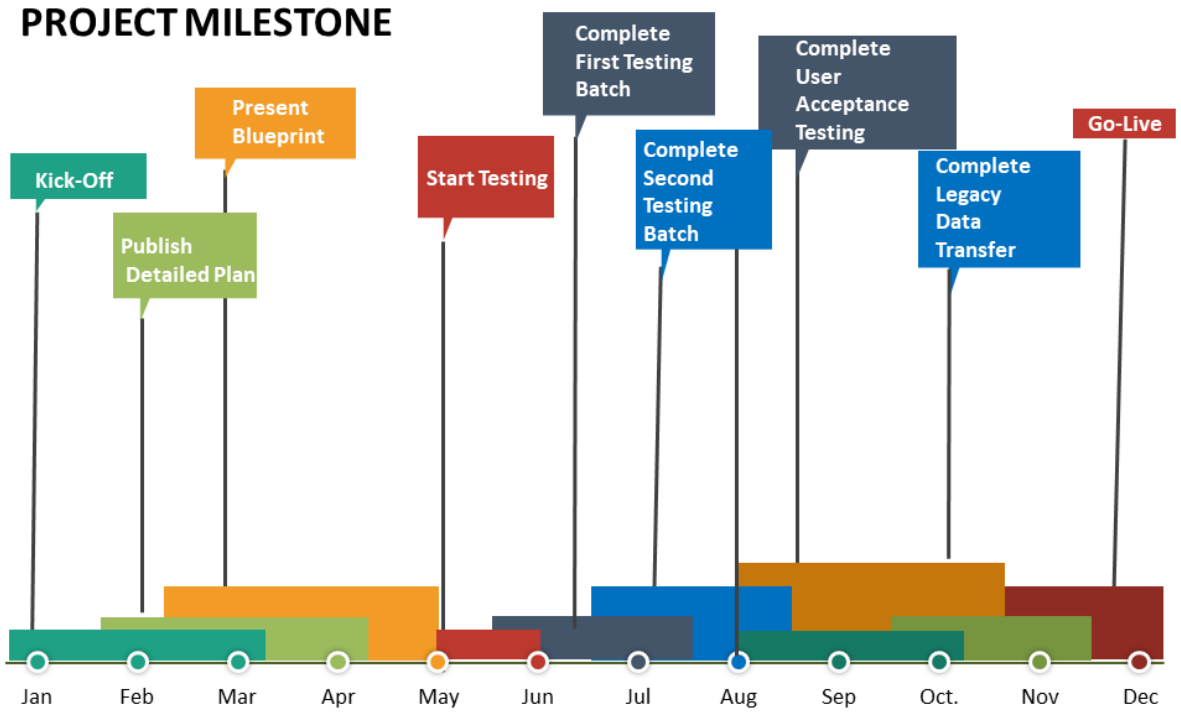
Epic

A very large collection of user stories. Epics can be spread across many sprints.

1. Used to group related functionality together to deliver business value.
2. Activities and efforts, such as documentation, bug fixes, testing, and quality/defect repairs.
3. Delivers the capability that can be estimated, tracked, and managed as a set.
4. Scheduling aligned to features ensures associated work is coordinated.
5. Estimating features offers a view of when blocks of functionality can be released to the business and end users.
6. Progress can be measured based on the based on the features that have been accepted compared to features remaining

Milestone

A significant point or event in a project, program, or portfolio.



Activity Duration Estimates

The quantitative assessment of the likely number of time periods that are required to complete an activity.

❑ Elapsed time

The actual calendar time required for an activity from start to finish.

❑ Effort

The number of labour units required to complete a scheduled activity or WBS component, often expressed in hours, days, or weeks. Contrast with duration.

Three Point Estimation

Triangular Distribution (average)

FORMULA

E = (O + M + P) / 3

- Optimistic = 3 weeks
- Most Likely = 5 weeks
- Pessimistic = 10 weeks

EQUATION

(3 + 5 + 10) / 3 = 6 weeks

BETA Distribution (PERT average)

FORMULA

E = (O + 4M + P) / 6

- Optimistic estimate = 3 weeks
- **Weighted** most likely estimate = 5 weeks
- Pessimistic estimate = 10 weeks

EQUATION

[3 + 4 (5) + 10] / 6 = 5.5 weeks

توزيع بيتا (متوسط بيرت)

صيغة

E = (O + 4M + P) / 6

- تقدير متفائل = 3 أسابيع
- التقدير المرجح على الأرجح = 5 أسابيع
- تقدير متشائم = 10 أسابيع

معادلة

5.5 = 6 / [10 + (5) 4 + 3] أسابيع

التوزيع الثلاثي (المتوسط)

صيغة

E = (O + M + P) / 3

متفائل = 3 أسابيع

على الأرجح = 5 أسابيع

متشائم = 10 أسابيع

معادلة

6 = 3 / (10 + 5 + 3) أسابيع

Schedule Presentation Formats

- Gantt Chart
- Milestone Chart
- Project Schedule Network Diagram with Dates

❑ Critical Path

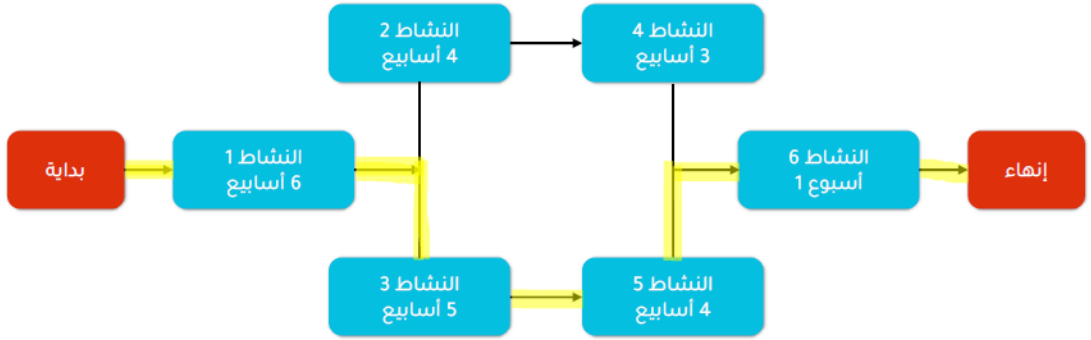
The sequence of activities that represents the longest path through a project, which determines the shortest possible duration.

❑ Critical path activity

Any activity on the critical path in a project schedule.

❑ Total float

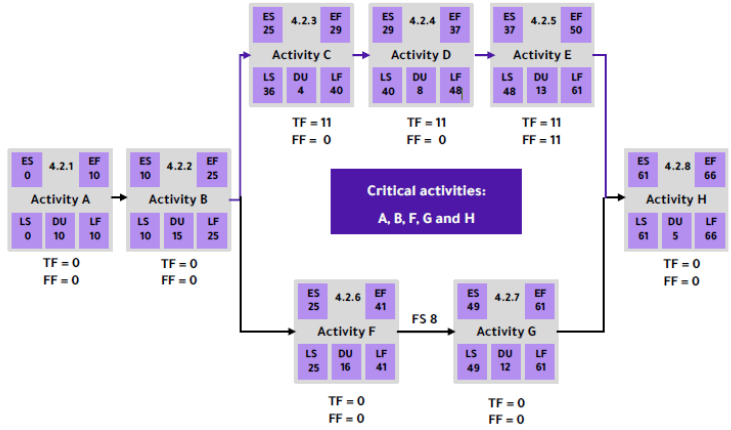
The amount of time that a schedule activity can be delayed or extended from its early start date without delaying the project finish date or violating a schedule constraint.



1[6w] + 2[4w] + 4[3w] + 6[1w] = 14 weeks

1[6w] + 3[5w] + 5[4w] + 6[1w] = 16 weeks Critical Path

Total float of zero.
(ES = LS and EF = LF)



Plan and Manage Quality of Products/Deliverables

❑ Quality

The degree to which a set of inherent characteristics fulfil requirements.

❑ Standard

A document established by an authority, custom, or general consent as a model for example.

❑ Regulations

Requirements imposed by a governmental body and these requirements can establish product, process, or service characteristics, including applicable administrative provisions that have government mandated compliance.

QUALITY MANAGEMENT PLAN

QUALITY STANDARDS

<Document any industry or product quality standards that apply to your project. For example, International Organization Standardization (ISO), World Wide Web Consortium (W3C) and Institute of Electrical and Electronics Engineers (IEEE)>.

QUALITY OBJECTIVES

<Note down the quality targets for the overall project. Be as specific as you can be and include how you will measure if the metric has been met. You can use a separate Quality Metrics table to enter the detailed metrics for each deliverable>.

Metric or Specification	Measure
Delivery to scope.	*Comparison of the delivered scope against the Statement of Work. Measured during UAT and customer project acceptance certificate.*
Delivery on time	*Baseline schedule +/- change orders versus actual dates.*
Delivery on budget	*Actual costs +/- change orders versus budget.*
Adherence to ACME project methodology	*PMO audit comparison of method versus project management deliverables.*

QUALITY ROLES AND RESPONSIBILITIES

<Note down the roles and responsibilities that are needed to manage quality on the project>.

Roles	Responsibilities
Quality Manager	*Oversight of quality control on the project. This role will be fulfilled by the PMO Manager.*
Project Manager	*Scheduling and management of quality control activities.*
Developers	*Comply with quality standards and participate in quality control activities.*

DELIVERABLES AND PROCESSES SUBJECT TO QUALITY REVIEW

<List the project deliverables and processes that will be quality reviewed. For example,>

QUALITY MANAGEMENT PLAN

Deliverable or process that will reviewed	Details of quality review
Risk Management	*Part of the PMO project audit process*
Testing including UAT	*Part of the PMO project audit process*
Software access and permissions	*HTTS to transmit and receive data.* *TLS 1.2 encrypt.* *API require OAuth 2.0*
Website accessibility	*Meet WCAG 2.0.*

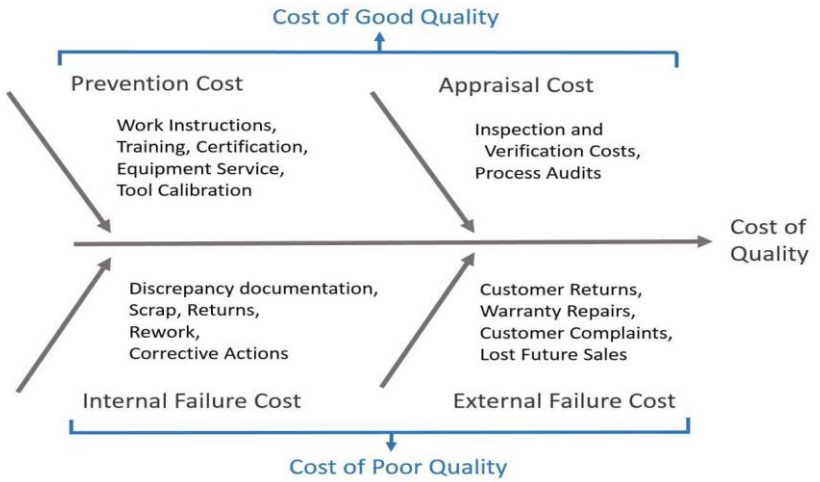
QUALITY CONTROL APPROACH

<Describe when and how quality will be checked. For example,>

Quality control process	Milestones	Owner	Documentation
PMO project audit process	*Startup phase audit (June 2021)* *Test readiness (Aug 2021)* *Post project review (Sept 2021)*	*PMO manager*	*/pmo/quality/* *project-audit-process.pdf*
WACG 2.0 audit	*Audit (Aug 2021)* *Complete recommendations (Sept 2021)*	*Accessibility test team ACME Co.*	*https://www.w3.org/* *TR/WCAG20/*

Cost of Quality

All costs incurred over the life of the product by investment in preventing nonconformance to requirements, appraisal of the product or service for conformance to requirements, and failure to meet requirements.



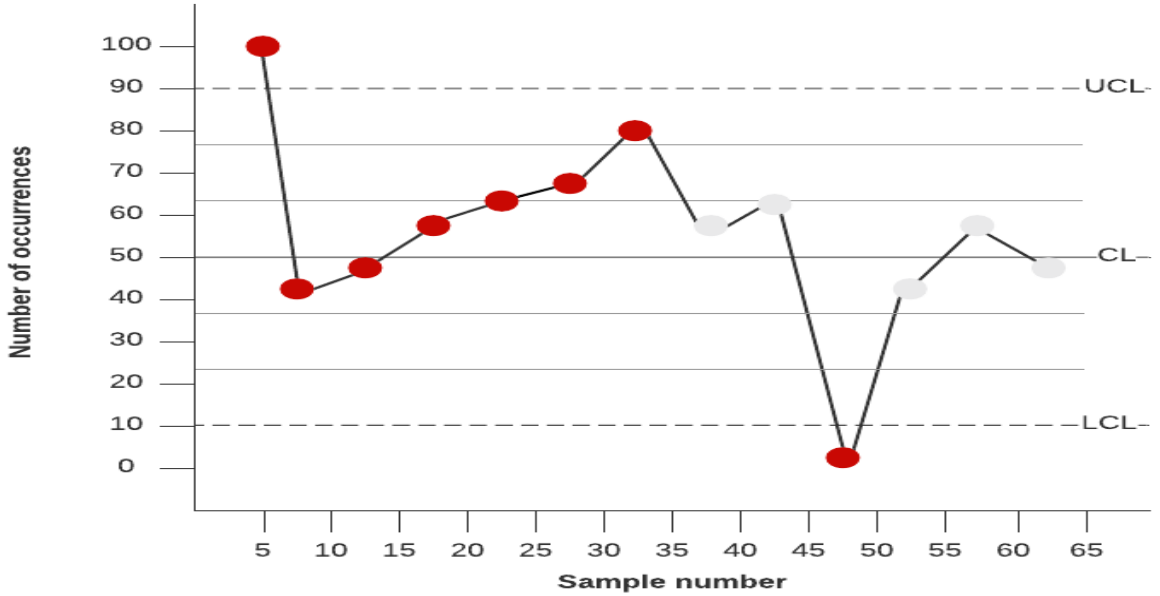
The four areas of Cost of Quality in the PAF model

Quality Control Tools

- Data Gathering
- Data Analysis
- Data Representation

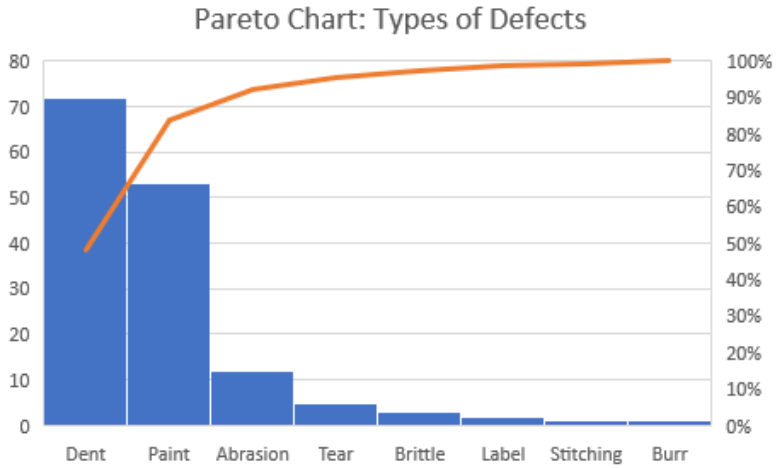
❑ Control Charts and Variability

1. Measurements that exceed the range between the upper and lower control limits are considered to be an indication of instability.
2. The variability expressed is atypical for the process and may be an indication of a special source of variance.



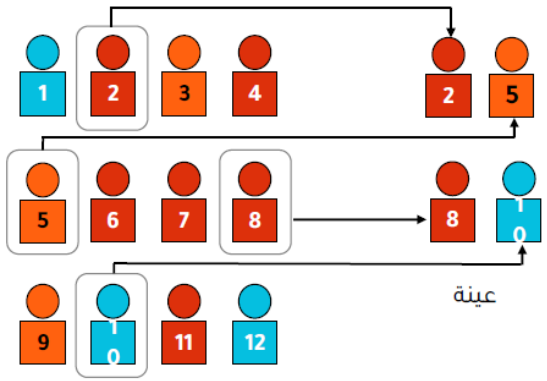
❑ Pareto Chart

A histogram that is used to rank causes of problems in a hierarchical format.



❑ Statistical Sampling

is choosing part of a population of interest for inspection.



Population showing various characteristics

Project Management Plan Components

Baselines

1.Scope baseline.
2.Schedule baseline
3.Cost baseline
4.Performance measurement baseline

Project processes

- Project management processes
- Level of implementation
- Tools and techniques
- How the selected processes will be used to manage

Work explanation

Life cycle

Subsidiary plans

1.Scope management plan
2.Requirements management plan
3.Schedule management plan
4.Cost management plan
5.Quality management plan
6.Resource management plan
7.Communications management plan
8.Risk management plan
9.Procurement management plan
10.Stakeholder engagement plan
11.Configuration management plan
12.Change management plan
13.Compliance management plan

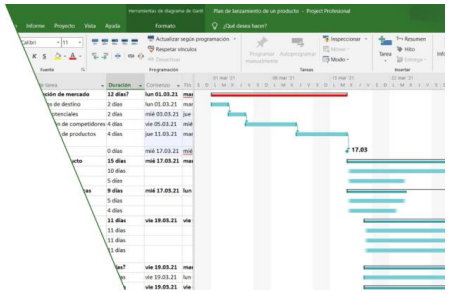
Agile project plan

Project Management Information System (PMIS)

An information system consisting of the tools and techniques used to gather, integrate, and disseminate the outputs of project management processes.

1. Enables quick and efficient scheduling because calculating is performed automatically.
2. PMIS example: Microsoft Project

Project



Plan and Manage Procurement

1. Procurement

the acquisition of goods and services from an external organization, vendor, or supplier to enable the deliverables of the project.

2. Make or buy analysis

The process of gathering and organizing data about product requirements and analysing them against available alternatives including the purchase or internal manufacture of the product.

3. Make or buy decisions

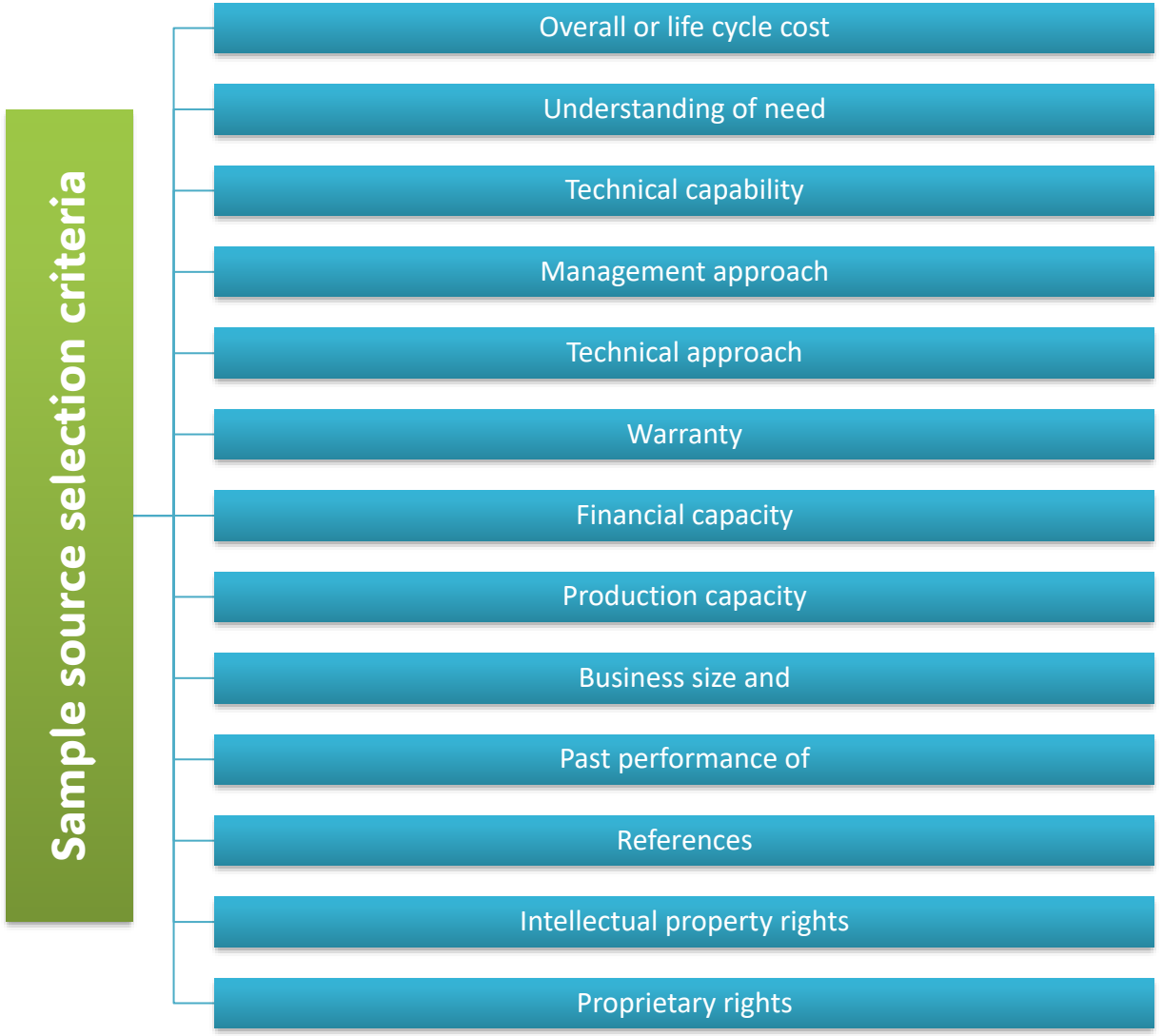
Decisions made regarding the external purchase or internal manufacture of a product.

❑ Procurement Management Plan

A component of the project or program management plan that describes how a project team will acquire goods and services from outside of the performing organization.

❑ Source Selection Criteria

A set of attributes desired by the buyer which a seller is required to meet or exceed to be selected for a contract.



Contracts Management

Contract

A mutually binding agreement that obligates the seller to provide the specified project or service or result and obligates the buyer to pay for it.

Components of Contracts

- Responsibilities of both parties
- Identification of authority, where appropriate
- Delivery date or other schedule information
- Description of the work being procured for the project
- Applicable guarantees and warranties
- Provisions for termination
- Price and payment terms
- Management of technical and business aspects

Traditional Contract Types

- **Fixed Price (FFP, FPIF, FPEPA)**
- **Cost – reimbursable (CPFF, CPIF, CPAF)**
- **Time and Material**

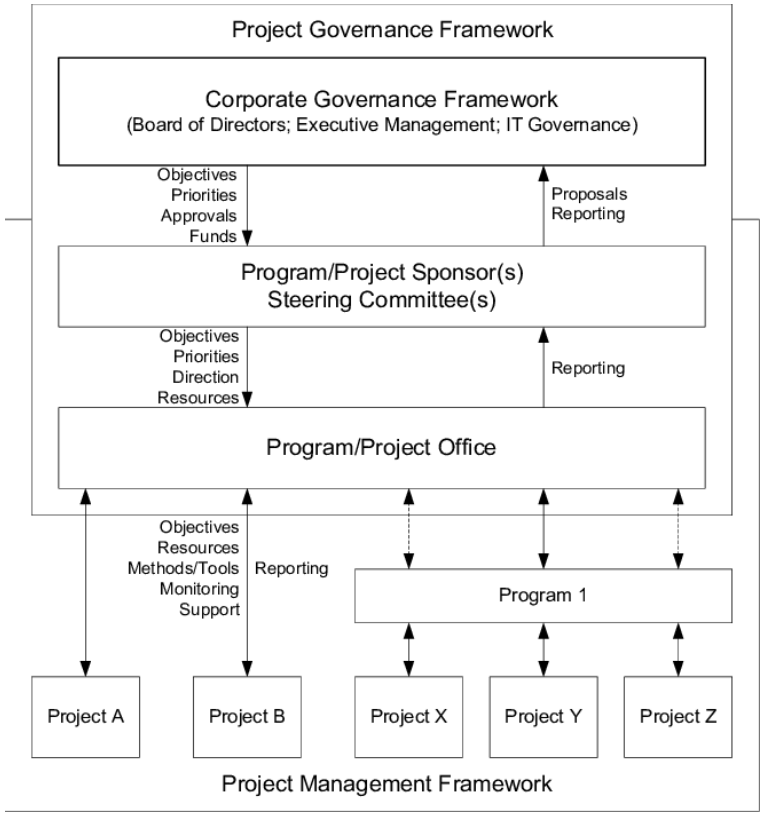
Agile " Contract Types

- Multi-tiered structure
- Emphasize value delivered
- Fixed price increments
- Not to exceed time and materials
- Graduated time and materials
- Early Cancellation option
- Dynamic scope option
- Team augmentation

ESTABLISH PROJECT GOVERNANCE STRUCTURE

1. Project Governance

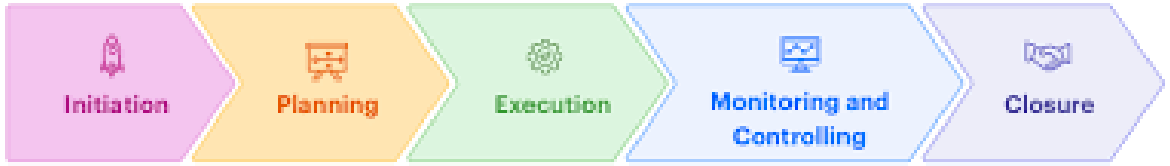
The framework, functions, and processes that guide project management activities to create a unique product, service, or result to meet organizational, strategic, and operational goals.



2. Project Phases

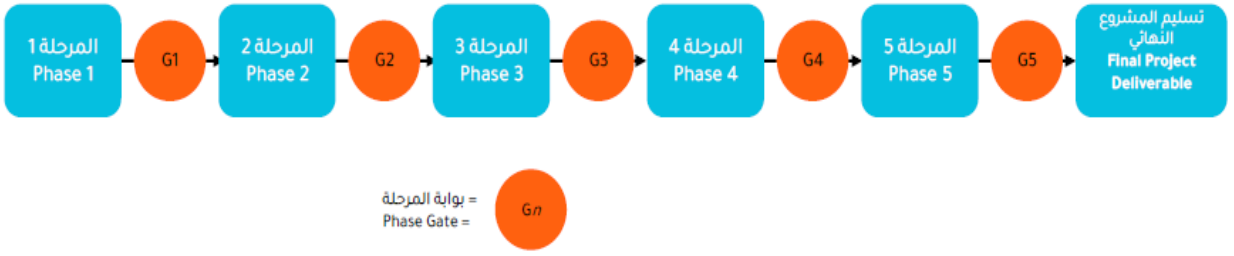
A collection of logically related project activities that culminates in the completion of one or more deliverables.

1. Produce one or more deliverables
2. Can be performed sequentially or can overlap
3. Outputs from one phase are generally inputs to the next phase



3. Phase Gate

A review at the end of a phase in which a decision is made to continue to the next phase, to continue with modification, or to end a project or program.



Doing the work

- Assess and Manage Risks
- Execute Project to Deliver Business Value
- Manage Communications
- Engage Stakeholders
- Create Project Artifacts
- Manage Project Changes
- Manage Project Issues
- Ensure Knowledge Transfer to Project Continuity

Assess and Manage Risks

❑ Risk

An uncertain event or condition that, if it occurs, has a positive or negative effect on one or more project objectives.

❑ Trigger condition

An event or situation that indicates that a risk is about to occur.

Risk Could Be

- Positive risks, which Also referred to as **opportunities**
- Negative risks, which Also referred to as **Threats**

Risk Identification

- Checklist analysis
- Root cause analysis
- Assumption and constraint analysis
- SWOT
- Document analysis
- Prompt lists
- Meetings
- Expert judgment

❑ Risk Tolerance, Appetite, and Threshold

Risk tolerance: The maximum amount of risk, and the potential impact of that risk occurring, that a project manager or key stakeholder is willing to accept.

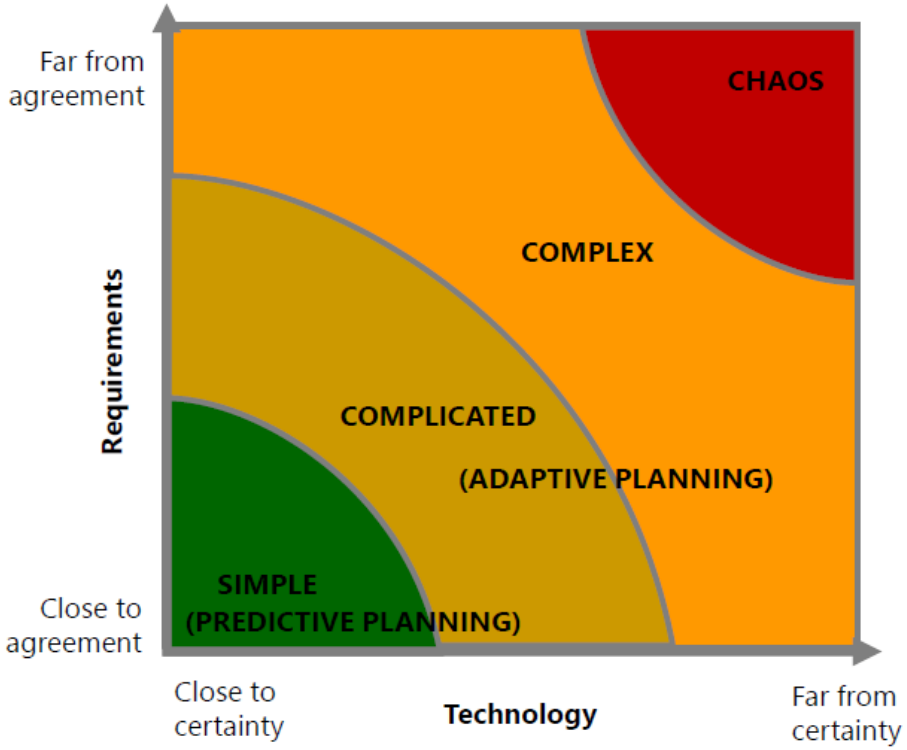
Risk appetite: The degree of uncertainty an organization or individual is willing to accept in anticipation of a reward.

Qualitative risk analysis: Technique used to determine the probability of occurrence and the impact of each identified risk.

1. Determines the risk exposure of the project by multiplying the probability and impact.
2. Provides the list of prioritized risks for further actions.

FUNDAMENTALLY RISKY

Agile projects include risks in user stories and as part of backlog work items Teams discuss risks at planning meetings, during the normal course of work Teams place risks in a risk register, use information radiators to ensure visibility and a backlog refinement process that includes constant risk assessment



Probability and Impact Matrix

Use numeric values and/or colours

If using numbers, multiply them to give a probability impact score this makes evaluating relative priority easier!

- This is NOT a quantitative evaluation.

PROBABILITY (LIKELIHOOD)	SEVERITY IMPACT (SEVERITY) 1	2	3	4	5
1	VERY LOW 1	2	3	4	5
2	2	LOW 4	6	8	10
3	3	6	MEDIUM 9	12	15
4	4	8	12	HIGH 16	20
5	5	10	15	20	VERY HIGH 25

Risk Response

Negative Risk Strategies

- Escalate
- Avoid
- Transfer
- Mitigate
- Accept

Positive Risk Strategies

- Escalate
- Exploit
- Enhance
- Share
- Accept

❑ Contingency Plans

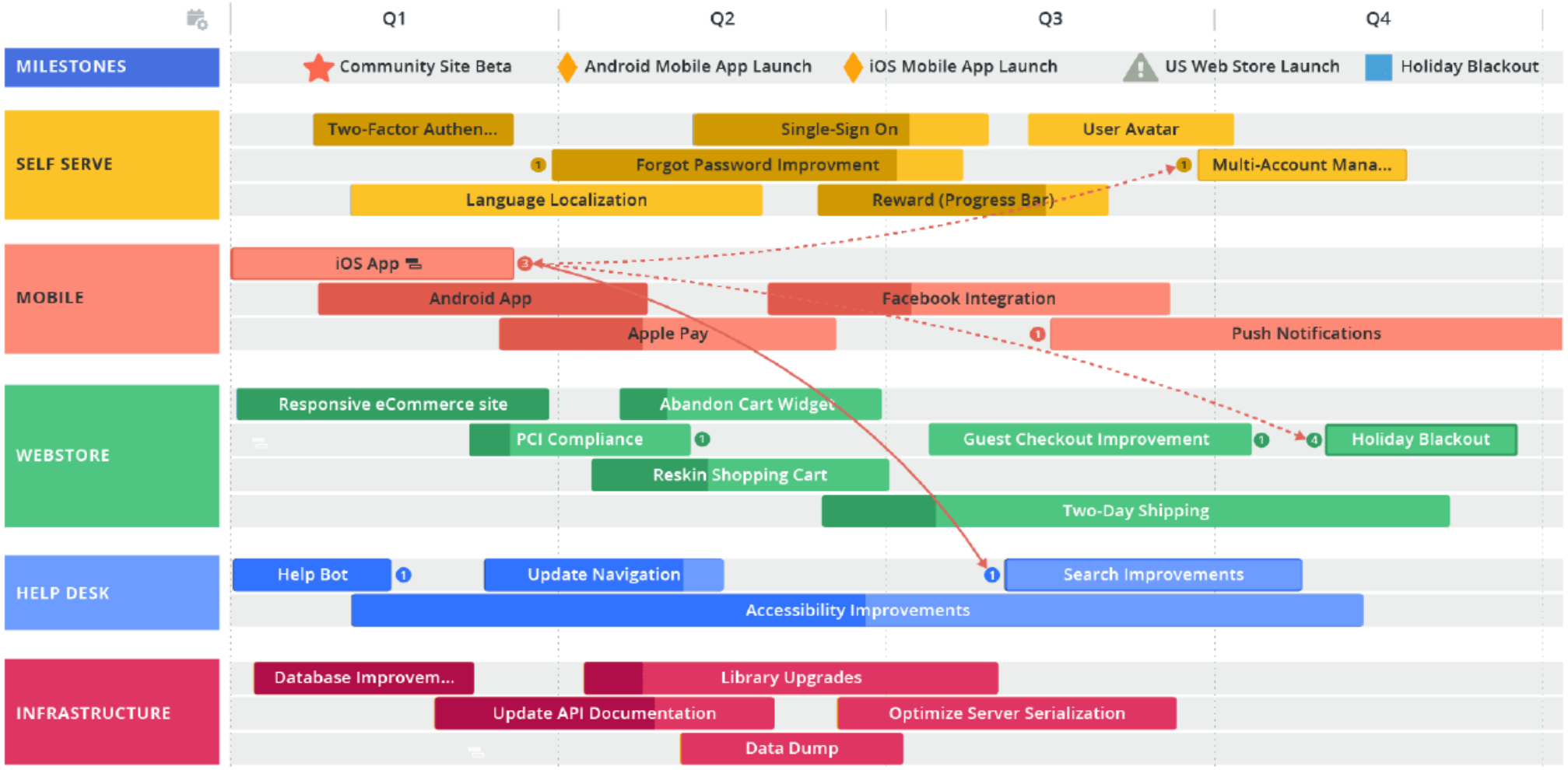
A risk response strategy developed in advance, before things go wrong; it is meant to be used if and when identified risks become reality.

1. Allows a project manager to react quickly and appropriately to the risk event, mitigating its negative impact or increasing its potential benefits.
2. May include a fallback plan for risks with high impact.

Risk ID كود المخاطر	Risk Name اسم المخاطرة	Risk Discerption وصف المخاطرة	Probability الاحتمالية	Impact التأثير	Score نتيجة

Product Road map

Serves as a high-level visual summary of the product or products of the project.



Minimum Viable Product MVP

The smallest collection of features that can be included in a product for customers to consider it functional. In Lean methodologies, it can be referred to as "bare bones" or "no frills"

Minimum Viable Product MVP

- An MVP allows all stakeholders to see and experience some form of project outcomes.
- A tangible output channels target conversations, which generates feedback and ideas.
- MVP provides inspiration to the team and ignites shorter termed urgency and a sense of accomplishment.

Minimum Business Increment MBI

The smallest amount of value that can be added to a product or service that benefits the business.

Minimum Business Increment MBI

- MBI is more viable when an MVP might be disruptive to the users and business, especially when a primary preliminary product to gauge interest is unnecessary.
- MBI works best when:
  - 1 - The product and functions are understood.
  - 2 - An incremental increase in value can be pinpointed.
  - 3 - The delivery of some of that value benefits the business.
- Advantages of MBI:
  - 1 - Enables project team to deliver bits of value sooner.
  - 2 - Helps team validate whether improvement has been captured.
  - 3 - Enables team to build on that success or pivot as needed incrementally.

Project Communication

1. Internal or external stakeholders
2. Formal or informal message content and format
3. Hierarchical focus senior management or peers
4. Official or unofficial annual reports or reports to other governing bodies compared to project team communication
5. Written or oral tone, inflection, and nonverbal gestures are influential

Communications Management Plan

Stakeholder	Communication Method	Frequency	Responsibility	Notes
Key Stakeholders	Project Kickoff Meeting	Start of project	Project Management Office	Both team and client kickoff meetings recommended
	Extranet	Ongoing	Project Management Office	Includes project schedule, key project deliverables, meeting minutes, change request log, issues log
Client Executive	Executive Steering Committee	Monthly - first Wednesday of each month	Account Manager	Review status, milestones met, earned value indicators, key issues
Client Sponsor	Status Meetings Status Report (Email)	Weekly - Friday 2 p.m.	Project Manager	Review project status, schedule, change requests, issues
Development Team	Status Meetings	Weekly - Friday 11 a.m.	Project Manager	Provides input for subsequent meetings with client sponsor
Client Managers	Newsletter (Email)	Weekly - Friday	Project Management Office	
Client Sponsor/Key Client Stakeholders	Client Satisfaction Survey	Monthly/end of each phase	Account Manager/Project Manager	Informal (Monthly) Formal (End of each phase)

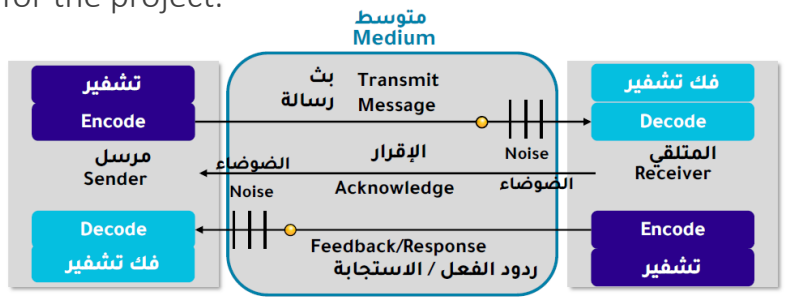
Communication Types , Models & Methods

❑ Communication Type Could Be:

- Face To Face
- Telephone , Mobile
- Email
- Message
- Social Media
- Etc…

❑ Communication Models

A description, analogy, or schematic used to represent how the communication process will be performed for the project.



Communication Methods: A systematic procedure, technique, or process used to transfer information among project stakeholders.

Could be:

1. Interactive
2. Push
3. Pull

Engage Stakeholders

Stakeholder Categories

- Sponsors
- Customers and users
- Sellers
- Business partners
- Organizational groups
- Functional managers
- Other stakeholders

❑ Guidelines to Develop, Execute, and Validate a Strategy for Stakeholder Engagement

Review	Review the project management plan.	مراجعة خطة إدارة المشروع.	مراجعة
Review	Review the stakeholder register.	مراجعة سجل أصحاب المصلحة.	مراجعة
Review	Review Enterprise Environmental Factors (EEFs).	مراجعة العوامل البيئية للمؤسسة.(EEFs)	مراجعة
Review	Review Organizational Process Assets (OPAs).	مراجعة أصول العملية التنظيمية.(OPAs)	مراجعة
Use	Use tools and techniques such as expert judgment.	استخدم الأدوات والتقنيات مثل حكم الخبير.	استخدام
Hold	Hold meetings with experts and the project team.	عقد اجتماعات مع الخبراء وفريق المشروع.	معلق
Use	Use analytical techniques to classify the level of engagement for stakeholders.	استخدم الأساليب التحليلية لتصنيف مستوى المشاركة لأصحاب المصلحة.	استخدام
Document	Document the stakeholder engagement plan.	توثيق خطة إشراك أصحاب المصلحة.	وثيقة

❑ **Stakeholder Engagement Assessment Matrix** is a matrix that compares current and desired stakeholder engagement levels.

Stakeholder إصحاب المصلحة	Unaware غير مدرك	Resistant مقاوم	Neutral محايد	Supportive داعم	Leading قيادي
Stakeholder 1 **صاحب المصلحة1**	C			D	
Stakeholder 2 **صاحب المصلحة2**			C	D	
Stakeholder 3 **صاحب المصلحة3**				C	D

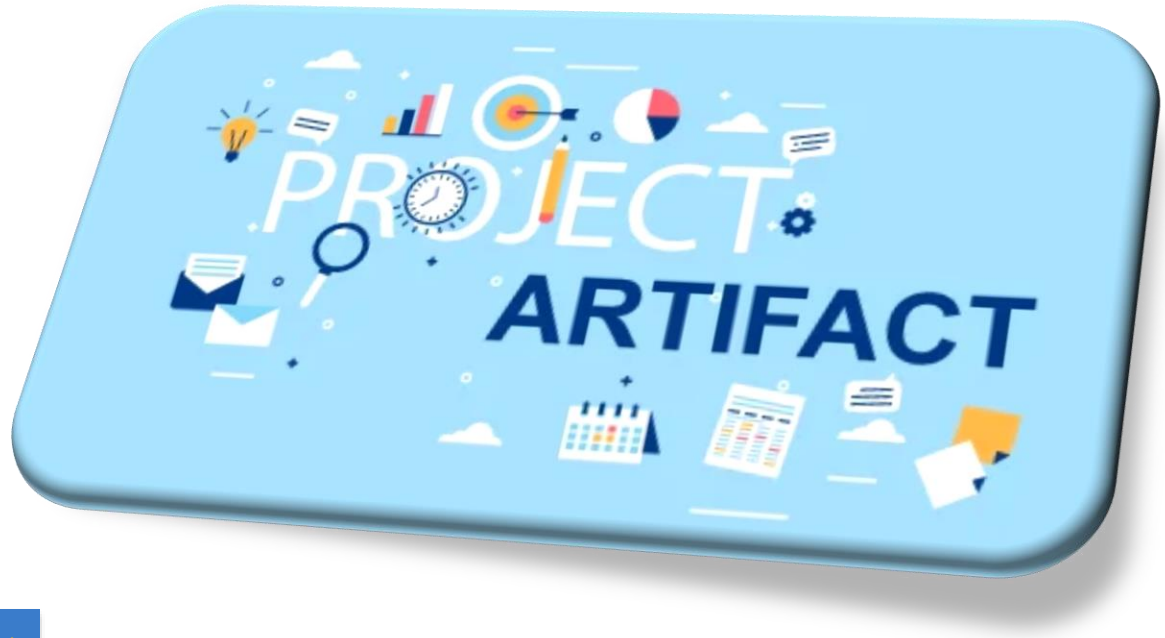
C = Current engagement level **D = Desired engagement level**

D = مستوى المشاركة المطلوب **C= مستوى المشاركة الحالي**

Create Project Artifacts

1. Project artifact

Any document related to the management of a project. The project team will create and maintain many artifacts during the life of the project, to allow reconstruction of the history of the project and to benefit other projects.



Project artifacts might include:

- Acceptance Criteria
- Assumptions
- Business Case
- Change Requests
- Constraints
- Lessons learned
- Minutes of status meetings
- Project Charter
- Slide decks
- Requirements
- Scope
- Scope Baseline
- Subsidiary project management plans

Artifacts unique to agile projects:

- Product Backlog
- Product Increment
- Product Roadmap
- Product Vision Statement
- Release Plan
- Sprint Backlog

Change Management Plan

A component of the project management plan that establishes the change control board, documents the extent of its authority, and describes how the change control system will be implemented.

It should answer the following questions:

1. Who can propose a change?
2. What exactly constitutes a change?
3. How to evaluate the impact of the change on the project's objectives?
4. What steps are necessary to evaluate the change request before approving or rejecting it?
5. When a change request is approved, what project documents must be amended to record the actions necessary to effect the change?
6. How will these actions be monitored to confirm that they have been completed satisfactorily?

Causes of Project Changes

- ❑ Inaccurate initial estimates
- ❑ Specification changes
- ❑ New regulations
- ❑ Missed requirements

❖ Change Control Systems

A set of procedures that describes how modifications to the project deliverables and documentation are managed and controlled.

Change control systems can include:

1 - Forms

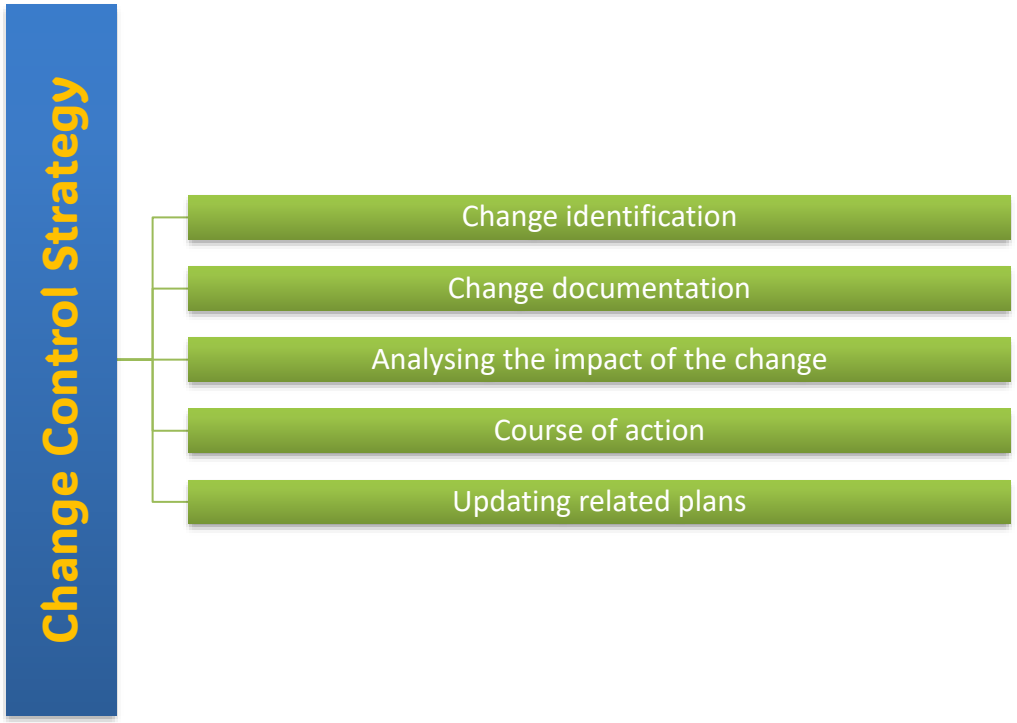
2 – Tracking Methods

3 – Processes

4 - Approval levels required for authorizing or rejecting requested changes

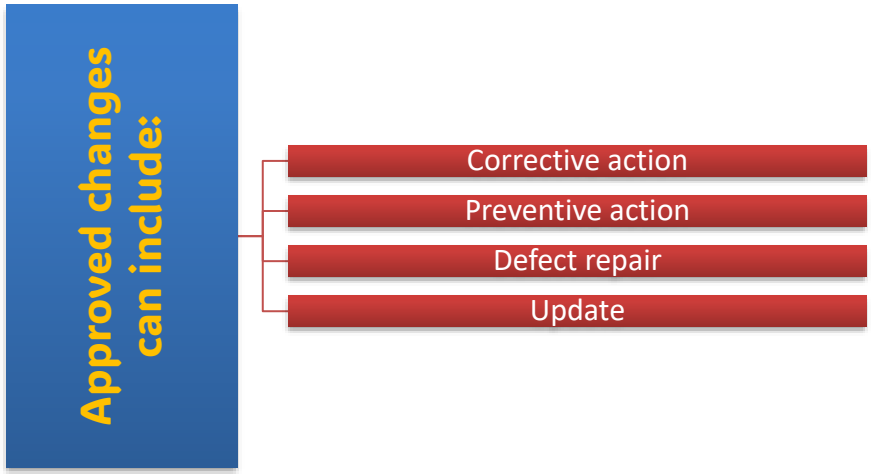
❖ Change Control Board (CCB)

A formally chartered group responsible for reviewing, evaluating, approving, delaying, or rejecting changes to the project, and for recording and communicating such decisions.



❖ Approved Change Requests

Requests that have been received and approved in accordance with the integrated change control plan and are ready to be scheduled for implementation.



Manage Project Issues

Issue

A current condition or situation that may have an impact on the project objectives. In other words, it is an action item that the project team must address.

Include the following:

1. Scope change control
2. Schedule control
3. Cost control
4. Project variance analysis
5. Quality
6. Risk
7. Procurement
8. Communications

Risks

1. Focused on the future
2. Can be positive or negative
3. Is documented in the Risk Register
4. Response is called a risk response

Issues

1. Focused on the present
2. Will always be negative
3. Is documented in the Issue Log
4. Response is called a workaround

Issue Log

A document where information about issues is recorded and monitored. It is used to track problems, inconsistencies, or conflicts that occur during the life of the project and require investigation in order to work toward a resolution.

Issue resolution

1. As issues arise, promptly add them to the issue log .
2. Each issue should have an owner who is responsible for tracking the progress of the workaround and reporting back to the project manager.
3. The due date should be realistic , and every reasonable attempt should be made to meet it.
4. Issues should be a regular topic of every status meeting , with the goal to keep the number of open issues to a manageable number.
5. Don’t hesitate to escalate an issue to the project sponsor if it begins to have a major effect on the project.

Types of Knowledge

❑ Explicit knowledge:

1. Knowledge that can be codified using symbols such as words, numbers, and pictures.
2. This type of knowledge can be documented and shared with others.

❑ Tacit knowledge

1. Personal knowledge that can be difficult to articulate and share such as beliefs, experience, and insights.
2. This type of knowledge is essential to provide the context of explicit knowledge.

Lessons Learned

- Knowledge gained during project can be useful to subsequent phases of a project and to other projects.
- Both positive and negative experiences that occur throughout the project life cycle.
- Reinventing the wheel is both time-consuming and costly.
- The amount of time and effort on documenting lessons learned can pay big dividends in the future.

❑ Lessons learned register

A project document used to record knowledge gained during a project so that it can be used in the current project and entered the lessons learned repository.

❑ Lessons learned repository

A store of historical information about lessons learned in projects.

Lessons-Learned Register
تسجيل الدروس المستفادة

Lessons-Learned Repository
مستودع الدروس المستفادة

Project Manager Responsibilities

The project manager has several interpersonal skills that are used to manage knowledge. These include:

Leadership

to communicate the organization s vision and inspire the project team to focus on the goals of the project.

Facilitation

to effectively guide a group to a successful solution to a problem.

Political awareness

to keep the project manager aware of the organization s political environment.

Networking

to facilitate relations among project stakeholders so that knowledge is shared at all levels.

KEEPING THE TEAM ON TRACK

- Lead a team
- Support Team Performance
- Address and remove impediments, obstacles, and blockers
- Manage conflict
- Collaborate with stakeholders
- Mentor relevant stakeholders
- Apply emotional intelligence to promote team performance

1. Lead a team

Vision and Mission

The project manager is the visionary leader for the project:

Educating the team and other stakeholders about the value achieved or targeted

Promoting teamwork and collaboration

Assisting with project management tools and techniques

Removing roadblocks

Articulating the project s mission

Leadership skills

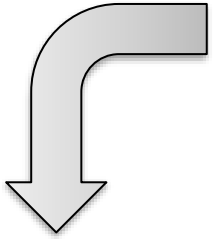
- ❑ Conflict management
- ❑ Cultural awareness
- ❑ Decision making
- ❑ Facilitation
- ❑ Meeting management
- ❑ Negotiation
- ❑ Networking
- ❑ Observation/conversation
- ❑ Servant Leadership
- ❑ Team building

Leadership Traits

Inaccurate initial estimates

- ❑ Strong personal ethics, integrity, and trustworthiness
- ❑ Interpersonal skills (communicator, collaborator)
- ❑ Conceptual and analytical skills

Leadership ≠ Management



Leadership Styles

- ❑ Experience with project type
- ❑ Team member maturity
- ❑ Organizational governance structures
- ❑ Distributed project teams

Style	Characteristic
Direct	Hierarchical, with project manager making all decisions
Consultative	Leader factors in opinions, but makes the decisions
Servant Leadership	Leader models desired behaviours
Consensus / Collaborative	Team operates autonomously
Situational	Style changes to fit context and maturity/experience of team

1. Lead a team

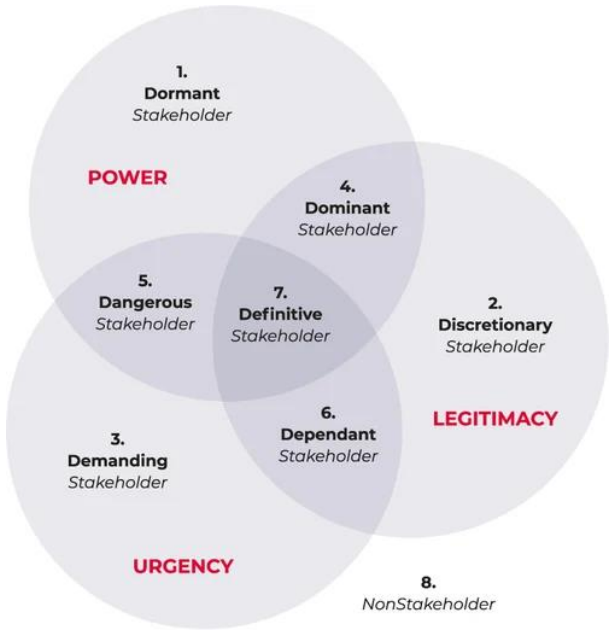
Servant Leadership

A type of leadership commonly used in Agile which encourages the self-definition, self-discovery, and self-awareness of team members by listening, coaching, and providing an environment which allows them to grow.

- ❑ Focus on Accomplishments
- ❑ Remove work Impediments
- ❑ Provide coaching and training
- ❑ Facilitate rather than manage

Salience model

A classification model that groups stakeholders based on their level of authority, their immediate needs, and how appropriate their involvement is in the project.



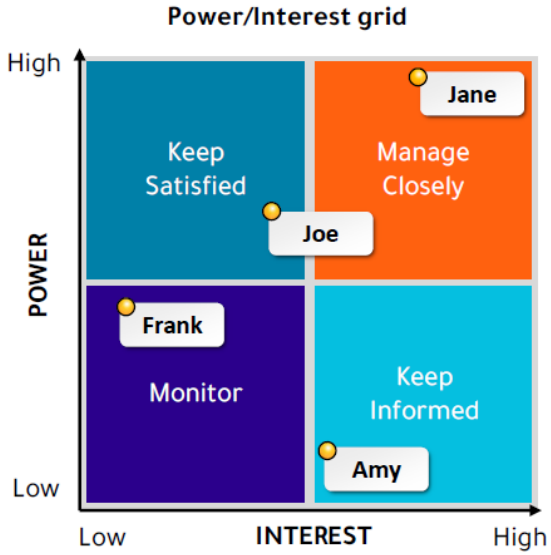
Power Grids

Power/interest Grid

Groups stakeholders based on their levels of authority and interest in the project.

Power/influence Grid

A classification model that groups stakeholders based on their levels of authority and involvement in the project.



2. SUPPORT TEAM PERFORMANCE

Keeping the Team on track

The project manager take care of the below points:

- ❑ Lead a Team
- ❑ Support Team Performance
- ❑ Address and Remove Impediments, Obstacles, and Blockers
- ❑ Manage Conflict
- ❑ Collaborate with Stakeholders
- ❑ Mentor Relevant Stakeholders
- ❑ Apply Emotional Intelligence to Promote Team Performance

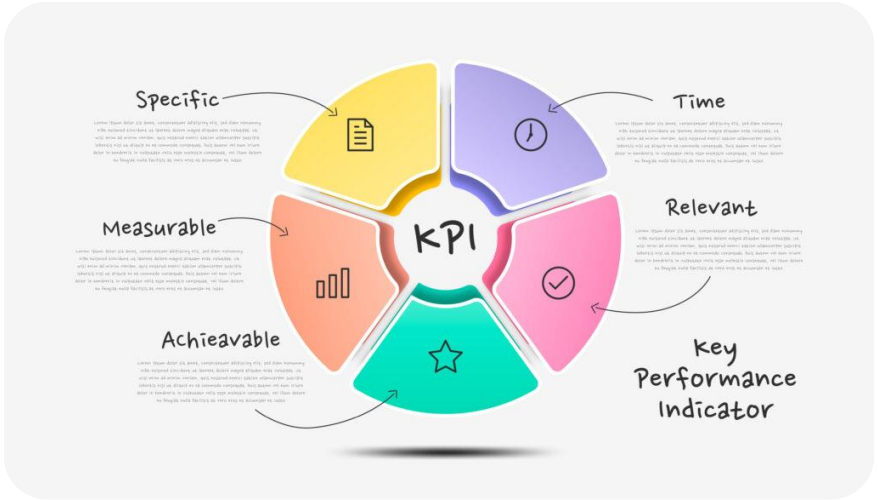
The Project manager Role

- ❑ Ensures alignment of due dates — project deliverables, project life cycle and benefits.
- ❑ Provides a project management plan.
- ❑ Ensures creation and use of appropriate knowledge to/from the project.
- ❑ Manages project performance and changes to project activities.
- ❑ Makes integrated decisions about key changes that impact the project.
- ❑ Measures and monitors progress and takes appropriate action.
- ❑ Collects, analyses and communicates project information to relevant stakeholders
- ❑ Ensures completion of all project work and formally closes each phase, contract and the project.
- ❑ Manages phase transitions when necessary.

These tasks cannot be delegated (✗)

Key Performance Indicators (KPI)

A set metric used to evaluate a team's performance against the project vision and objectives. KPIs can use the SMART acronym.

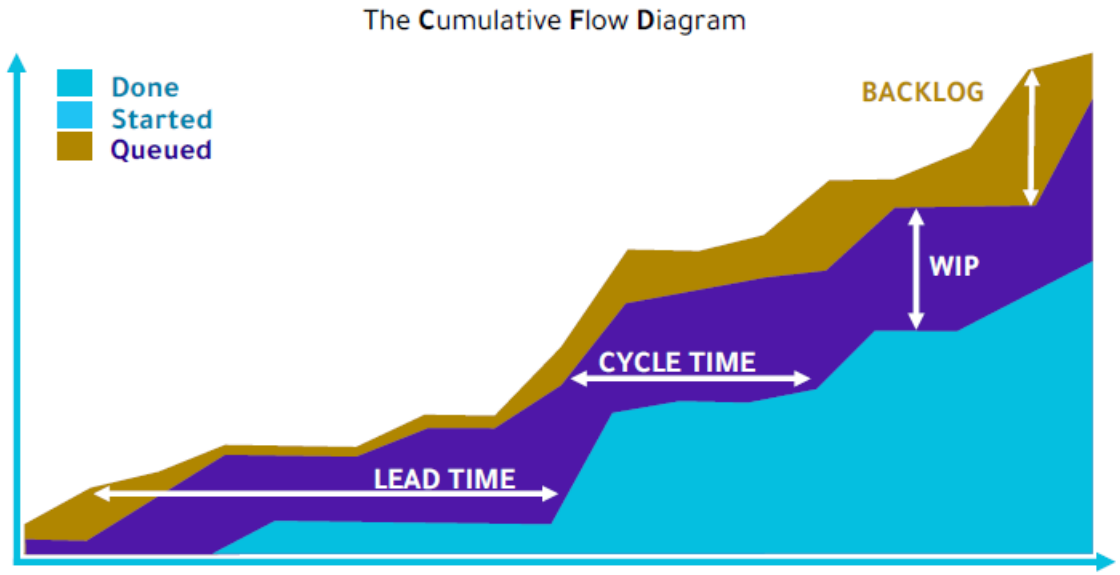


2. SUPPORT TEAM PERFORMANCE

Continuous Flow Diagram

Measure Throughput, Lead and Cycle Time

- ❑ WIP - Measure of work in progress but not completed
- ❑ Lead time - Length of time work item goes through entire process
- ❑ Cycle time - Length of time work item is being worked on
- ❑ Throughput - Number of items entering or exiting the system



Physical Resource Management

Means physical resources (not human)

- ❑ Equipment
- ❑ Materials
- ❑ Facilities
- ❑ Infrastructure

1. Ensures assigned resources are available “just in time”(JIT) and released when no longer needed.
2. Ensures physical resources assigned are available as planned.
3. Monitors planned vs actual utilization of resources.
4. Performs processes throughout the project.

Update Resource Allocation

- ❑ What has been used to date?
- ❑ What is still needed?
- ❑ Review performance usage to date, including:
    1. Monitoring expenditures
    2. Identifying and dealing with resource shortage/surplus promptly
    3. Ensuring resource use and release
    4. Informing stakeholders of issues with relevant resources
    5. Influencing factors that can create changes in resource utilization
    6. Managing changes as they occur
- ❑ Changes that impact schedule or cost baselines must be approved through Perform Integrated Change Control.

2. SUPPORT TEAM PERFORMANCE

Evaluate and Manage Quality

Project manager uses Control Quality process to

- ❑ Verify that deliverables meet functional and nonfunctional requirements
- ❑ Identify and suggest improvements
- ❑ Verify alignment with compliance requirements
- ❑ Give feedback on any identified variances
- ❑ Identify potential approaches to cure defects or other noncompliance

- ❑ Team, customer and product owner are responsible for setting and meeting quality goals and metrics
- ❑ Feedback from iterations continuously monitor quality
- ❑ Measure performance of quality with:
  - Service-level agreements (SLAs)
  - KPIs
  - Contractual measures
  - Quality methods/frameworks — e.g., Lean Six Sigma

Verify Deliverables

1. Project team verifies deliverables based on quality standards and requirements:
   - ❑ Quality metrics
   - ❑ Tolerance

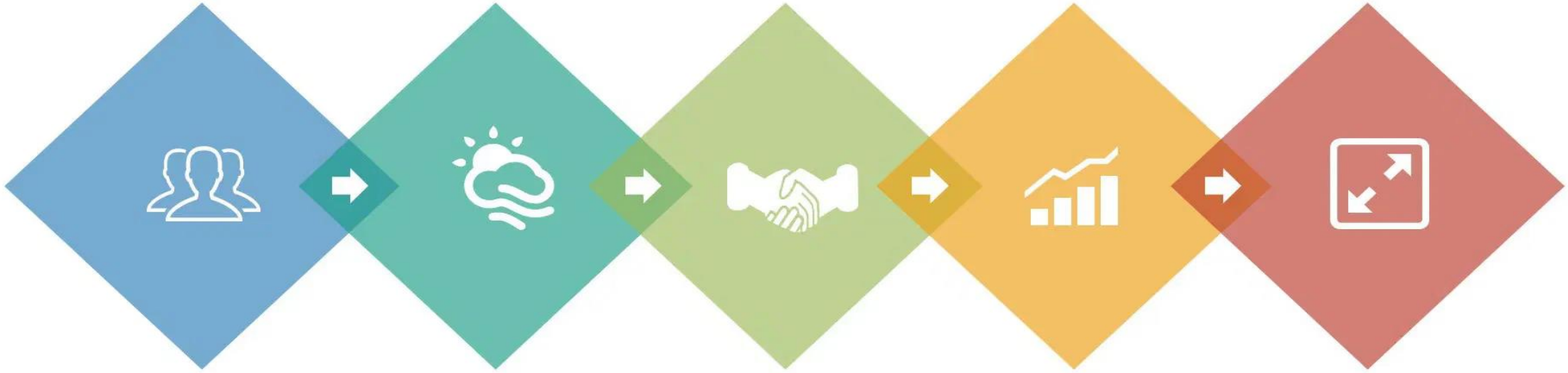
2. The verified deliverables are presented to and accepted (validated) by the customer – resulting in accepted deliverables

3. Measure products and outputs against the project's quality standards

4. Implement corrections and controls when quality standards are neither met nor within acceptable ranges
   - ❑ Itération H (agile) – qualité assurance cycle
   - ❑ Sprint/iteration review in Scrum

2. SUPPORT TEAM PERFORMANCE

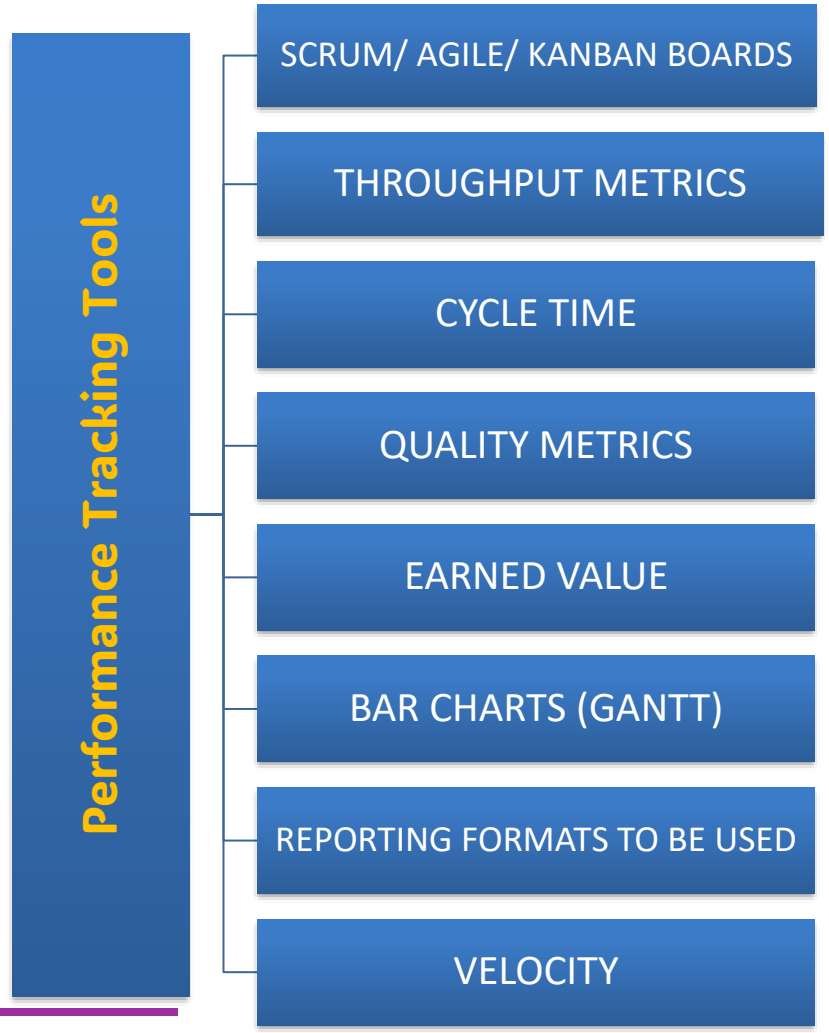
Team Development Stages



Forming	Storming	Norming	Performing	Adjourning
The forming stage occurs when team members first come together as a team.	During the storming stage, teams discover teamwork is more difficult than they expected.	The norming stage begins as the team moves beyond the storming stage and begins to function as a team.	When a team reaches the performing stage it is functioning as a high performance team.	Breaking up the team when the required task is complete.

2. SUPPORT TEAM PERFORMANCE

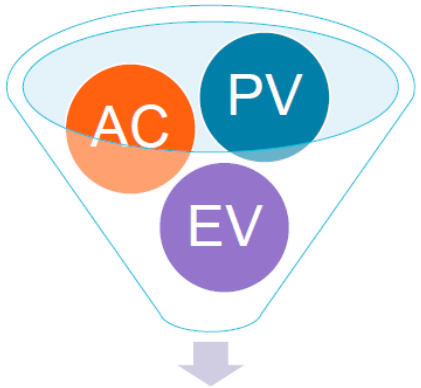
Performance Tracking Tools



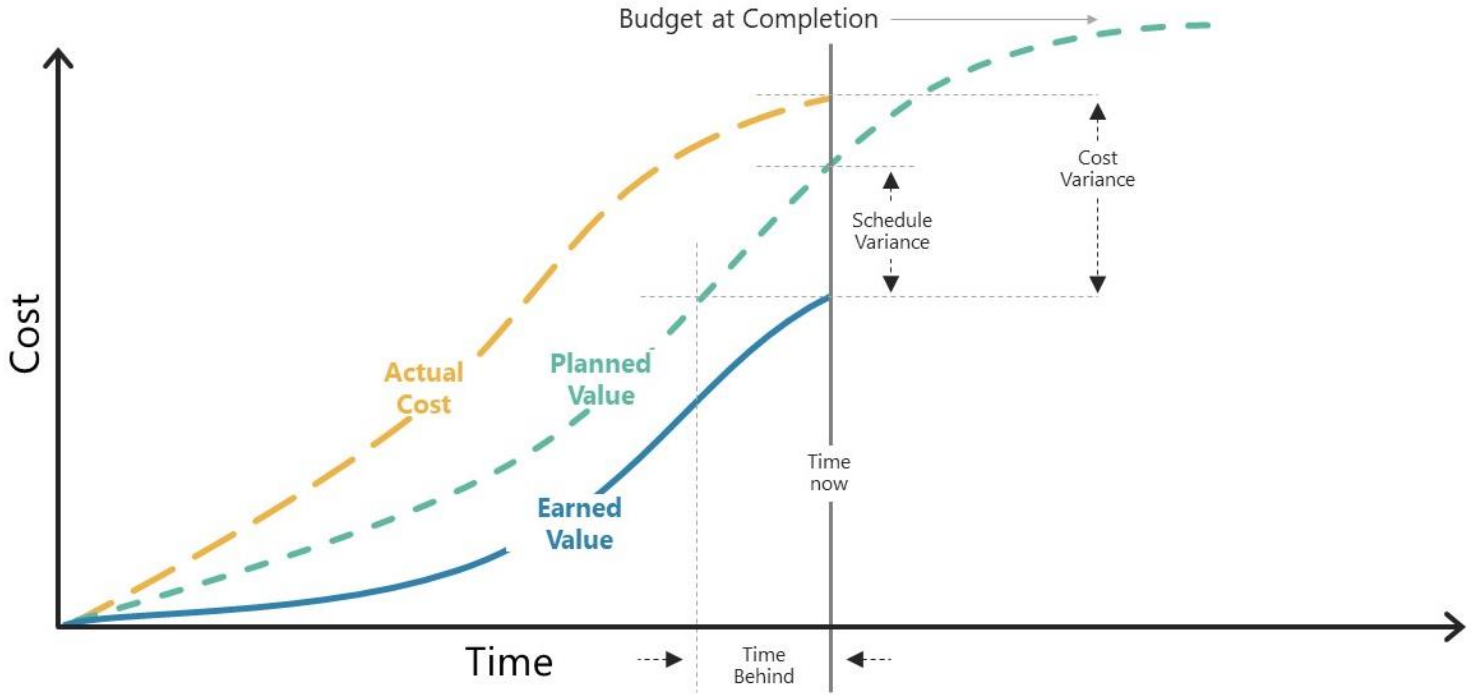
2. SUPPORT TEAM PERFORMANCE

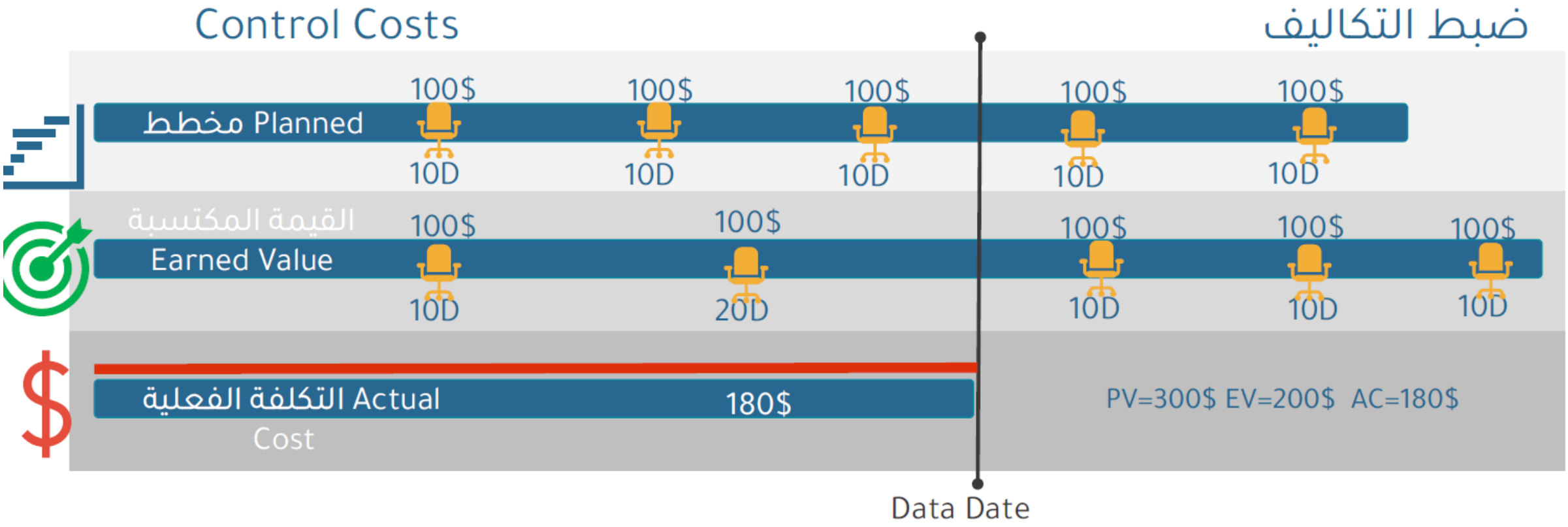
Earned Value Management (EVM)

A methodology that combines scope, schedule, and resource measurements to assess project performance and progress.

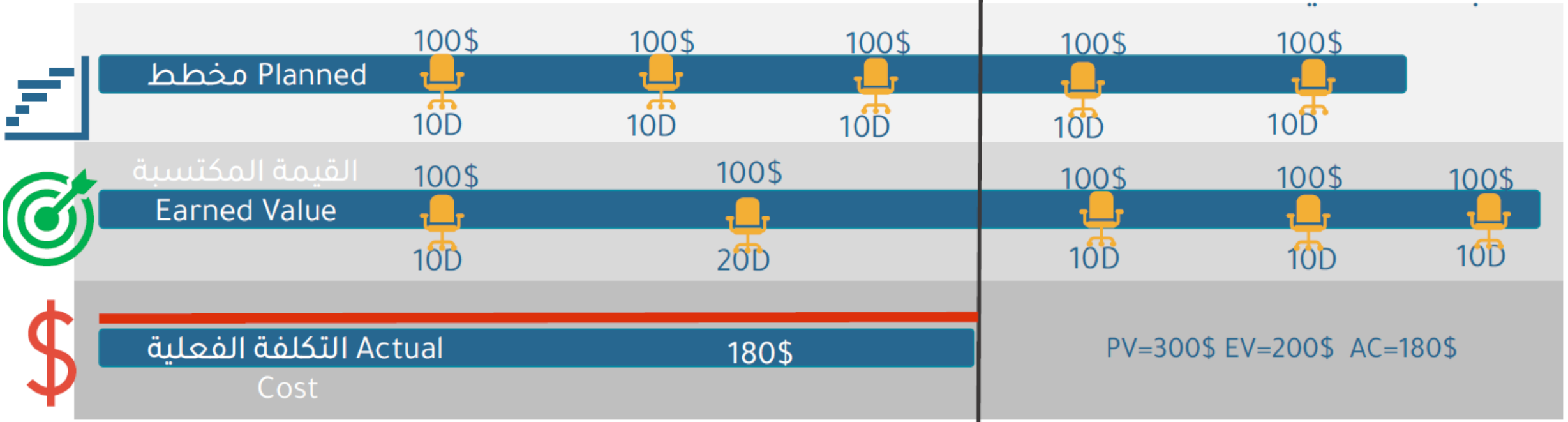


تباين الجدول والتكلفة Schedule and Cost Variance




Control Costs
ضبط التكاليف
100$
100$
100$
100$
100$
Planned مخطط
10D
10D
10D
10D
10D
القيمة المكتسبة
Earned Value
100$
100$
100$
100$
100$
10D
20D
10D
10D
10D
Actual التكلفة الفعلية
Cost
180$
PV=300$ EV=200$ AC=180$
Data Date

Control Costs ضبط التكاليف



Cost variance & schedule variance تباين الكلفة والجدول الزمني

Data Date

CV = EV - AC = 200 - 180 = 20

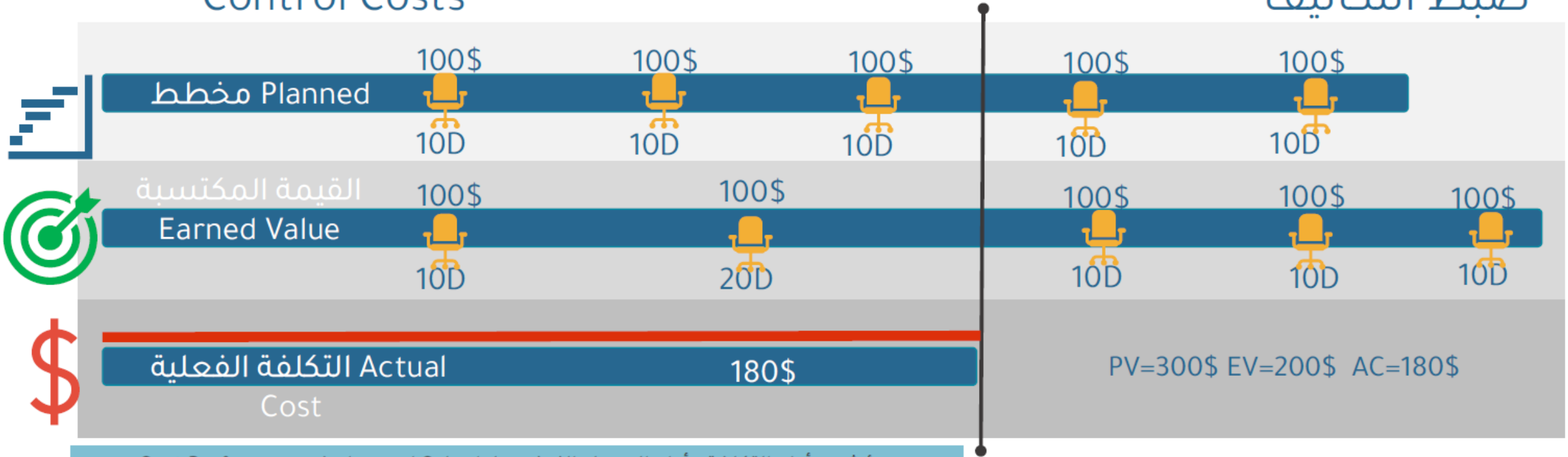
Positive = Under planned cost أقل من التكلفة المخططة
Neutral = On planned cost طبقا للتكلفة المخططة
Negative = Over planned cost أعلي من التكلفة المخططة

SV = EV - PV = 200 - 300 = -100

Positive = Ahead of Schedule متقدم عن البرنامج الزمني
Neutral = On schedule طبقا للجدول الزمني
Negative = Behind Schedule متأخر عن البرنامج الزمني

Control Costs

ضبط التكاليف



Cost Performance Index and Schedule Performance Index مؤشري أداء التكلفة وأداء الجدول الزمني

CPI = EV / AC = 200 / 180 = 1.1

Greater than 1.0 = Under planned cost أقل من التكلفة المخططة

Exactly 1.0 = On planned cost طبقا للتكلفة المخططة

Less than 1.0 = Over planned cost أعلي من التكلفة المخططة

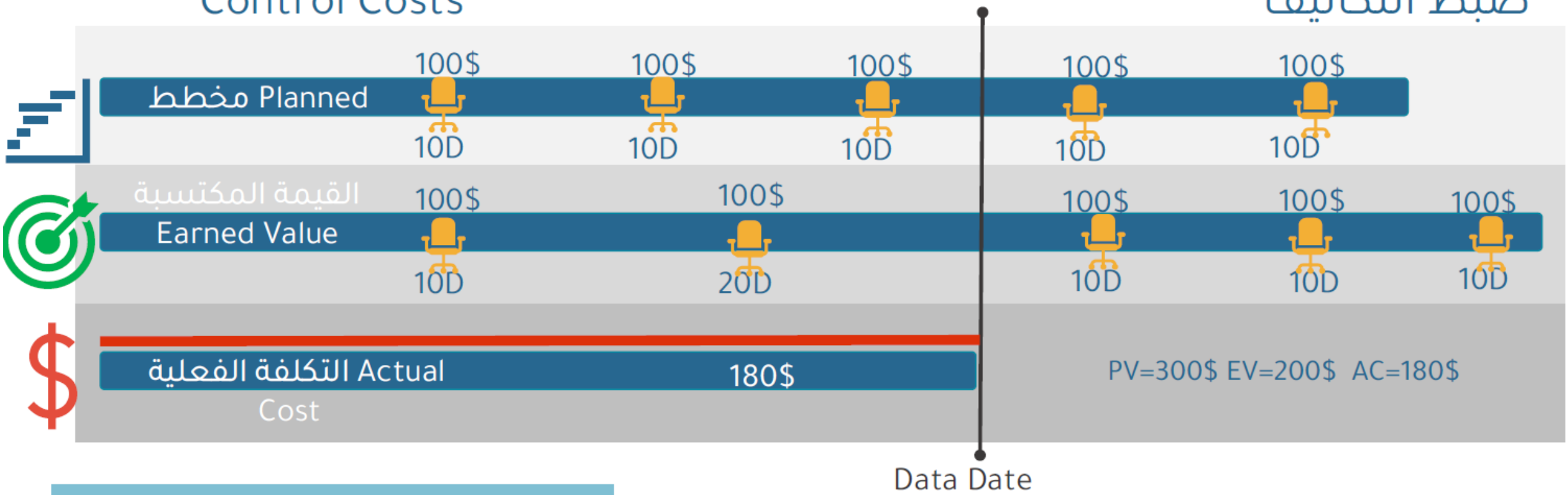
SPI = EV / PV = 200 / 300 = 0.67

Greater than 1.0 = Ahead of schedule كتقدم عن البرنامج الزمني

Exactly 1.0 = On schedule طبقا للجدول الزمني

Less than 1.0 = Behind schedule متأخر عن البرنامج الزمني

Control Costs ضبط التكاليف



Estimation at completion EAC التقدير عند الانتهاء

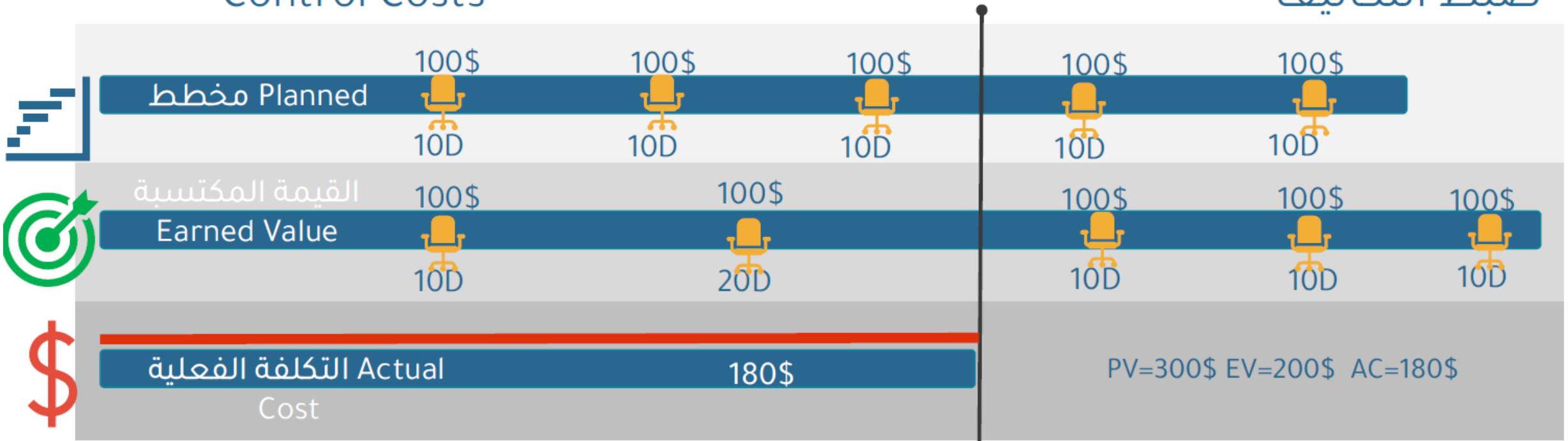
EAC

BAC/CPI = 500 / 1.1 = 454.5

إذا كان من المتوقع أن يكون مؤشر أداء التكاليف هو نفسه بالنسبة لبقية الأعمال

If the CPI is expected to be the same for the remainder of the project

Control Costs ضبط التكاليف



Estimation to completion ETC ETCالتقدير حتى الإكمال

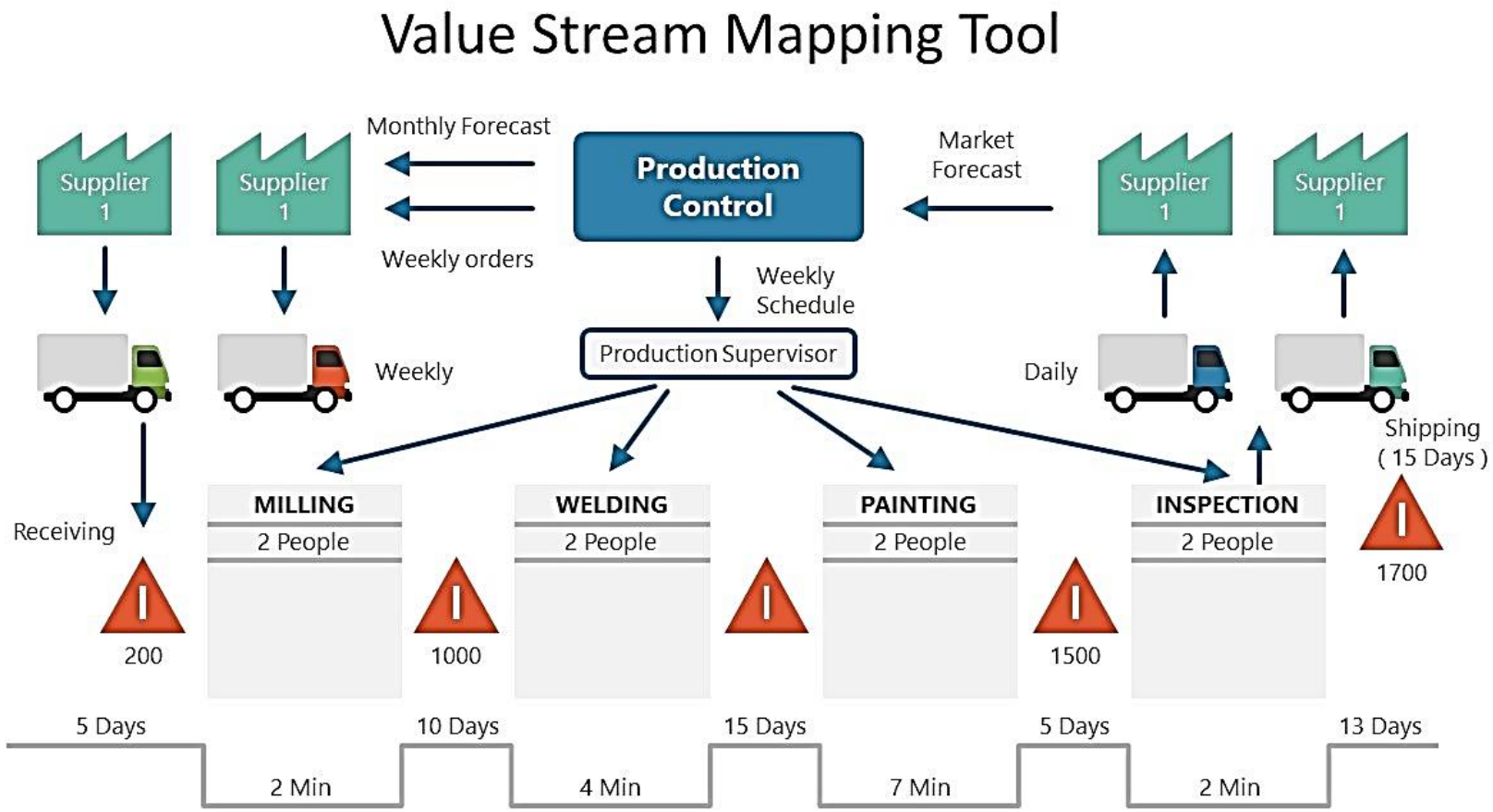
ETC = EAC-AC

454 -180 = +274

2. SUPPORT TEAM PERFORMANCE

Value Stream Map

A lean enterprise technique used to document, analyse, and improve the flow of information or materials required to produce a product or service for a customer.



3. ADDRESS AND REMOVE IMPEDIMENTS, OBSTACLES, AND BLOCKERS

Impediment

An obstacle that prevents the team from achieving its objectives.

Impediments

reference situations, conditions, and actions that slow down or hinder progress. (For example, the team not coming to a decision on a file saving location.)

Obstacles

reference barriers that should be able to be moved , avoided, or overcome with some effort or strategy. (For example, the construction crew is unable to arrive at the worksite before permits are signed)

Blockers

reference events or conditions that cause stoppages in the work or any further advancement. (For example, the company has halted the use of any products in a certain firm until a new contract is signed.)

Daily standups or Daily Scrum

A brief, daily collaboration meeting in which the team reviews progress from the previous day, declares intentions for the current day, and highlights any obstacles encountered or anticipated.

- ❑ Conducted at the start of working hours.
- ❑ Presence of all team members involved in the Sprint is mandatory.
- ❑ During the meeting, these questions are answered:

4. MANAGE CONFLICT

The Project Manager Role

- ❑ Managing conflict is a responsibility of all stakeholders.
- ❑ The PM heavily influences the direction and handling of conflict.
- ❑ Interpersonal and team skills help to ensure positive results when handling conflict.
- ❑ In agile projects, the PM facilitates conflict resolution while the team is empowered to resolve conflicts.
- ❑ As a servant leader, a PM assists in the removal of impediments or sources of conflict.

Conflict Management Approaches

- Withdraw/Avoid
- Smooth/Accommodate
- Compromise/Reconcile
- Force/Direct
- Collaborate/Problem Solve

تطبيق إستراتيجية واحدة أو أكثر للتعامل مع الخلافات

Application of one or more strategies to deal with disagreements

تؤدي الإدارة الفعالة للنزاع إلى تحسين الفهم والأداء والإنتاجية

Effective conflict management leads to improved understanding, performance, and productivity

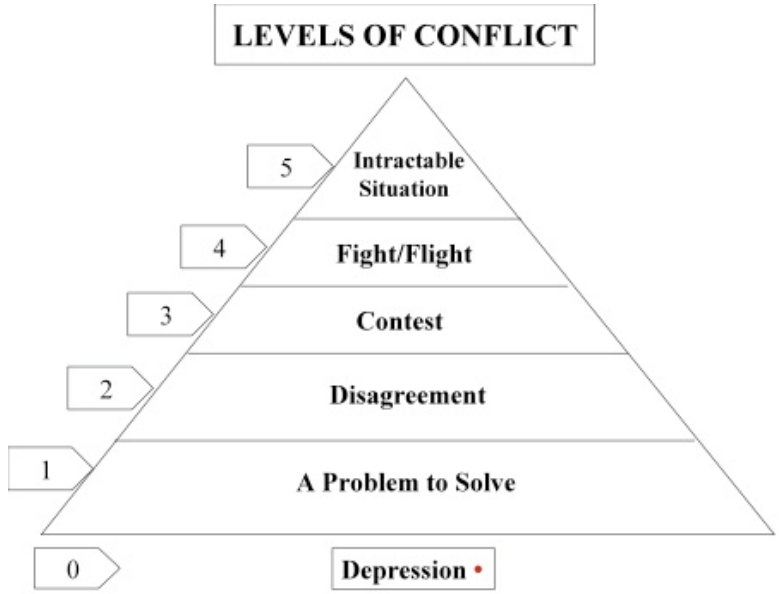
تؤدي إدارة الخلاف غير الفعالة إلى: Ineffective conflict management leads to

الإنتاجية الضعيفة	الأداء الضعيف	الكراهية	السلوك المدمر
Reduced productivity	Poor performance	Animosity	Destructive behavior

استخدم طرق حل الخلافات المختلفة

Use various conflict resolution methods

Use Leas ' Levels of Conflict



5. Collaborate with Stakeholders

Project Stakeholders register

A project document including the identification, assessment, and classification of project stakeholders.

STAKEHOLDER REGISTER

Name	Organization	Project Role	Major Requirements	Expectations	Influence	Areas of Interest	Internal/External	Supporter?
Linda Michaels	CEO	Sponsor	Budget, schedule, quality	Community involvement	Major	Community	Internal	Yes
Ron Gordon		Mortgage lenders		Growth	Major	Development	External	Yes
	Community		Neighborhood improvements		Minor	House	External	Yes
Andrews family		Homeowners		Engage family and friends				Yes
	Lumber warehouse	Vendor			Major	Locally sourced supplies		
		Project Manager		Project goes as planned	Major	All	Internal	Yes

Stakeholder Engagement Plan

A component of the project management plan that identifies the strategies and actions required to promote productive involvement of stakeholders in project or program decision making and execution. It could contain:

Collaboration Activities

- ❑ Stakeholders collaborate daily in a project.
- ❑ Frequency of engagement is based on mutual needs and expectation.
- ❑ Nearly constant engagement is common.

Activities that encourage regular collaboration include:

1. Daily stand-up meetings
2. Co locating teams for face-to-face communication
3. Scheduled sessions, such as milestone reviews , backlog grooming sessions , and project update meetings.

❑ Determining and optimizing collaboration activities is an ongoing team effort spearheaded by the project manager.

- Desired and current engagement level of key stakeholders.
- Scope and impact of change to stakeholders.
- Identified interrelationships and potential overlap between stakeholders.
- Stakeholder communication requirements
- Information to be distributed to stakeholders.
- Reason for the distribution of that information and
- the expected impact to stakeholder engagement.
- Time frame and frequency for the distribution of required information.
- Method for updating and refining the stakeholder engagement plan.

6. Mentor Relevant Stakeholders

Coaching and Mentoring

- ❑ Coaching and mentoring others helps them become more proficient team members.
- ❑ Raising the abilities of the team increases their output and their value.
- ❑ Increasing the knowledge base and the skill sets of all project stakeholders promotes more successful and effectively managed projects.
- ❑ With limited time and resources, you must make sacrifices on how to mentor others.
- ❑ Start mentoring the relevant stakeholders in a project and expand from there throughout the organization.

Coaching and Mentoring

- ❑ When refining the backlog, mentoring the product owner on grooming best practices.
- ❑ When onboarding a new project team member, guiding her on the processes used by the team.
- ❑ When a team member must purchase material for the project, showing them the procurement best practices and process for the organization.

Transformation Skills

7. Apply Emotional Intelligence to Promote Team Performance

Emotional Intelligence

EI helps you understand your emotions and those of others to help minimize conflict.

Personal Skills

Self-awareness

Self-regulation

Motivation

مهارات شخصية

الوعي الذاتي

التنظيم الذاتي

الحافز

Interpersonal Skills

Social skills

Empathy

مهارات التعامل مع الآخرين

1.مهارات اجتماعية

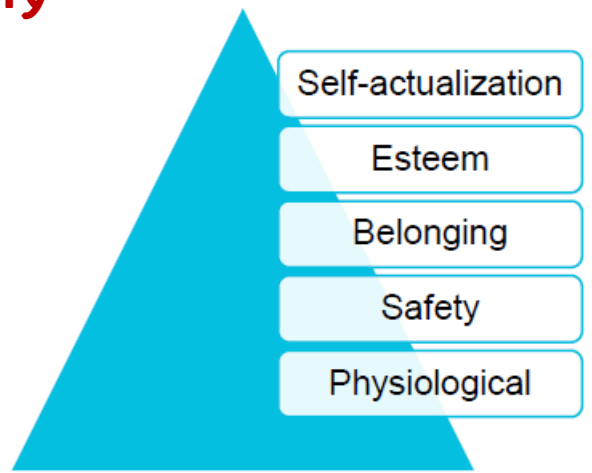
2.التعاطف

Organizational theory:

The study of how people, teams, and organizations behave.

Purpose of organizational theory

- ❑ Maximize efficiency and productivity.
- ❑ Solve problems.
- ❑ Motivate people.
- ❑ Meet stakeholder requirements.



Maslow's Hierarchy of Needs

Keeping the business in mind

Manage Compliance Requirements

Evaluate and Deliver Project Benefits and Value

Evaluate and Address Internal and External Business Environment Changes

Support Organizational Change

Employ Continuous Process Improvement

Manage compliance requirements

1 . Compliance Requirements

- Most projects have aspects of their solutions that are subject to legal or regulatory constraints.
- The requirements for compliance must be identified, tracked, and managed throughout the project.
- Might include requirements for specific practices, privacy laws, handling of sensitive information, and many other areas.

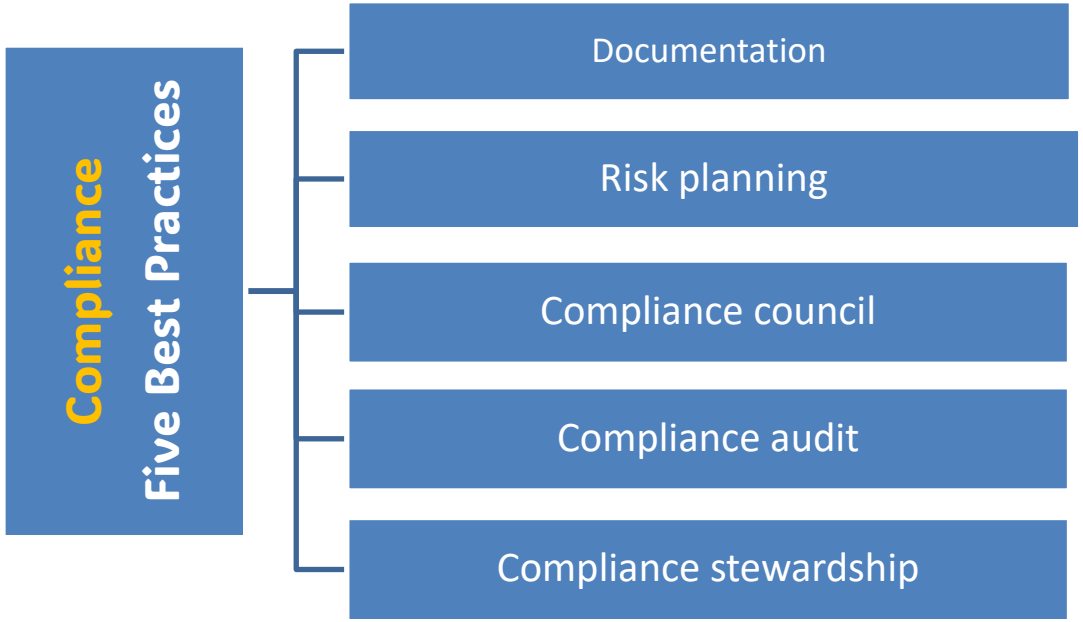
2. Risk Register

-

A risk register is a brief yet informational document that includes many key components that help businesses and individuals identify, assess, and mitigate any risks associated with projects at each phase, from start to finish. These components include the

3. Configuration Management System

- Used to **track and record the project's deliverable components**, including a description and the defined key attributes.
- Allows for **tracking, versioning, and control**.
- Compliance information, including proof of validation that each deliverable **meets identified compliance requirements**.
- **Handed over with the deliverables** so customer can continue to track in their configuration management system.



Potential Threats to Compliance

- Identification of new Vulnerabilities
- Changes in legal or regulatory requirements.
- Errors in testing and validation to confirm compliance.
- Errors or bugs in deliverables.
- Lack of awareness of compliance requirements.

4 . Nonfunctional Requirements

The project manager may find certain compliance requirements are documented as nonfunctional and thus need to be tracked and managed to ensure that the solution provides not only the expected functionality but also the needed level of warranty.

5. Tolerances

Tolerance levels enable the project manager to effectively manage certain issues without needing to escalate every issue.

Areas of tolerance might include:

- ❑ Budget
- ❑ Time
- ❑ Quality
- ❑ Nonfunctional

6. Escalation Procedures

noncompliance issue is identified

if it's within the tolerance level for the project manager to handle

IF YES

If yes, the project manager and team work together to propose a resolution.

if it's within the tolerance level for the project manager to handle

IF No

If beyond the tolerance level, then escalate the issue for adjudication.

For all compliance requirements, identify the stakeholder responsible for reviewing the noncompliance issue and determine how the team will proceed.

These procedures should be defined during project and risk planning.Manager

❖ As the project team produces deliverables, QA will:

- ❑ Review the deliverable.
- ❑ Verify that it meets both functional and nonfunctional requirements.
- ❑ Possibly, identify and propose potential improvements

❖ QA validates whether the deliverables align with compliance requirements and provides feedback on any variances identified and potential approaches to cure any defects or other noncompliance.

❖ As the project continues, monitor the QA reports and recommendations and coordinate with the project team to address defects or noncompliance issues.

8. Quality Management Plan

❖ Quality requirements might include:

- ❑ Quality standards to be used
- ❑ Quality objectives of the project
- ❑ Quality roles and responsibilities
- ❑ Project deliverables and processes subject to Quality review.
- ❑ Quality Control and Quality Management activities planned for the project.
- ❑ Quality tools that will be used.
- ❑ Major procedures relevant for dealing with nonconformance, corrective action procedures, and continuous improvement procedures.

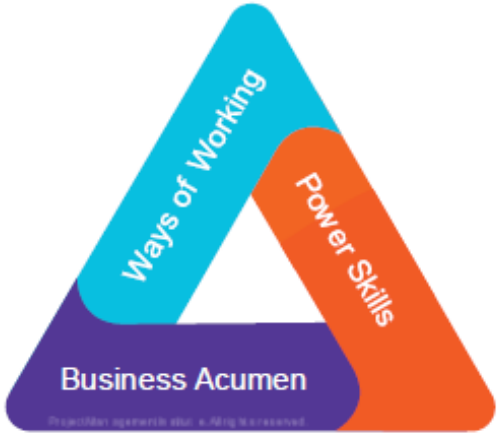
QA Tools

- ❑ Data gathering
- ❑ Data analysis
- ❑ Decision making techniques
- ❑ Data representations
- ❑ Audit reports
- ❑ Design for X
- ❑ Problem solving techniques
- ❑ Quality management methods: Six Sigma, Plan-Do-Check-Act

Evaluate and deliver project benefits and value

PMI Talent Triangle®

The PMI Talent Triangle® reflects the skills needed by today's project professionals and changemakers as they navigate the evolving world of project management.



- ❑ Ways of Working

Mastering diverse and creative ways (predictive, adaptive, design thinking) to get any job done.

- ❑ Power Skills

The critical interpersonal skills required to apply influence, inspire change and build relationships.

- ❑ Business Acumen

Effective decision-making and understanding of how projects align with the big picture of broader organizational strategy and global trends.

Strategic Alignment and Business Management Skills

STRATEGIC PLAN is A high level business document that explains an organization s vision and mission plus the approach that will be adopted to achieve this mission and vision, including the specific goals and objectives to be achieved during the period covered by the document.

Get to Know the External Business Environment

Use frameworks or prompts to understand external factors that can introduce risk, uncertainty, or provide opportunities and affect the value and desired outcomes of a project.

- ❑ **PESTLE:** Political, economic, socio cultural, technical, legal, environmental
- ❑ **TECOP**: Technical, environmental, commercial, operational, political
- ❑ **VUCA**: Volatility, uncertainty, complexity, ambiguity

In addition, review:

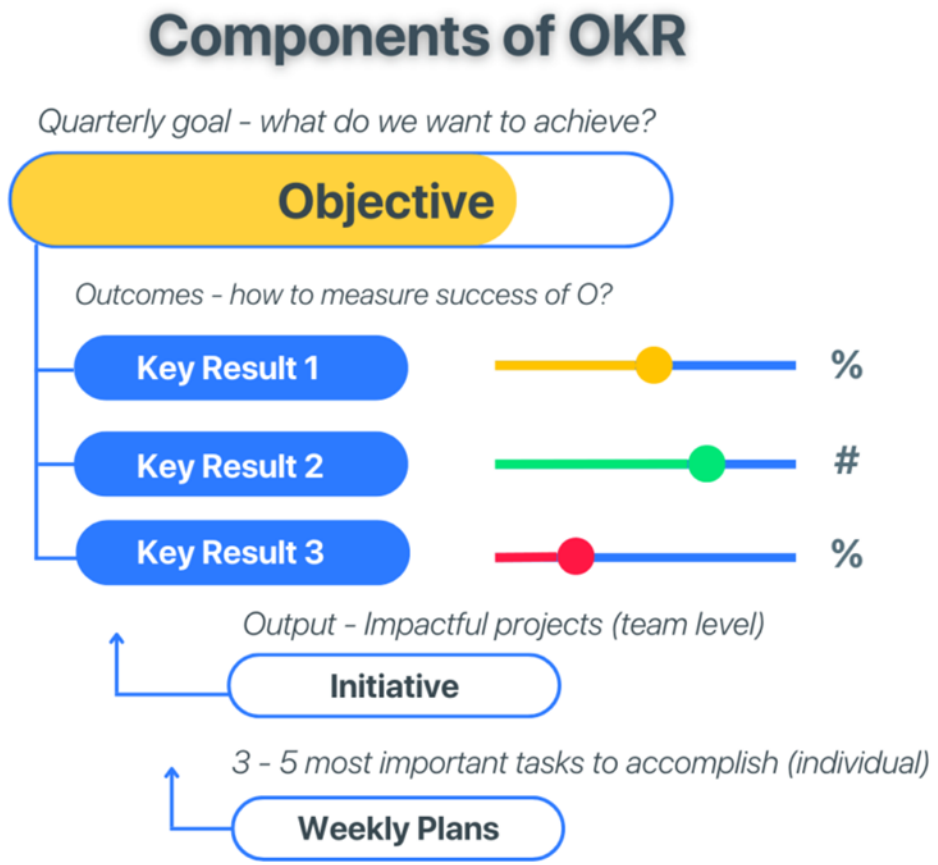
- ❑ Comparative advantage analysis
- ❑ Feasibility studies
- ❑ SWOT analysis
- ❑ Assumption analysis
- ❑ Historical information analysis
- ❑ Risk alignment with organizational strategy

Business Value

Is An informal term that goes beyond economic value. Components include:

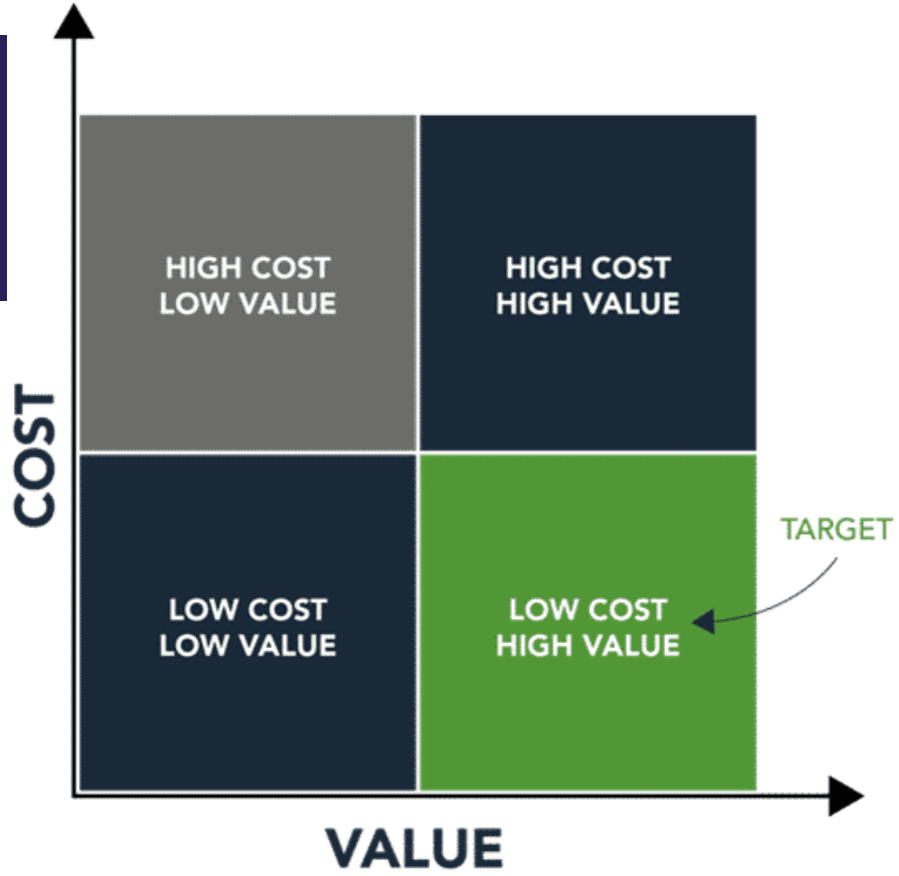
- ❑ Shareholder value.
- ❑ Customer value.
- ❑ Employee knowledge.
- ❑ Channel partner value.

OKR best practices



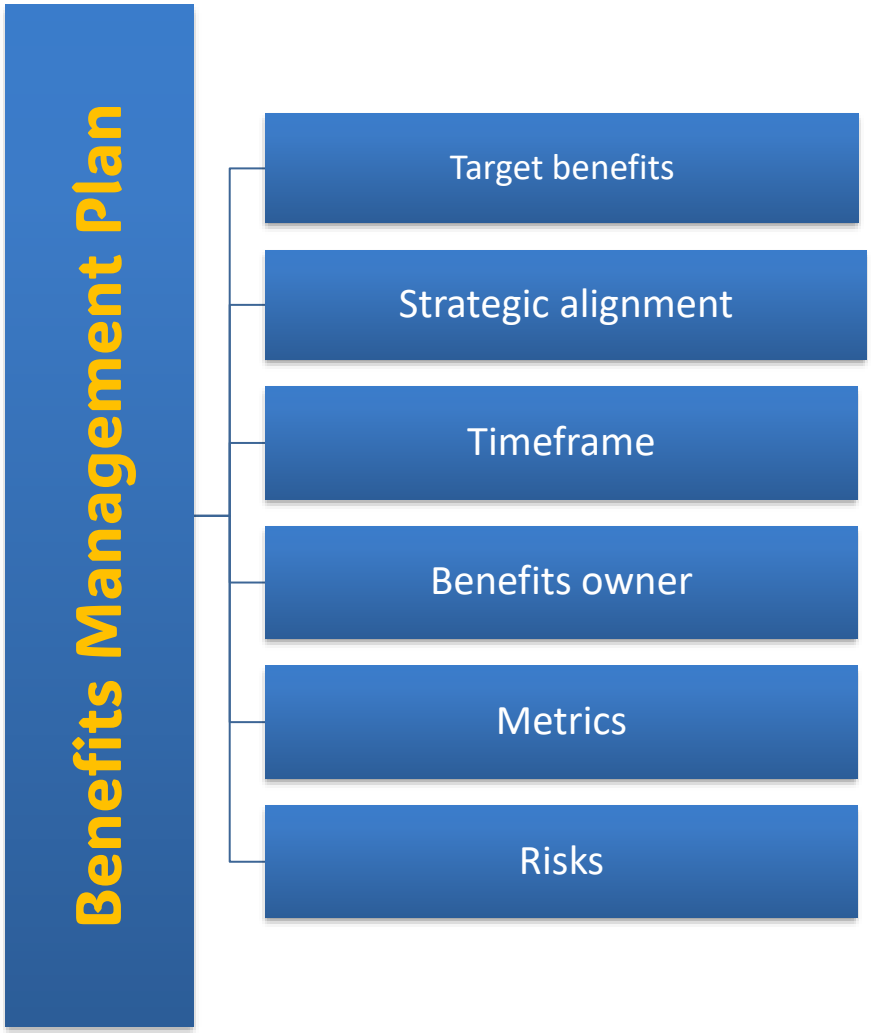
Value Analysis

- Value analysis is the process of examining each of the components of business value and understanding the cost of each one.
- The goal is to cost-effectively improve the components to increase the overall business value.



Benefits Management Plan

A document that describes how and when the benefits of a project will be derived and measured.



Release Management

- Agile projects can convert high value capabilities into delivered solutions early.
- The Product Owner defines the initial capabilities that make up the Minimum Business Increment (MBI).
- In traditional projects, release occurs at the end when everything is done.
- The MBI offers enough of the high value aspects of a
- solution to start using it and benefit from it.

Define an approach for subsequent releases driven by the following:

- Availability of a set of features or capabilities.
- Organizational tolerance for changes.
- A time cadence for subsequent releases.

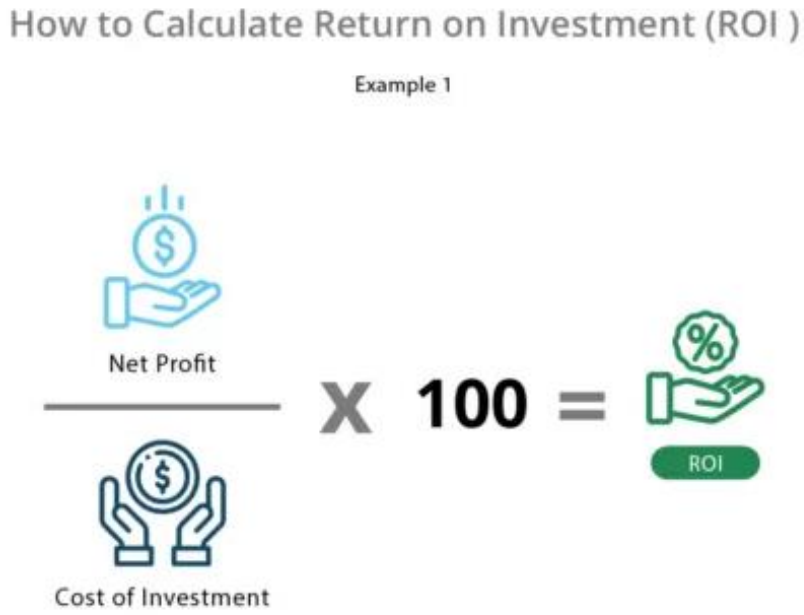
Benefit Cost Analysis

A systematic approach to estimating the strengths and weaknesses of alternatives used to determine options which provide the best approach to achieving benefits while preserving savings.

The accuracy of the cost and benefit estimates determines the value of the benefit-cost analysis.

Return on Investment (ROI)

- A financial metric of profitability that measures the gain or loss from an investment relative to the amount of money invested, also sometimes called (**Rate Of Return**)
- A positive ROI is interpreted as a good investment, and a negative ROI is a bad investment.



Present Value (PV)

current value of a future sum of money or stream of cash flows given a specific rate of return.

The PV formula is:

$$PV = \frac{FV}{(1+r)^n}$$

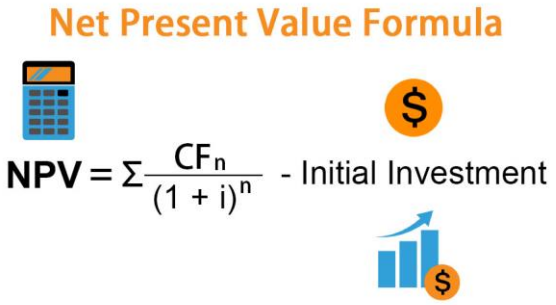
If you need $3,000 in three years and can invest your money at 8 percent interest, the present value of your initial investment is calculated:

$$\$2{,}381.50 = \frac{\$3{,}000.00}{(1+0.08)^3}$$

Net Present Value (NPV)

The present value of all cash outflows minus the present value of all cash inflows.

- ❑ NPV is a financial tool that is used in capital budgeting.
- ❑ NPV compares the value of a dollar today to the value of the same dollar in the future after taking inflation and discount rate into account.



Internal Rate of Return (IRR)

The interest rate that makes the net present value of all cash flow equal to zero.

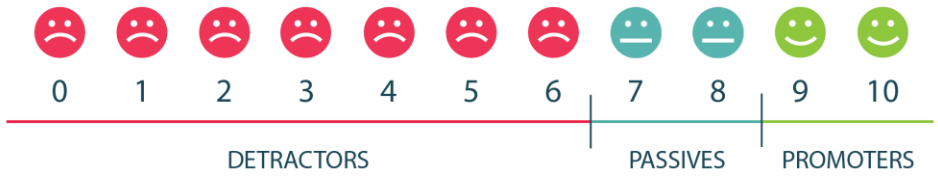
- ❑ IRR is also a financial tool often used in capital budgeting.

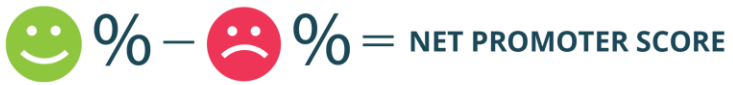
Net Promoter Score (NPS)

Measures a customer's willingness to recommend a provider's products or services to another on a scale of 100 to 100.

NPS = % of Promoters – % of Detractors

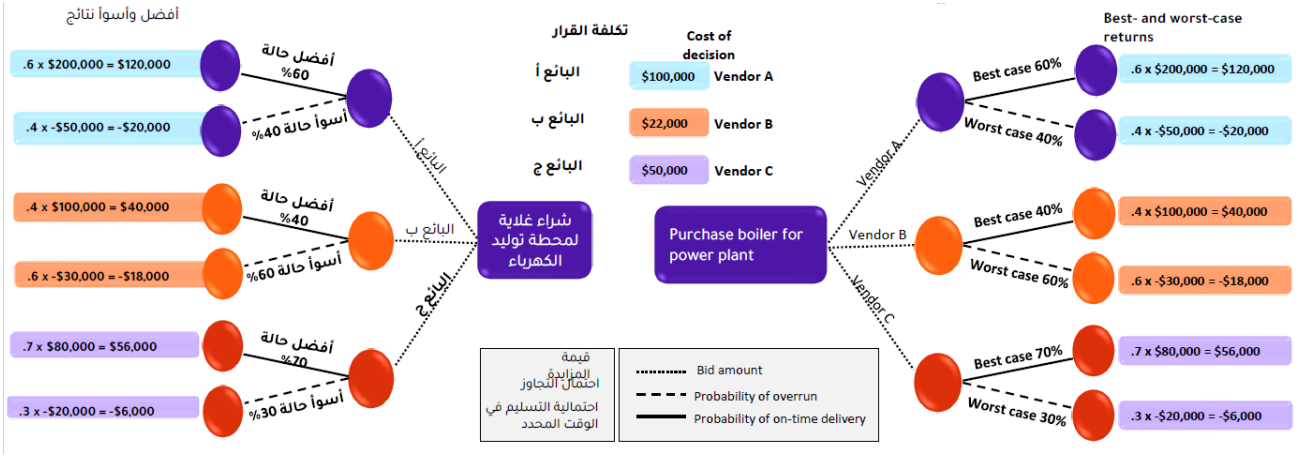
- ❑ Higher score indicates customer delight and willingness to recommend the solution
- ❑ Assign a number 0 to 10 for customers self-reported satisfaction
- ❑ Customer categories are as follows:
  1. Detractors (0 – 6)
  2. Passives (7 – 8)
  3. Promoters (9 – 10)





Decision Tree Analysis

A diagramming and calculation technique for evaluating the implications of a chain of multiple options in the presence of uncertainty.



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Topic C: Evaluate and address internal and external business environment changes

Internal Business Environment

- ❑ Organizational changes can dramatically impact the scope of a project.
- ❑ Project manager and project sponsor need to have visibility into business plans, reorganizations, process changes, and other internal activities.

Internal business changes might cause:

1. Need for new deliverables.
2. Reprioritization of existing deliverables
3. Elimination of deliverables no longer required

External Business Environment

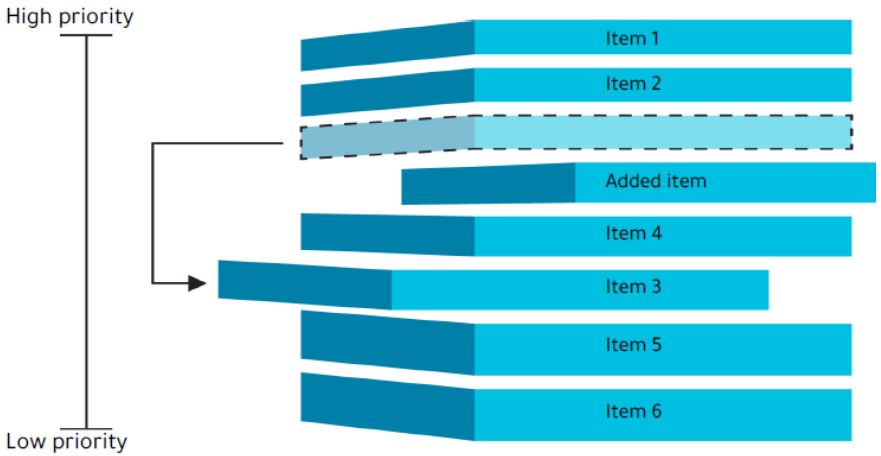
- Political
- Economic
- Social
- Technical
- Legal
- Environmental

Update Baselines

- ❑ In traditional project plans, the completed initial plan is the baseline.
- ❑ As changes occur in the project, the baseline should be updated to reflect any new requirements.

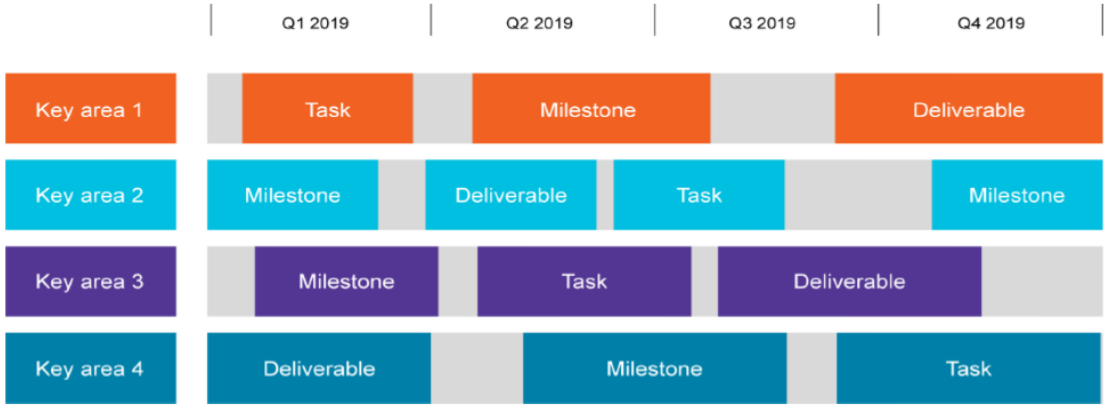
Backlog Reprioritization

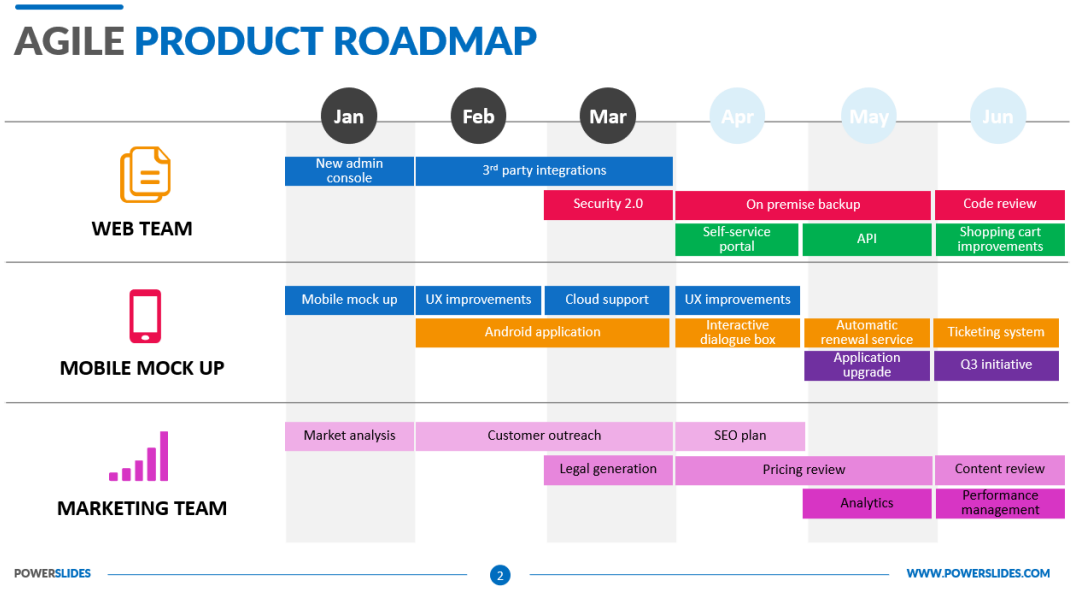
- ❑ Product owner re prioritizes the backlog as stories or requirements change.
- ❑ The business value determines the priority of the changes.



Updated Roadmaps

- ❑ Swimlane roadmaps provide high level visibility to the overall project tasks, deliverables, and milestones.
- ❑ Roadmap should reflect changes made to the backlog.





Governance Board

- ❑ Provides project oversight.
- ❑ May include project sponsor, senior managers and PMO resources.
- ❑ May be responsible for:
  1. Reviewing key deliverables
  2. Providing guidance for project decisions

Projects that use Scrum or SAFe® use intermediary governance boards to liaise between the project and organizational governance

Topic D: support organizational change

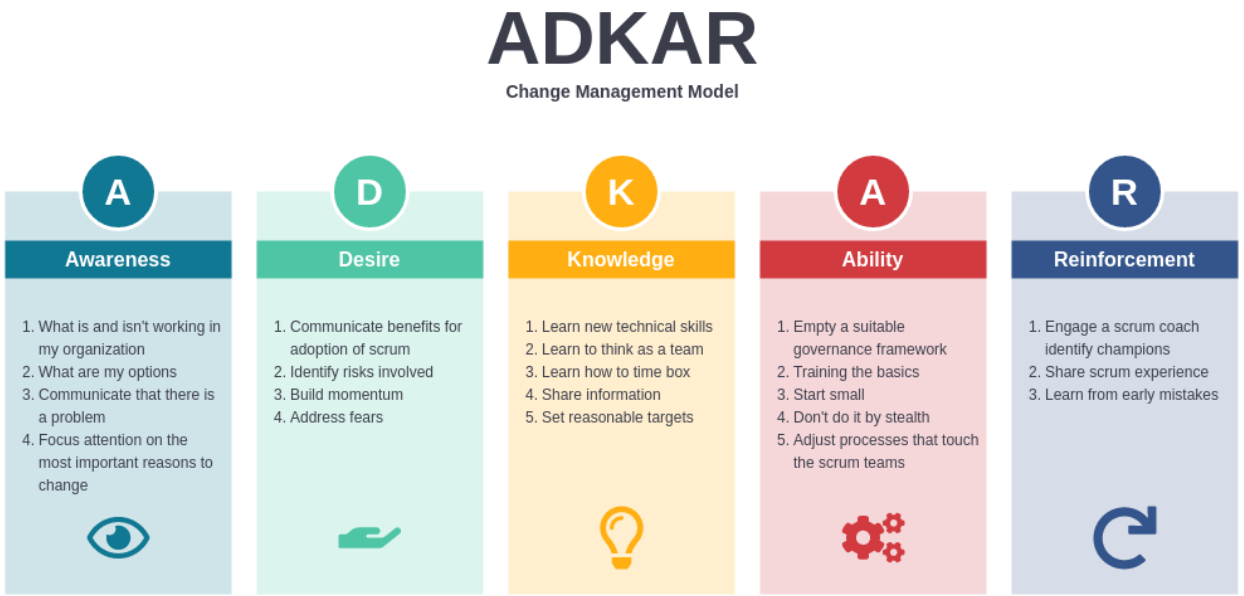
Organizational Cultures and Styles

Change Management Framework

Organizational change requires individual change

The ADKAR ® model names five milestones an individual must achieve to change successfully:

- ❑ A - Awareness of the need for change.
- ❑ D - Desire to support the change.
- ❑ K - Knowledge of how to change.
- ❑ A - Ability to demonstrate new skills and behaviours.
- ❑ R - Reinforcement to make the change stick.



Plan for Change

Define the knowledge transfer, training and readiness activities required to implement the change brought by the project.

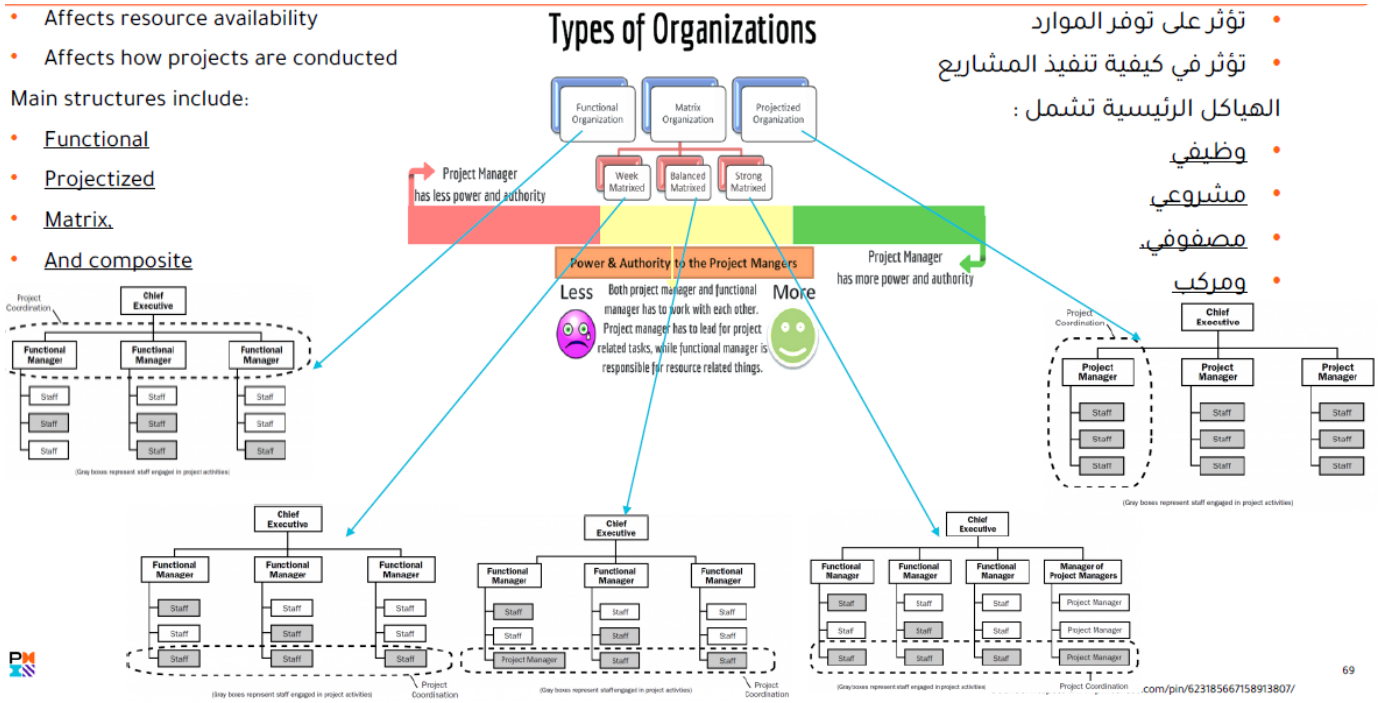
Roll Out Plan

Once a change is approved and built, the project manager needs to plan for its successful implementation. Roll out plans enable the project manager to define:

- ❑ The knowledge transfer
- ❑ Training,
- ❑ And readiness activities required to implement the change.

The rollout plan is not a project management plan component.

Organizational Structures



PMO

Project Management Office (PMO)

A management structure that standardizes the project related governance processes and facilitates the sharing of resources, methodologies, tools, and techniques.

Agile Centres of Excellence (ACoEs), and also known as Value Delivery Office (VDO)

ACoEs enable, rather than manage, project efforts:

- ❑ Coach teams
- ❑ Build agile mindset, skills and capabilities throughout the organization
- ❑ Mentor sponsors and product owners.

PMO Types

- ❑ Supportive PMOs
- ❑ Controlling PMOs
- ❑ Directive PMOs

TOPIC I: PLAN AND MANAGE PROJECT/ PHASE CLOSURE

Close Project or Phase

Several important activities occur during closeout:

- ❑ The planned work is completed.
- ❑ Project or phase information is archived.
- ❑ Project team resources are released to pursue other endeavours.
- ❑ In addition, all invoices are paid, contracts are closed out, and project lessons learned are discussed and documented.

Close Project or Phase Activities

FINAL REPORT:

A summary of the project's information on performance, scope, schedule, quality, cost, and risks.

- ❑ Acceptance of deliverables or product by customer
- ❑ Transition of deliverables or product to customer
- ❑ Notify enterprise and organizational functions; update OPAs
- ❑ Prepare final report
- ❑ Conclude external obligations, including legal, regulatory, contractual
- ❑ Archive project information
- ❑ Release resources (human, financial and physical assets)

Transitions(Handovers)

- ❑ Some organizations use a rollout or transition plan.
- ❑ This is not a project management plan component.

Knowledge Management

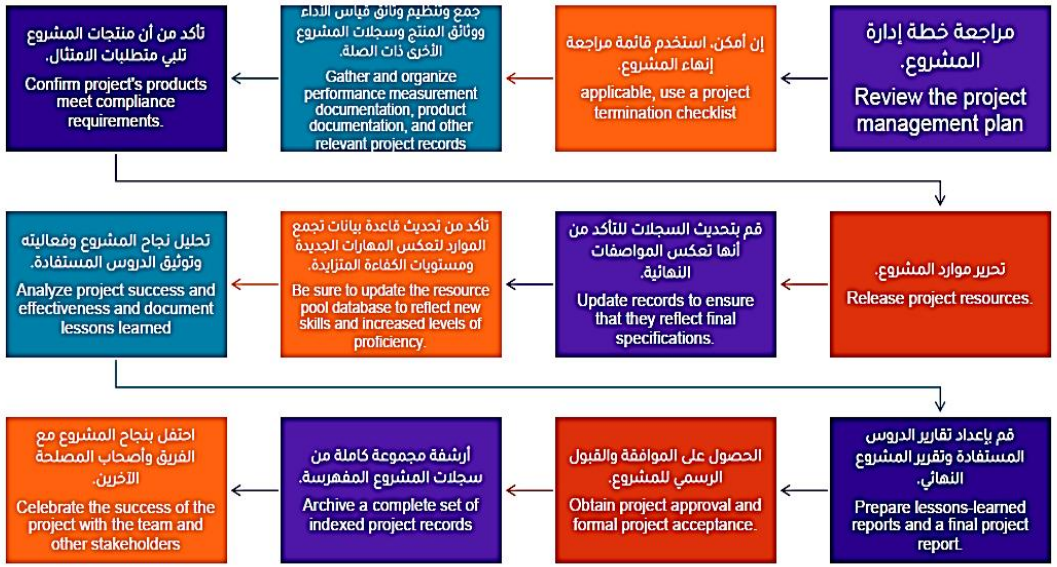
Lessons learned repository

A store of historical information about lessons learned in projects.

- ❑ This document should be added to the lessons learned repository , which is a database of lessons learned from multiple projects.

Close-Out Meetings

Sessions held at end of project or phase and May include stakeholders, team members, project resources, and customers to discuss the work and/or reviewing lessons learned.



Topic E: Employ continuous process improvement

Continuous Improvement

An ongoing effort to improve products, services, or processes.

Assess Current CI Methods

How well are the team and organization equipped for CI?

LEAN SIX SIGMA

A collaborative team method that provides an enhanced ability to target customer needs and measure performance during project execution and monitoring. It was introduced by American engineer Bill Smith while working at Motorola in 1986

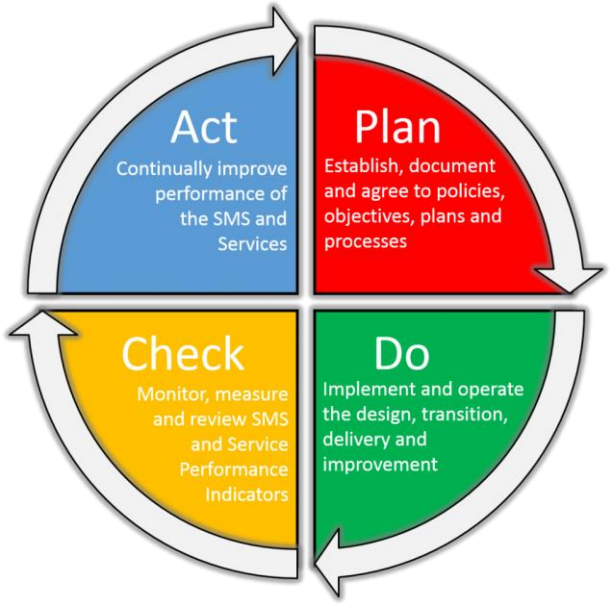
- ❑ Use the risk register to assess current CI measures. It includes how the team is prepared to act to address threats to project quality, so it can be a helpful way of assessing current CI measures.. .

Continuous Improvement Approaches

1. Kaizen

- ❑ Many small changes or improvements.
- ❑ Small changes less likely to require major expenditures of capital.
- ❑ Ideas come from workers not expensive research, consultants, or equipment.
- ❑ All employees should continually improve their own performance.
- ❑ All are encouraged to take ownership of their work to improve motivation.

2. Plan Do Study (Iso)



Continuous Improvement Tools

- ❑ Lessons Learned Register
- ❑ Retrospectives
- ❑ Experiments