

By:

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PMP

SUMMARY

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Project

A project is a temporary endeavor undertaken to create a unique product, service, or result. Projects are undertaken to fulfill objectives by producing deliverables.

A project:

- Creates a unique product, service or result.
- Is time-limited
- Drives change
- Enables value creation for a business or organization

Project success depends 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:

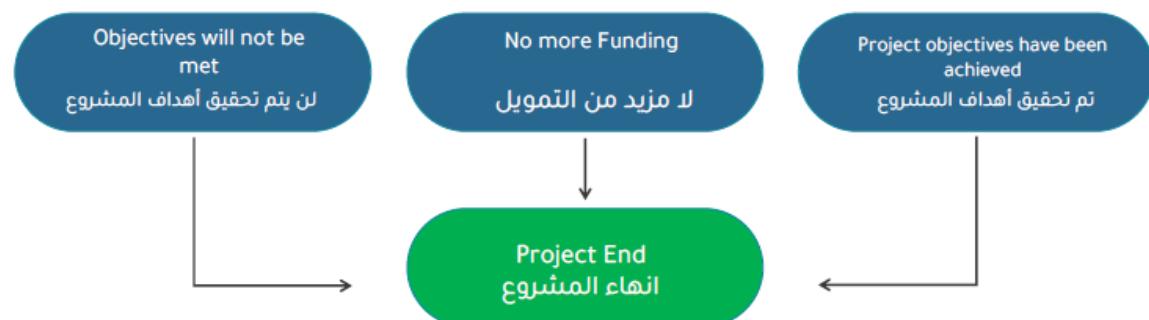
Fulfillment of project objectives may produce one or more of the following deliverables



Temporary Nature of Projects

Indicates: Project has a definite beginning and end

Does NOT necessarily mean Project has short duration



Organizational Process Assets (OPAs)

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

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OPA include

- Guidelines and criteria for aligning project work.
- Specific organizational standards.
- Standard templates for project work.
- Organizational communications requirements.
- Standardized guidelines, work instructions, proposal evaluation criteria, and performance measurement criteria.
- Procedures for officially closing a project.

Corporate knowledge base is a repository for storing project information, including:

- Project files.
- Policies, procedures, and guidelines.
- Human resources documentation.
- Lessons learned repository.

Enterprise Environmental Factors (EEFs) Conditions, not under the immediate control of the team, that can influence, constrain, or direct the project, program, or portfolio.

EEF might include:

- Organizational culture, structure, and governance.
- Geographic distribution of facilities and resources.
- Government or industry standards.
- IT infrastructure.
- Existing human resources.
- Personnel administration.
- Marketplace conditions.
- Stakeholder risk tolerances.
- Political climate and situations.
- Organization's established communications channels.
- Commercial databases.
- Project Management Information Systems.
- Languages, time zones, and other countries' holiday schedules.

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

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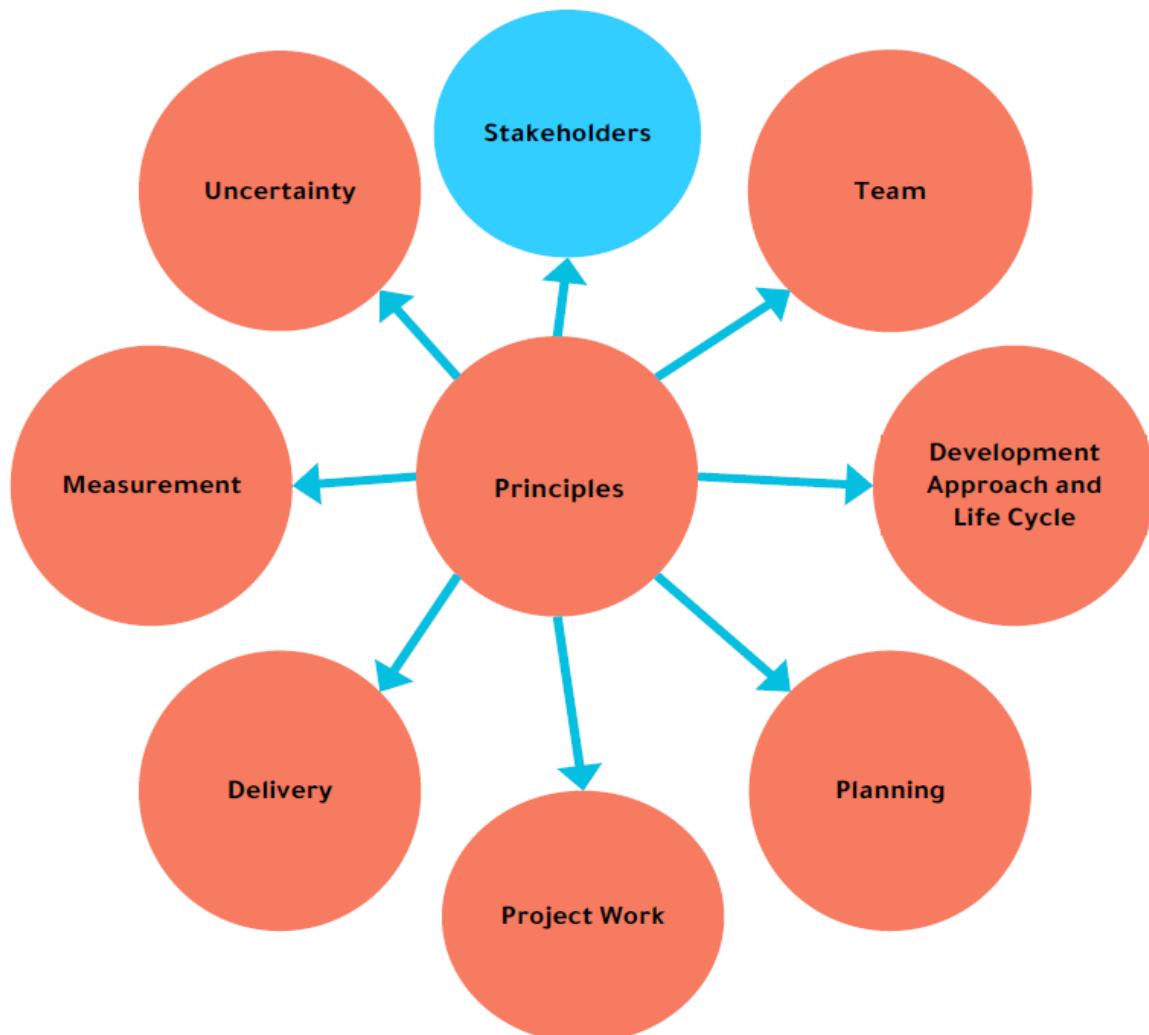


Project Management Principles

Guidance for All Project Practitioners

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 behaviors
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

Use the 12 principles to guide behavior in the 8 project performance domains



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The Agile Manifesto for Software Development

Principles Behind the Agile Manifesto:

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. Business people 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 behavior accordingly.

From Principles to Performance Domains

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:

- 1- **Stakeholders:** A productive working relationship in which stakeholders derive benefits and any negative impacts are avoided. Stakeholder agreement with project objectives.
- 2- **Team**
 - Shared ownership
 - High performance
 - Everyone has good leadership and interpersonal skills
- 3- **Development Approach and Life Cycle:**
 - Approaches consistent with deliverables
 - Life cycle phases deliver value for business and stakeholders from the beginning to the end of the project
 - Life cycle phases facilitate a delivery cadence and development approach required to produce the project deliverables

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4- Planning:

- Project progress is organized, coordinated and deliberate
- Holistic approach to delivering project outcomes
- Evolving information is elaborated to produce the projects deliverables and outcomes
- Planning time is appropriate for context
- Planning information can manage stakeholder expectations
- Plans can be adapted in response to change

Project team

A set of individuals who support the project manager in performing the work of the project to achieve its objectives.

T Shaped Skills: Agile teams invest in becoming more cross functional.



Team Member Considerations:

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

Other Considerations:

- Physical resources, such as equipment
- Access rights

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Project Stakeholders

Stakeholder* 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.



Stakeholder Identification

- Identifying stakeholders tends to happen as the project charter is being developed.
- List of identified stakeholders should be reviewed and modified as changes occur throughout the project.
- The project plans that are developed should describe stakeholders and the planned engagement model.
- As the project progresses, documents such as change logs, issue logs, or requirement documents can reveal additional stakeholders.
- The stakeholder list may be affected by organizational environment factors.

Referring to stakeholder lists from previous projects might be useful.

interpersonal skills: that each member of the project team will need to establish and maintain relationships with other people

Skill	Definition
Conflict management	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 management	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	The interaction between people to expand their knowledge about business topics.
Observation/conversation	involves watching individuals as they perform their daily tasks in an effort 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.
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.

Project teams are becoming more global and therefore more diverse:

- Cultural backgrounds
- Industry experiences
- Spoken language
- . Create an environment that takes advantage of the diversity and builds climate of mutual trust.

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Team Improvement objectives include:

- Enhance team knowledge and skills to reduce cost, time, and to improve quality
- Improve trust within the team to reduce conflicts and improve teamwork.
- Create a collaborative culture to improve individual and team performance and facilitate mutual training and monitoring.
- Empower the team to be engaged in decision making and ownership of proposed solutions.

Team charter: A document that enables the team to establish its values, agreements, and practices as it performs its work together.

A good team charter includes:

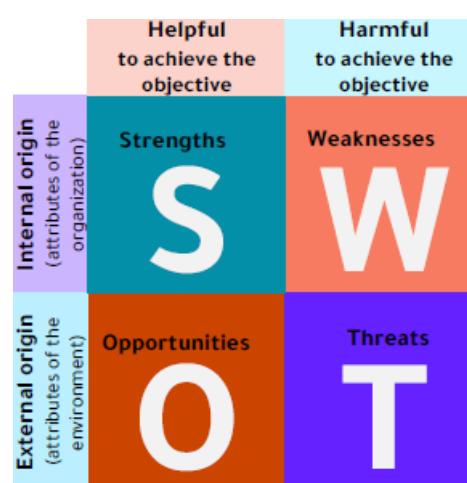
- The team's shared values.
- Guidelines for team communications and the use of tools.
- How the team makes decisions.
- How the team resolves conflicts when disagreements arise.
- How and when the team meets.
- Other team agreements (such as shared hours, improvement activities).

Team Strengths

When forming teams, critical to understand the skills and competencies need by members to perform their work and produce deliverables.

As teams progress, leverage the team members skills to improve team performance.

Identify team strengths and weaknesses to organize around team strengths.



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Estimates

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

The risks

Potential pitfalls

Level of effort

- . 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.

Team Task Accountability

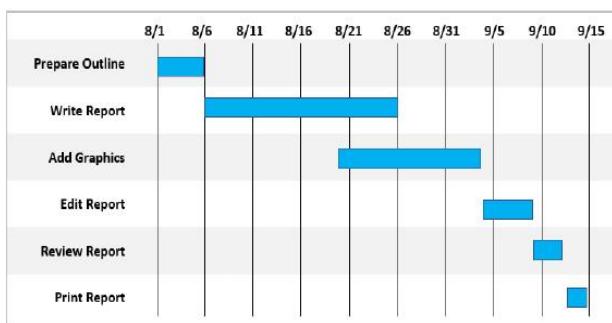
. Encourage team members to self-organize in determining:

The work that needs to be done

Who should perform it

How to perform the work

- . In Agile approaches, the team commits to performing work in an iteration.
- . Use Gantt charts and Kanban boards to promote visibility and collaboration.



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.

Elements of Training

Training: An activity in which team members acquire new or enhanced skills, knowledge, or attitudes.

Training Cost Estimates

As part of the schedule and budget, consider the costs associated to training the project team and customer stakeholders.

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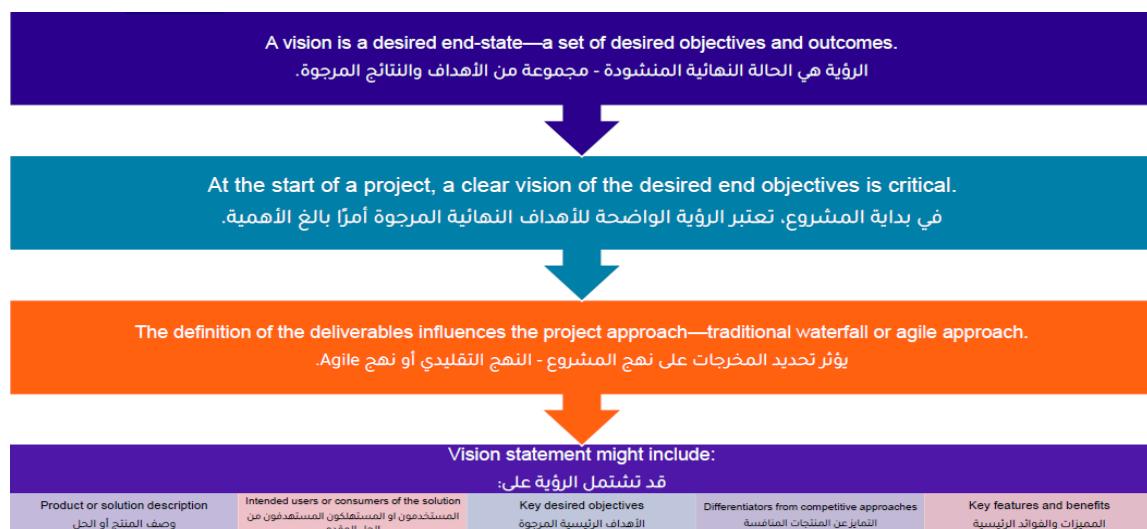




Communication

- Effective communication is the key to successful teams.
- The team charter should include communication expectations and details.
- This may include shared work hours for scheduling team meetings, how the team is expected to use and not use tools like threaded discussion groups, shared document repositories, and even webcams.
- A good retrospective often provides ways that a team can improve its communication, collaboration, and use of visibility tools.

Vision



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.

- 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

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Project Overview Statement



Communicates enterprise-wide the intent and the vision of the project.
التواصل على مستوى المؤسسة، النية والرؤية للمشروع.



Brevity and clarity are key.
الإيجاز والوضوح أمران أساسيان.



Captures the project's objective, problem or opportunity, and criteria for success.
يلخص هدف المشروع أو المشكلة أو الفرصة ومعايير النجاح



With authorization via the project charter or approved project overview statement, the project manager begins the activities of project planning.
من خلال الإذن عبر ميثاق المشروع أو بيان النظرة العامة على المشروع المعتمد، يبدأ مدير المشروع نخطيط المشروع

Agile Ceremonies

Scrum An agile framework for developing and sustaining complex products, with specific roles, events, and artifacts.

Sprint A timeboxed iteration in Scrum.

Ceremony	Description
Sprint Planning*	Iteration (Sprint) planning is a collaborative agile ceremony, sometimes called Sprint planning, for the team and the customer representative (or Product Owner) to do the following: Review the highest prioritized user stories, or key outcomes. Ask questions. Come to agreement on which stories the team forecasts it will complete in the iteration. After agreement, the team determines which activities are required to deliver the iteration objectives.
Daily Standup	A short 10-15-minute meeting held daily for the team to reaffirm commitment to its objectives for the iteration, surface potential blockers, and coordinate the day's work amongst the team. Often conducted in a circle. (Also called a <i>daily scrum</i> .)
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 and receive feedback for that iteration.
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 and identifies ways for the team to improve its performance, collaboration, etc.

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Kickoff Meeting

Purpose:	Activities during kickoff may include:
<ul style="list-style-type: none">• Establish project context• Assist in team formation• Ensure proper alignment to the overall project vision	<ul style="list-style-type: none">• Defining a vision statement• Defining a team charter• Assisting the customer / Product Owner with the following:<ul style="list-style-type: none">• User story writing• Estimation of effort• Prioritization planning• Initial product backlog

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

Fist of Five: Individuals vote by holding up five fingers for total agreement, a fist for total disagreement, or multiple fingers for somewhere in between.

Roman voting: Individuals vote with either a thumbs up (agreement) or thumbs down (disagreement).

Polling: Team members share their point of view and, if the team is unanimous, then they move on. If objections are raised, the facilitator works to solve the problem.

Dot voting: Individuals use sticky dots to prioritize items in a list.



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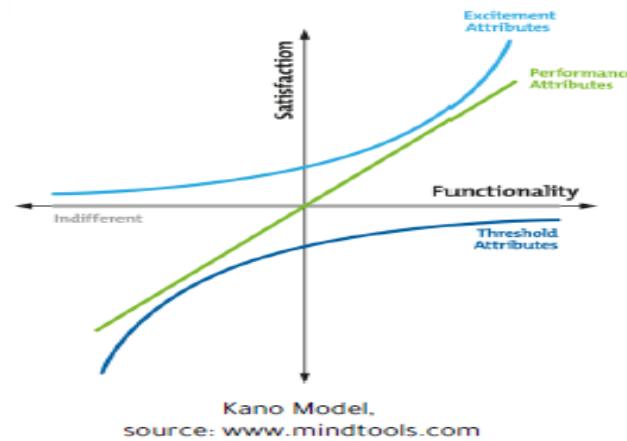


Prioritization Techniques to Determine Objectives

Product backlog: An ordered list of user centric requirements that a team maintains for a product.

Prioritization techniques include:

Kano Model



MoSCoW (MSCW) Analysis



M: Must have: Non-negotiable product needs that are mandatory for the team.

S: Should have: Important initiatives that are not vital, but add significant value.

C: Could have: Nice to have initiatives that will have a small impact if left out.

W: Will not have: Initiatives that are not a priority for this specific time frame.

MoSCoW,

Paired Comparison Analysis

	A	B	C	D	E	F	G	H	I
A: Appreciation	A	A	A	A	A	A	A	A	A
B: Achievement		C	B	B	B	B	G	B	B
C: Work condition			C	C	C	C	G	C	C
D: Power				D	D	D	G	D	I
E: Creativity					F	F	E	I	
F: Interest						G	F	I	
G: Financial benefits							G	G	
H: Relationship								I	
I: Self development									
Count	8	5	6	3	1	2	7	0	4
Rank	1	4	3	6	8	7	2	9	5

100 Points Method

Functionality	Marketing Representative	IT Manager	Business Head
Customer sign-up	30	25	35
Social Media Sharing	20	15	25
Customer Profile	25	25	20
Track Order	25	35	20
Total	100	100	100

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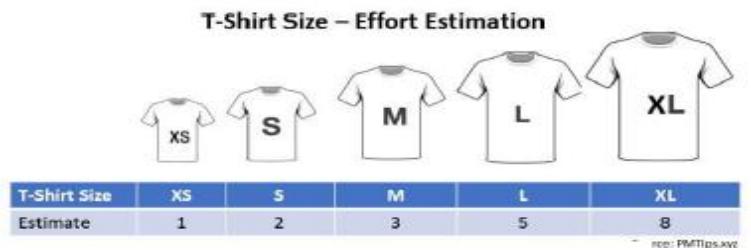
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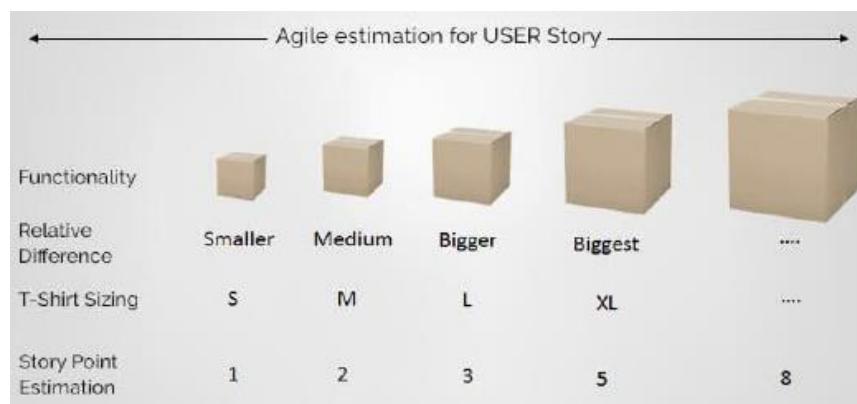


Estimation Techniques

T-shirt Sizing: Using the common, ubiquitous knowledge of t shirts and their sizes, individuals assign values to user stories.



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.



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Business Case and Business Needs Documents

•Business case:

- Documented economic feasibility study
- Used to establish the benefits of project components
- Provides a basis for authorization of further project activities

•Business needs documents:

- Provides the high-level deliverables
- Written prior to the formal business case
- Describes what needs to be created and what needs to be performed

Starting the project

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.

- **Predictive/Plan**

- Traditional approach where the project needs, requirements, and constraints are understood, and plans are developed accordingly.
- The plans drive the project forward.

- **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.

Assessment of Project Needs, Complexity, and Magnitude

أمثلة Examples	الأنسب عندما Best Suited When	المنهجية Methodology
مشاريع البرمجيات أو المنشآت القائمة على الملكية الفكرية والبحث. Software projects or projects based on intellectual property and research.	<ul style="list-style-type: none"> • التغييرات سهلة نسبياً، والمهدى ليس مكلفاً. • بيئة معقدة حيث لا يكون المنتج النهائي معروضاً تماماً وتكون ملاحظات المستخدم ذات قيمة كبيرة. <ul style="list-style-type: none"> • Changes are relatively easy, and waste is not costly. • Complex environment where end product is not fully known, and user feedback is very valuable. 	رشيق أو مرن Agile
م المشاريع البناء أو المنشآت التي لها العديد من الأصول المادية أو لها مشاريع مماثلة تم الانتهاء منها في الماضي. Construction projects or projects that have many physical assets or have similar projects that been completed in the past.	<ul style="list-style-type: none"> • التغييرات باهظة الثمن بسبب الخردة والمخلفات. • القدرة على التنبيه والتوقيت المناسب أمر مهم. <ul style="list-style-type: none"> • Changes are expensive due to scrap and waste. • Predictability and coordinated timing is important. 	تنشوية / مدفوع بالخطيط Predictive / Plan Driven
المشروع الذي من المتوقع أن يصل فيها التعلم والتصحيح في النهاية إلى الحل المثالي. Projects where learning and correction is expected to eventually get to the ideal solution.	<ul style="list-style-type: none"> • متطلبات ديناميكية والأنشطة تتكرر حتى يتم اعتبارها صحيحة. <ul style="list-style-type: none"> • Dynamic requirements and activities are repeated until they are deemed correct. 	تكراري Iterative
المشروع الذي يرغب فيما العملاء أو الأعمال أو يتوقعون رؤاه مدرجات أو تواجد جزئياً بشكل متتابع. Projects where customers or business is wanting or expecting to see outputs or partial outputs early and often.	<ul style="list-style-type: none"> • المتطلبات الديناميكية، وكذلك المخرجات صغيرة تكرارية. • السرعة في تحقيق زيادات صغيرة هدف رئيسى. <ul style="list-style-type: none"> • Dynamic requirements, as well as frequent small deliveries. • Speed to deliver small increments is a major goal. 	متزايد Incremental
مشروع يمزج من الموارد ومستويات الخبرة أو المشاريع التي تنسحب أو ترغب في تعلم أساليب أو تقنيات جديدة. Projects with a mix of resources and experience levels or projects seeking or willing to learn new methods or techniques.	<ul style="list-style-type: none"> • هناك بعض التكاليف المرتبطة على التغييرات. • يهتم أصحاب المصلحة بطريقة أخرى، لكنهم غير مرتاحين لتبني طريقة واحدة بشكل كامل. <ul style="list-style-type: none"> • There are some costs to changes. • Stakeholders are interested in another method, but not comfortable to fully adopt one method. 	هجين Hybrid

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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.

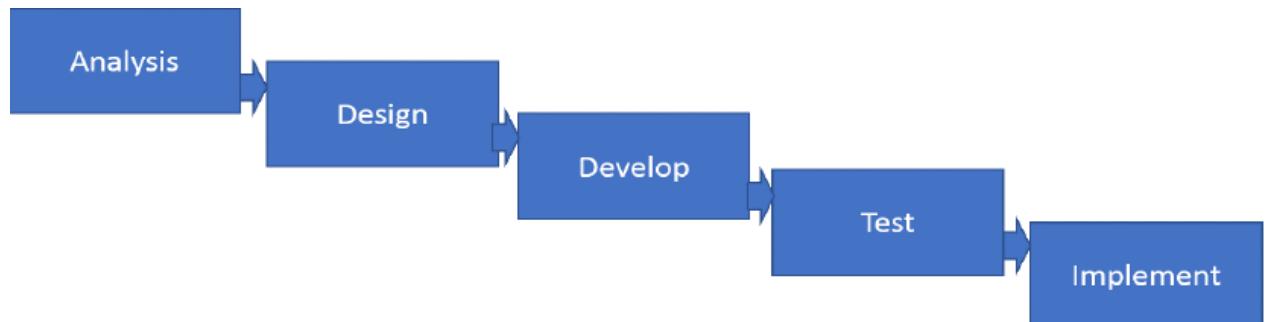
- Used in agile or predictive approaches
- A form of progressive elaboration applied to work packages, planning packages, and release planning
- Decompose work down to the known level of detail during strategic planning
- Decompose work packages into activities as work progresses

Predictive Life Cycle

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

Characteristics

- Fixed requirements
- Activities performed once per
- Single delivery
- Goal: Manage cost



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 increases.

Characteristics

- Dynamic requirements
- Activities repeated until correct
- Single delivery
- Goal: Correct solution

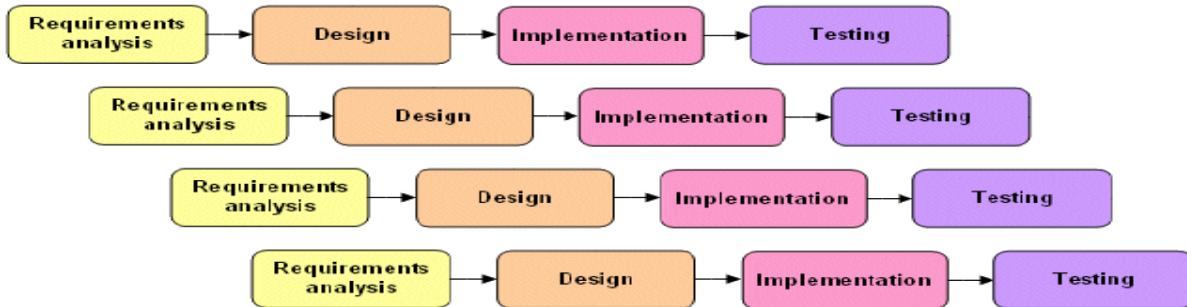


Incremental Life Cycles

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.

Characteristics

- Dynamic requirements
- Activities performed once per iteration
- Frequent small deliveries
- Goal: Speed

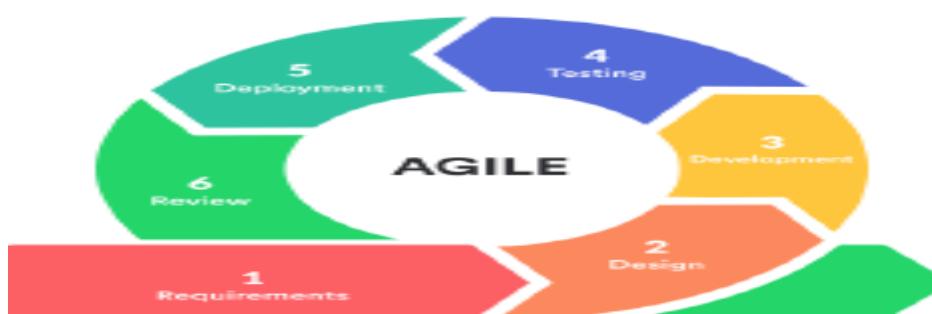


Agile Life Cycles

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

Characteristics

- Dynamic requirements
- Combines iterative repetition of activities with incremental deliveries
- Goal: Customer value



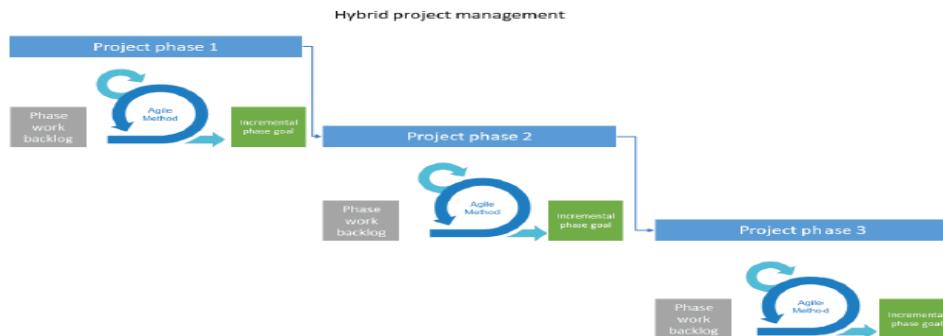
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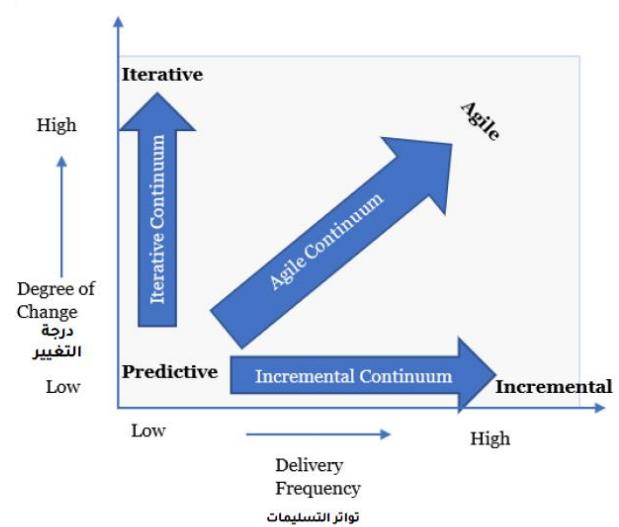
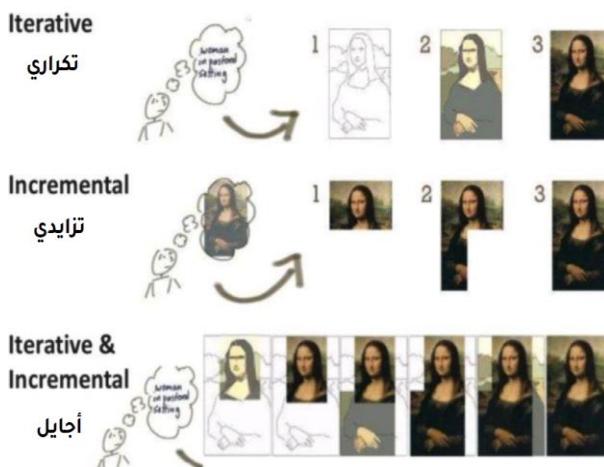
Hybrid Methodologies

Characteristics

- Includes adaptive and predictive components
- Shorter, iterative time frames
- High stakeholder involvement
- More in depth requirements



Iterative and Incremental Development



Plan and Manage 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.

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

- Predictive** The scope baseline for the project is the approved version of the project scope statement, work breakdown structure (WBS), and associated WBS dictionary.
- Agile Backlogs** (including product requirements and user stories) reflect current project needs.
- Measure completion of project scope against the project management plan.
- Measure completion of the product scope against product requirements.



Scope Management Plan

A component of the project management plan or program management plan that describes how the scope will be defined, developed, monitored, controlled, and validated

- Should include processes to prepare a project scope statement
- Enables the creation of the WBS from the detailed project scope statement
- Establishes how the scope baseline will be approved and maintained
- Specifies how formal acceptance of the completed project deliverables will be obtained.
- Can be formal or informal, broadly framed or highly detailed.

SCOPE MANAGEMENT PLAN	
Project Title:	122 East Main Street
Scope Statement Development	
<i>The Scope Statement for this project will be prepared by the project manager, with assistance from other Building with Heart staff who have worked on previous home-building projects.</i>	
WBS Structure	
<i>The Work Breakdown Structure will consist of four levels, with the project at the top level. Phases will be used for major (Level 1) deliverables (e.g., foundation, framing, interior walls, plumbing, etc.). Each phase will be decomposed into appropriately-sized sub-deliverables (e.g., first-floor framing, second-floor framing). Finally, each sub-deliverable will be decomposed into work packages. Schedule and cost estimates will be prepared for each work package, and will be rolled up to the project level.</i>	
WBS Dictionary	
<i>Each element in the WBS will include sufficient information to enable the management of that element. The WBS Dictionary will include, but not be limited to the following: start and finish dates; resource names; durations; constraints; assumptions; and predecessor and successor elements.</i>	
Scope Baseline Maintenance and Scope Changes	
<i>The scope baseline will consist of the Scope Statement, WBS, and WBS dictionary. The initial scope baseline will be approved by the project sponsor. All changes to the scope baseline will follow the procedures outlined in the Integrated Change Control Process, and all changes will be documented and approved accordingly.</i>	
Deliverable Acceptance	
<i>Each Level 1 (Phase) deliverable will be approved by the project sponsor or his/her designee. The final deliverable, the finished home, will be approved by the Greene City Buildings Department inspector and will conform to all applicable building codes and regulations.</i>	
Scope and Requirements Integration	
<i>Before any design or other work has been started, a Requirements Document will be prepared</i>	

Requirements Management Plan

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

- Components include:
 - How requirements activities will be planned, tracked, and reported
 - Configuration management activities such as how version control of project documents and changes to the product will be initiated, how impacts will be analyzed, how they will be traced, tracked, and reported, and what authorization level is required to approve these changes
 - Requirement's prioritization process, which defines how project requirements will be analyzed and prioritized
 - Product metrics that will be used and the rationale for using them
 - Traceability structure stating which requirement attributes will be captured on the traceability matrix

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

- High level requirements might be documented in the project charter.
- Project manager must verify all requirements are determined and documented.
- Provide the foundation for building the WBS

Elicitation Techniques

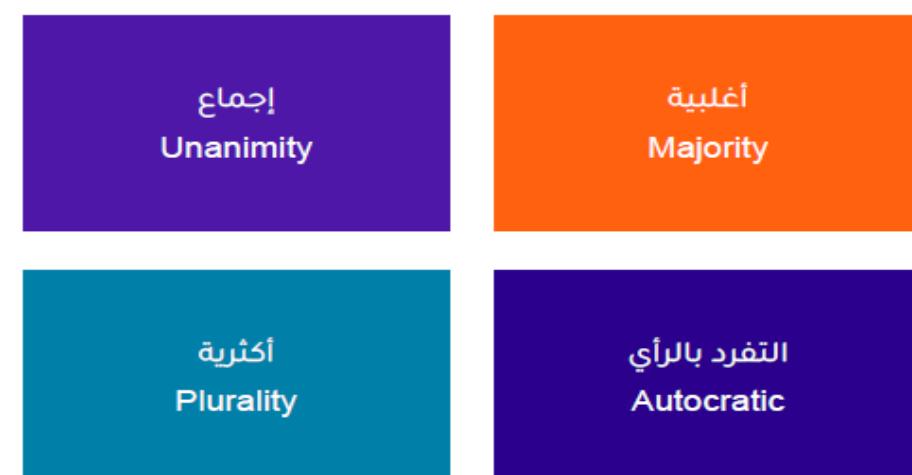
Document analysis: A technique used to gain project requirements from current documentation evaluation.

Questionnaires: Written sets of questions designed to accumulate information from many respondents quickly.

Benchmarking: The comparison of actual or planned products, processes, and practices to those of comparable organizations to identify best practices, generate ideas for improvement, and provide a basis for measuring performance.

Interview: A formal or informal approach to elicit information from stakeholders by talking with them directly.

Agile Methods
Thumbs up/down/sideways
Fist of Five



Requirements Documentation

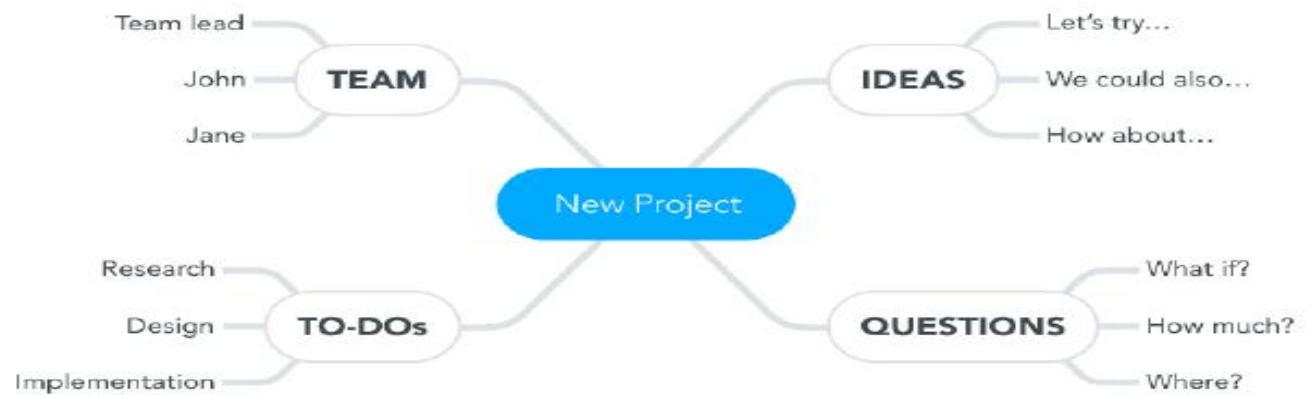


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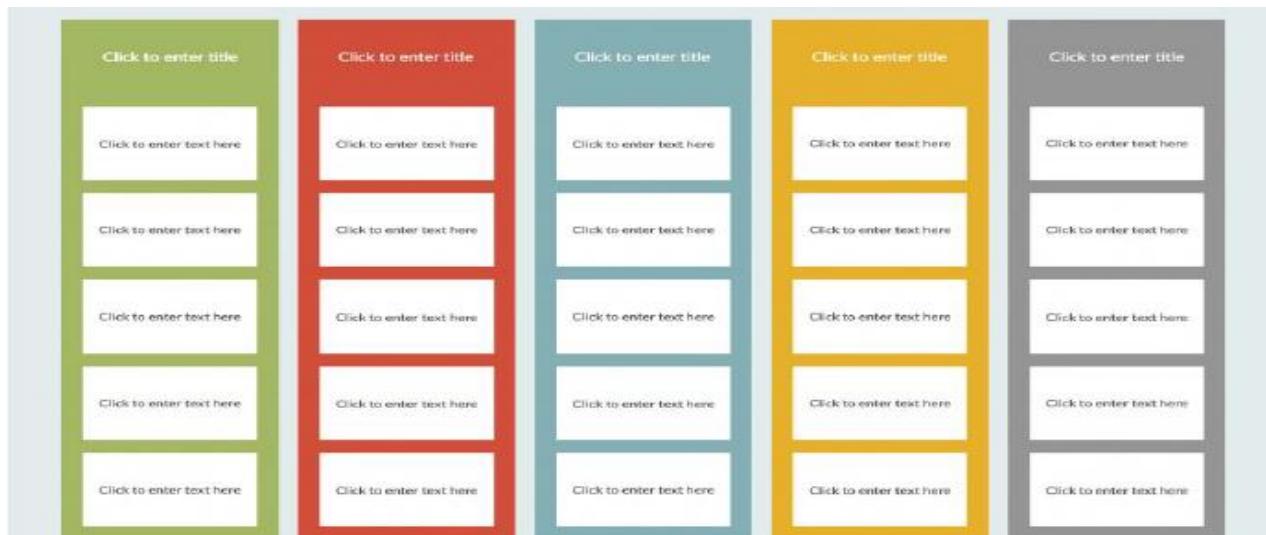
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Elicitation Techniques/ Data Representation

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.



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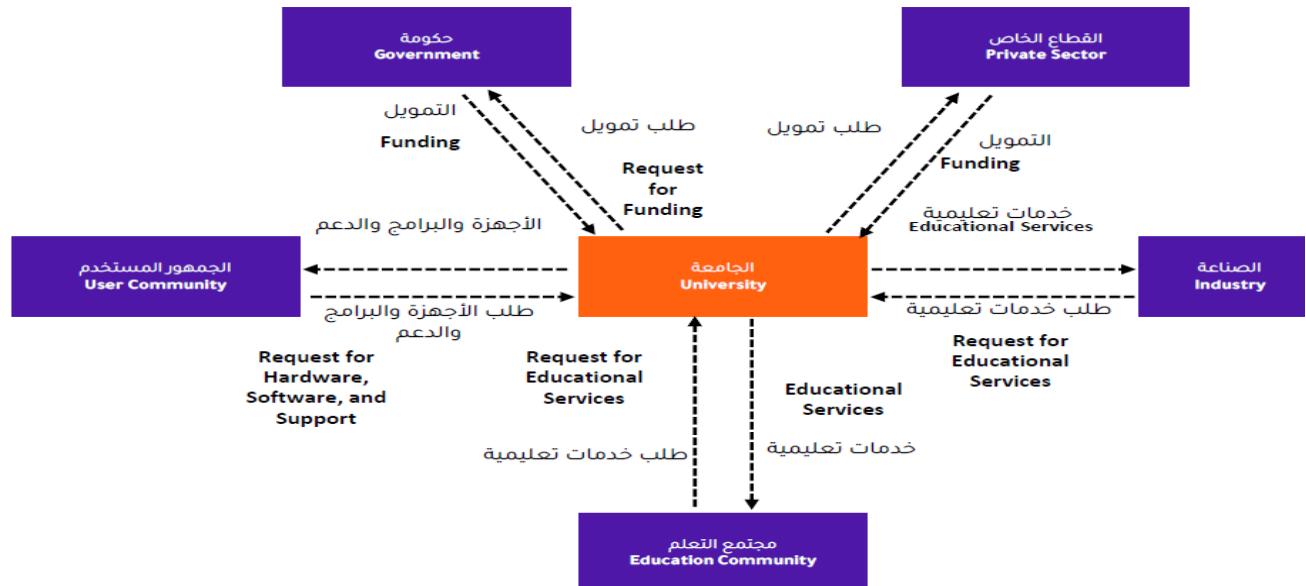
Elicitation Techniques

Focus groups: An elicitation technique that brings prequalified stakeholders and subject matter experts to learn their expectations and attitudes about a proposed product, service, or result.

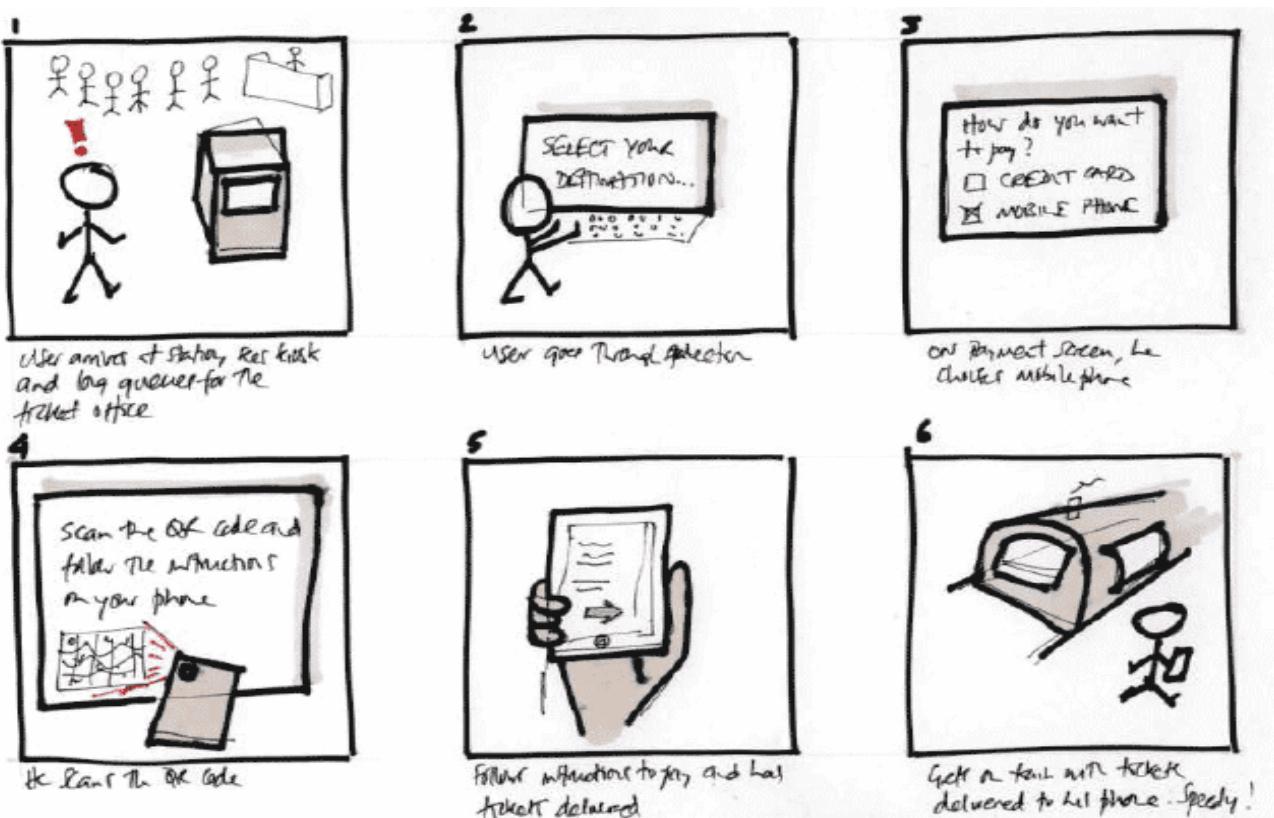
Observation: A technique to gain knowledge of a specific job role, task, or function to understand and determine project requirements.

Facilitated workshops: Organized working sessions held by project managers to determine a project's requirement and get all stakeholders together to agree on the project's outcomes.

Prototype: A method of obtaining early feedback on requirements by providing a working model of the expected product before building it.



مخطط السياق
Context Diagram



Storyboarding

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Requirements Traceability Matrix

REQUIREMENTS TRACEABILITY MATRIX						
ID	Requirements Description	Business Needs, Opportunities, Goals, Objectives	Project Objectives	WBS Deliverables	Inspection	Additional Comments
001	1-car garage	Standard single family house spec	Quality	Garage	Yes	
002	3 bedrooms	Standard single family house spec	Quality	Living space	Yes	
003	1.5 bathrooms	Standard single family house spec	Quality	Living space	Yes	
004	Landscaping	Standard single family house spec	Quality	Landscaping		
005	Driveway	Standard single family house spec	Quality	Driveway		
006	Pass all inspections the first time	Quality	Quality	Inspection		
007	Donated materials	Financial	Cost	Materials		
008	Volunteer labor	Financial-reduce cost to build	Cost	Labor		
009	Fundraising from participating organizations	Financial	Cost	Financial		
010	Mortgage of \$75,000 at 3% interest	Financial	Cost	Financial		
011	PMP-certified project manager on each project	Project success	Quality	Quality		
012	Licensed plumber and electrician on each project	Pass inspection	Quality	Plumbing and Electric work		
013	Building inspector provides ongoing inspections	Pass inspection	Quality	Quality		
014						
015						
016						

Project Scope Statement: The description of the project scope, major deliverables, assumptions, and constraints.

Guidelines to Develop a Project Scope Statement

- Review the scope management plan for the activities for developing, monitoring, and controlling the project scope.
- Review the project charter for the high-level project description and product characteristic and project approval requirements.
- Review the requirements documentation
- Review the OPAs.
- Use tools and techniques such as expert judgment, product analysis, alternatives generation, and facilitated workshops to define the project scope.
- Document the project scope statement and update any project documents, as needed.

Scope Tools and Techniques



حكم الخبرة

EXPERT JUDGMENT



تحليل البدائل

ALTERNATIVES ANALYSIS



تحليل القرار

متعدد
المعايير

MULTI-CRITERIA
DECISION
ANALYSIS



التسهيل

FACILITATION



تحليل المنتج

PRODUCT ANALYSIS

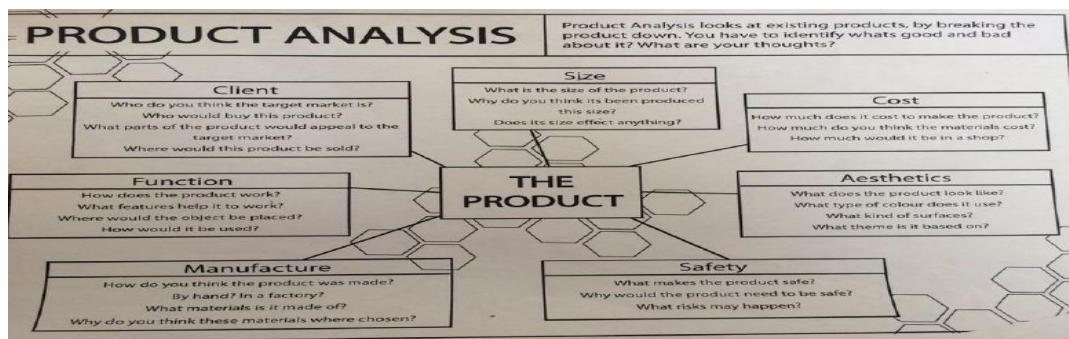
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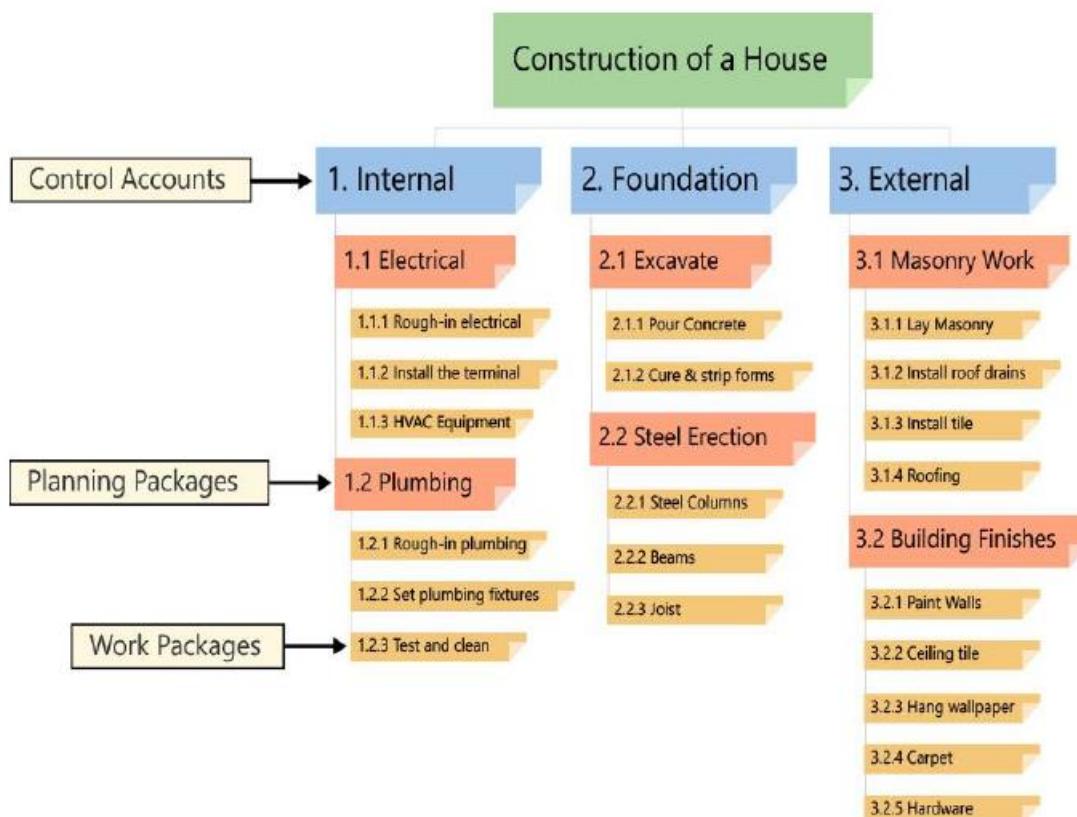
Product analysis: A tool to define scope that generally means asking questions about a product and forming answers to describe the use, characteristics, and other relevant aspects of what is going to be manufactured.

- Product breakdown
- Systems analysis
- Requirements analysis
- Systems engineering
- Value engineering
- Value analysis



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.



Guidelines to Create a WBS

- Review the scope management plan
- Review the project scope statement
- Review the requirements documentation
- Review the EEFs
- Review OPAs
- Use tools and techniques, such as decomposition
- Use expert judgment
- Include notes on work products that might be delivered incrementally
- Document the scope baseline

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WBS Dictionary

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

The WBS dictionary might include any of the following:

- Resources required to complete the work
- Cost estimations
- Quality requirements
- Acceptance criteria
- Technical references
- Agreement information

Scope Baseline

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:

- Project scope statement
- WBS
- Work package
- Planning package
- WBS dictionary

Product and Iteration Backlogs

- A product backlog is essentially a list of the expected work to deliver the product.
- A project's product backlog changes throughout the project.
- Grooming and refining the product backlog is an ongoing exercise, typically scheduled in weekly or monthly intervals.
- Product backlog items (PBI) drop off when work is completed.
- PBIs are edited and clarified as more becomes known or as product requirements change.
- PBIs are continually added as necessary when more work must be done.
- The iteration backlog includes items from the product backlog that can conceivably be completed within the time period based on the team's capacity.
- Teams must estimate the effort size of the work and understand the priorities of the business.

User Stories

- Projects deliver value.
- User stories help teams focus on that value provided to the user.
- User stories frame who is to benefit from the work of the team.
- Framing the user's desire as a story instead of a detailed requirement or specification enables the team to focus on the user and what they value.

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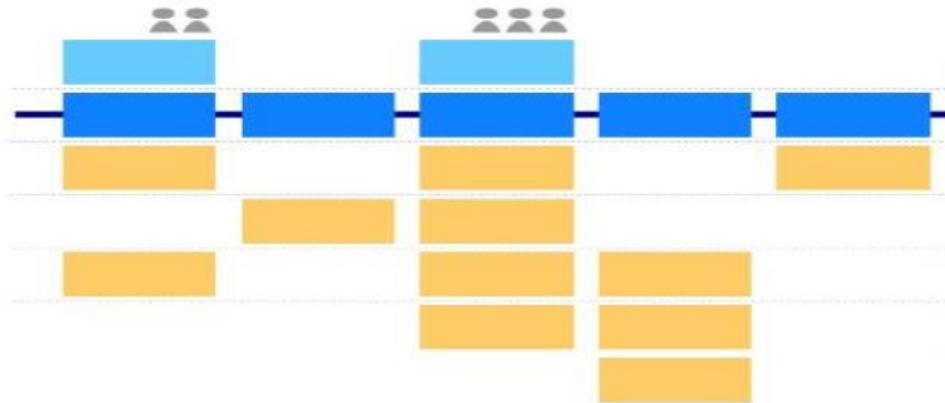
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User Stories, Story Maps, Roadmaps

A **story map** organizes **user stories** into functional groups and within the product roadmap's narrative flow ("the big picture").

- Helpful for discovering, envisioning, and prioritizing the product and a way ahead!
- Story map technique developed by Jeff Patton



Tools and Techniques for using when Verifying the Scope

الوصف - Description	الأدوات والأساليب Tool and Technique
قائمة مرجعية للفريق تحتوي على جميع المعايير المطلوبة لموافقة بها بحيث يمكن اعتبار التسليم جاهزًا لاستخدام العميل. A team's checklist of all the criteria required to be met so that a deliverable can be considered ready for customer use.	تعريف تم * Definition of Done*
قائمة مرجعية لفريق ما للمتطلبات التي ترتكز على المستخدم والتي تحتوي على جميع المعلومات التي يحتاجها الفريق ليتمكن من بدء العمل عليها. A team's checklist for a user-centric requirement that has all the information the team needs to be able to begin working on it.	تعريف جاهز * Definition of Ready*
مجموعة من الشروط التي يجب الوفاء بها قبل قبول التسليمات. A set of conditions that is required to be met before deliverables are accepted.	معايير القبول * Acceptance Criteria*
عملية إضفاء الطابع الرسمي على نواتج المشروع المكتمل. The process of formalizing acceptance of the completed project deliverables.	التحقق من النطاق * Validate Scope*
عند أو بالقرب من نهاية التكرار يشارك فريق المشروع ويوضح جميع الأعمال التي تم إنتاجها أثناء التكرار مع المنظمة وأصحاب المصلحة الآخرين. At or near the conclusion of a timeboxed iteration, the project team shares and demonstrates all the work produced during the iteration with the business and other stakeholders.	مراجعةن التكرار Iteration Reviews
تقنية لتحديد سبب ودرجة الاختلاف بين الخط المرجعي والأداء الفعلي. A technique for determining the cause and degree of difference between the baseline and actual performance.	تحليل التباين * خط الرجوع Variance Analysis*
تقنية تحليلية تستخدم النماذج الرياضية للتنبؤ بالنتائج المستقبلية بناءً على النتائج التاريخية. An analytical technique that uses mathematical models to forecast future outcomes based on historical results.	تحليل الاتجاه * Trend Analysis*

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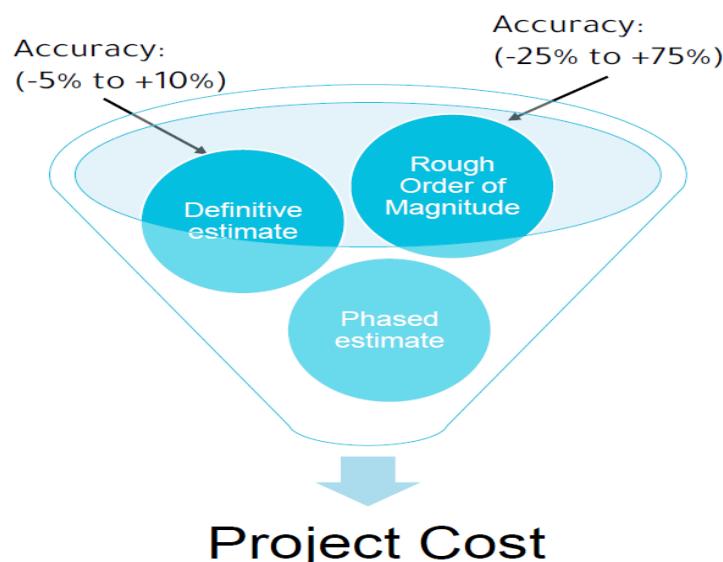
Cost Estimates

- Developing an approximation of the cost for each activity in a project.
- Cost should include:
 - Direct labor
 - Materials
 - Equipment
 - Facilities
- Services
- Information technology
- Contingency reserves
- Indirect costs
- Logical estimates provide basis for making sound decisions and they establish baselines.

Advantages and Disadvantages of Estimating Techniques

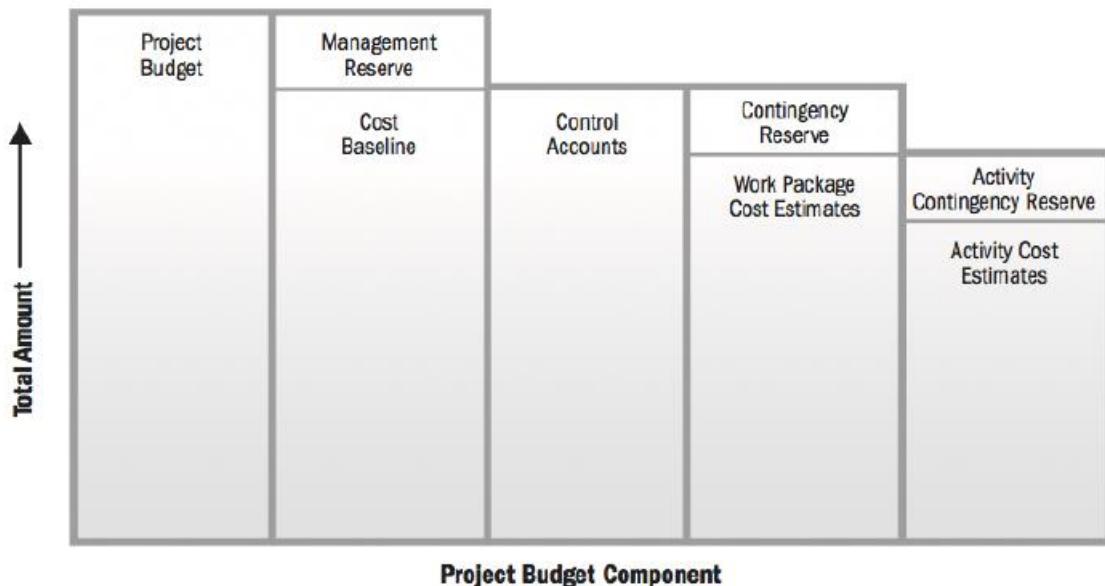
Disadvantage - العيوب	Advantage - المميزات	Technique - التكتيك
قد يكون من الصعب أحياناً على المديرين ذوي المستوى الأدنى تقسيم تقديرات التكلفة. Can sometimes be difficult for lower-level managers to apportion cost estimates.	يمكن أن تضمن عدم حذف أي عمل عن غير قصد من تقديرات العمل. Can ensure no work is inadvertently omitted from work estimates.	التقدير بالمحاالة Analogous estimating
قد يستغرق وقتاً طويلاً جدًا ولا يمكن استخدامه إلا بعد تحديد WBS جيداً. May be very time consuming and can be used only after the WBS has been well-defined.	دقة للغاية وتعطي مديري المستوى الأدنى مزيداً من المسؤلية. Is very accurate and gives lower-level managers more responsibility.	التقدير التصاعدي Bottom-up estimating
قد تكون غير دقيقة، اعتماداً على سلامة المعلومات التاريخية المستخدمة. May be inaccurate, depending on the integrity of the historical information used.	لا تستغرق وقتاً طويلاً. Is not time consuming.	التقدير بالمعاملات Parametric estimating

Common Estimate Types



Budget Estimates

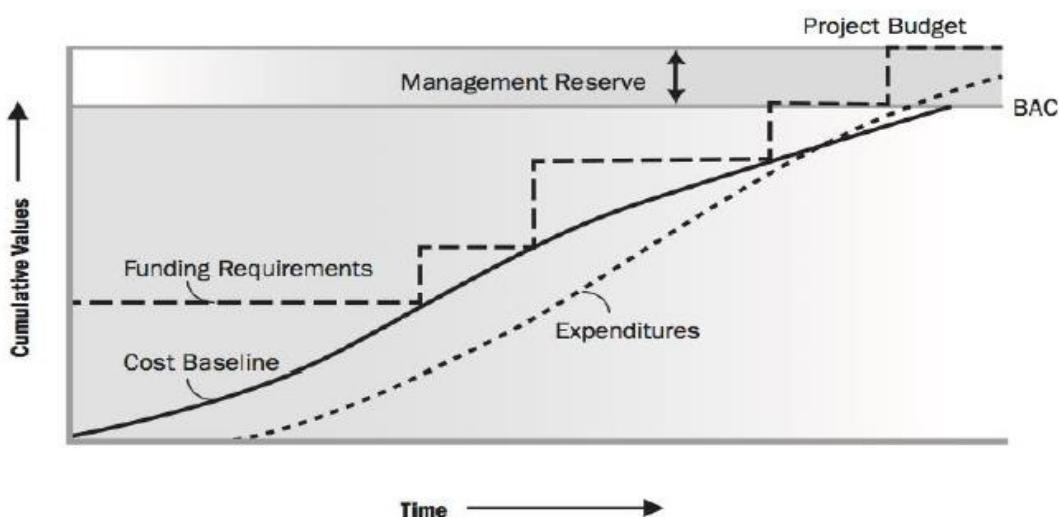
- Estimating the project budget consists of aggregating the estimated costs of individual activities or work packages to establish an authorized cost baseline.
- This budget contains all the funding needed to complete the project as defined in the scope baseline and the project schedule.
- The project cost performance is then measured against this cost baseline



Cost Baseline

The approved version of the time phased project budget, excluding any management reserves, which can be changed only through formal change control procedures and is used as a basis for comparison to actual results.

- Time phased budget
- Monitors and measures cost performance
- Includes a budget contingency
- Varies from project to project



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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.

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

Budget Planning

Burn rates: are often used by agile projects to budget costs for planned iterations / sprints / increments.

Resource Costs

Match project need to resource attributes (availability, experience, knowledge/skills, attitude)

Create initial estimate based on average rate

Modify as needed

Guidelines to Determine a Budget

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

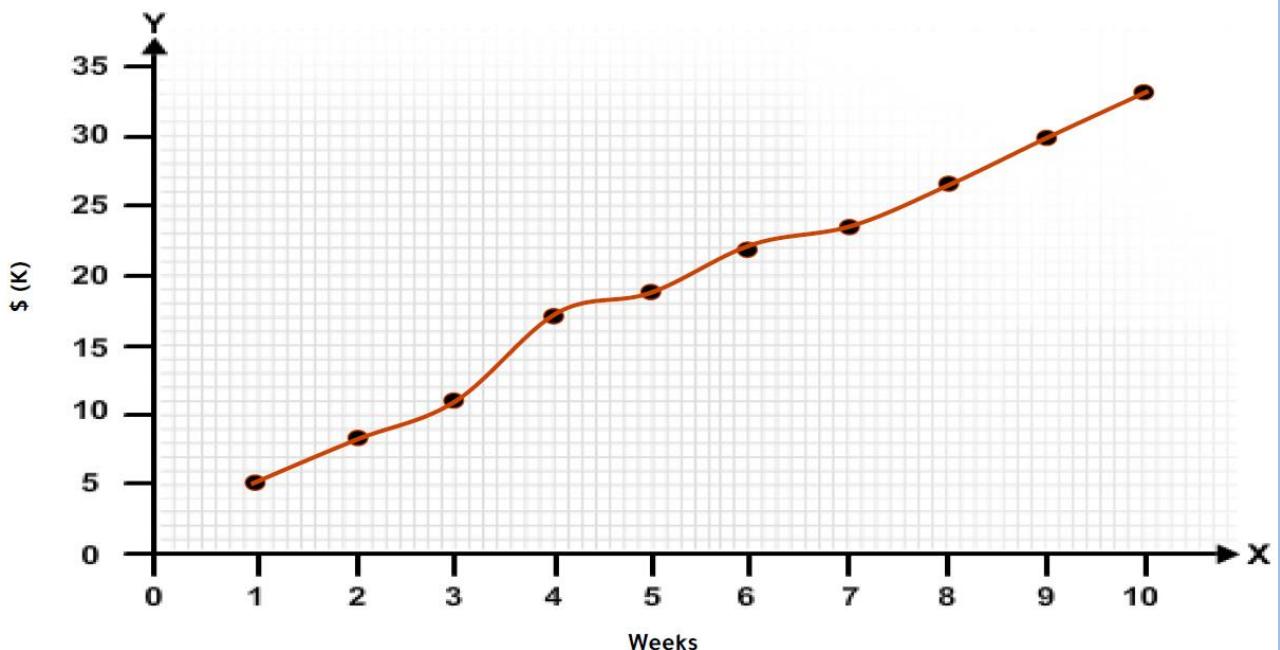
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Cost baseline and S Curve

1.1.4.2 Public Meeting	Total Budgeted Cost (K)	Week									
		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.

- Includes starting and finishing activities on specific dates and in a certain sequence.
- Specifies planned dates for meeting project milestones.
- Coordinates activities to form a master plan in order to complete the project objectives on time.
- Tracks schedule performance and keeps upper management and project stakeholders informed about the project's status.

Benchmarks and Historical Data / Processes

- When scheduling, benchmarking is the comparison of a project schedule to a schedule for a similar product or service produced elsewhere.
- Benchmarks can be useful in the initial stage of scheduling to help assess the feasibility of a project.
- Historical data can come from other projects completed within an organization for which detailed information is available.
- Historical data provides a good starting point" for how long something should take prior to detailed analysis.

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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.

- Describes how activities will be defined and progressively elaborated.
- Identifies a scheduling method and scheduling tool to be used.
- Determines the format of the schedule.
- Establishes criteria for developing and controlling the project 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.

Project Activities

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

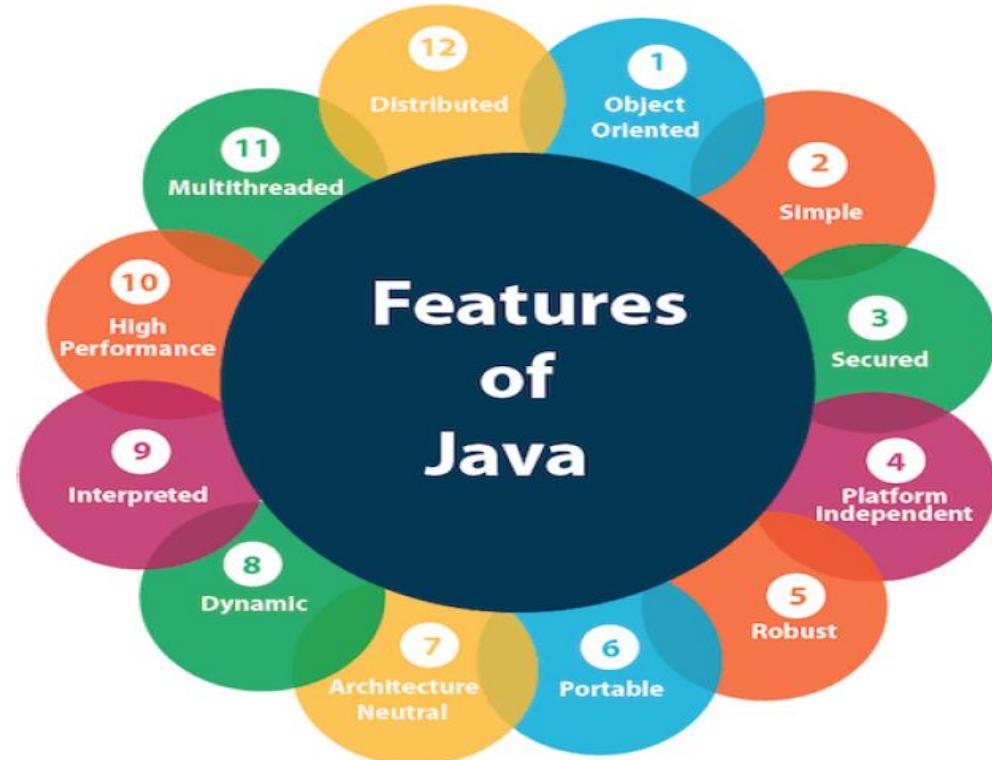
- In general, the terms activities, work packages, and tasks might be used interchangeably.
- In this project management environment, each has a distinct meaning:

- A work package is the lowest level of the WBS.
- An activity is a smaller component of a decomposed work package.
- A task is used when referring to project management software.

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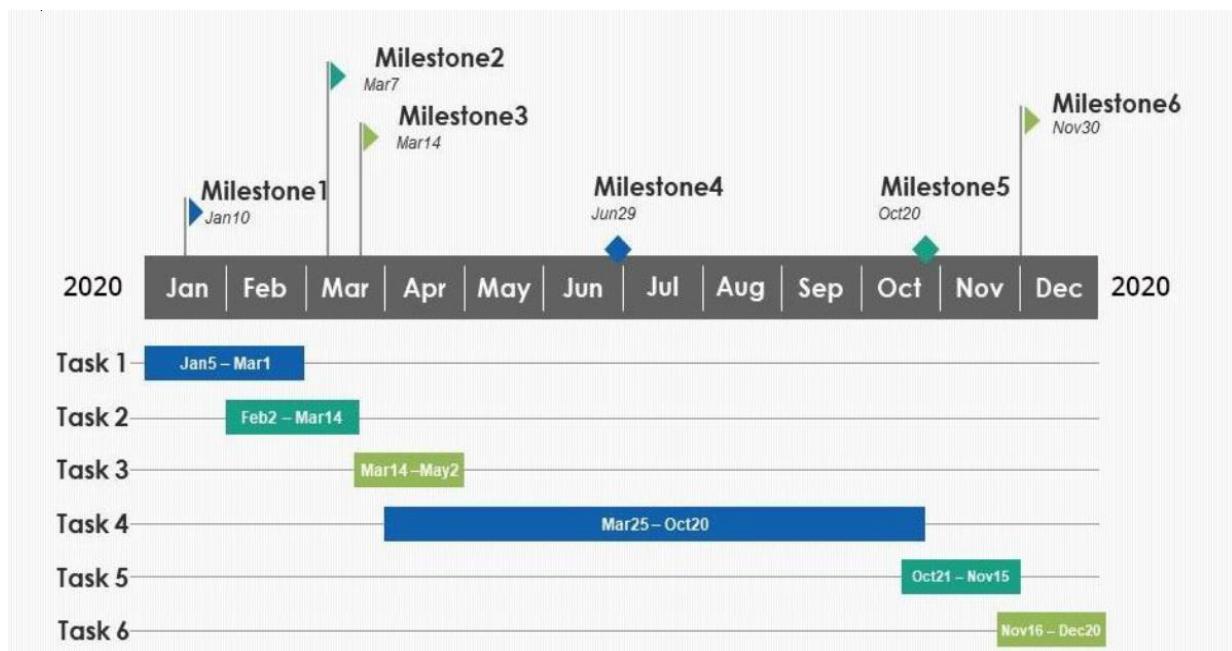
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Milestones

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



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Guidelines for Estimating Project Activities

- Review the schedule management plan
- Review the scope baseline for the WBS, deliverables, assumptions, and constraints.
- Review the EEFs.
- Review the OPAs.
- Analyze and decompose each work package of the WBS into activities that will be required to produce the deliverable.
- Consult SMEs about unfamiliar material.
- Evaluate all constraints and assumptions for their possible impact on activity definition.
- Once you have decomposed each work package into activities, evaluate your activity list.

Guidelines to Sequence Project Activities

- Review the schedule management plan for information on the scheduling method and tool, and information on how activities maybe sequenced.
- Review the activity list for all project schedule activities.
- Review the activity attributes for each activity.
- Review the milestone list for the dates for specific schedule milestone events.
- Review the project scope statement.
- Review the EEFs.
- Review the OPAs.
- Use tools and techniques such as PDM, dependency determination, and leads and lags to develop the project schedule network diagram.
- Document the project schedule network diagram and update any project documents, as needed.

Activity Duration Estimates

Activity duration estimate: 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 labor units required to complete a scheduled activity or WBS component, often expressed in hours, days, or weeks. Contrast with duration.

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Three Point Estimation

PERT is based on a probability distribution; therefore, we can calculate a standard deviation:

$$(P-O) / 6 = \text{PERT Standard Deviation}$$

Triangular Distribution (average)

FORMULA

$$E = (O + M + P) / 3$$

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

EQUATION

$$(3 + 5 + 10) / 3 = 6 \text{ weeks}$$

BETA Distribution (PERT average)

FORMULA

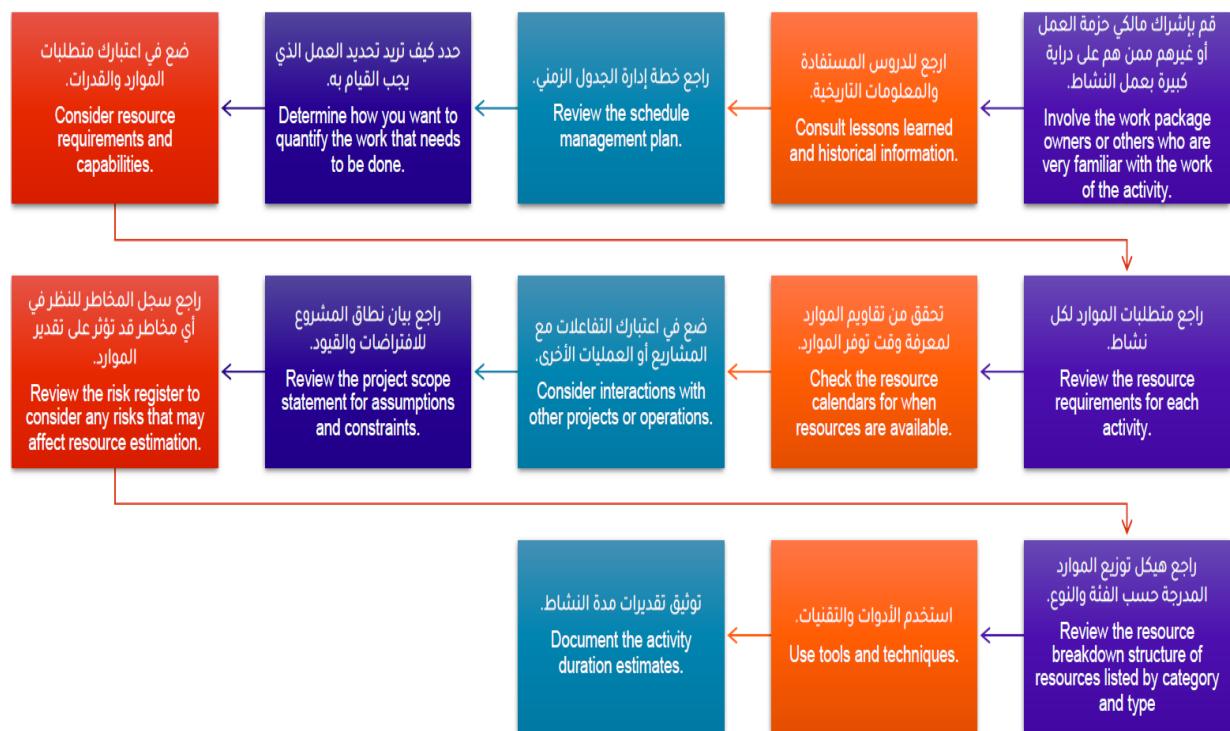
$$E = (O + 4M + P) / 6$$

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

EQUATION

$$[3 + 4 (5) + 10] / 6 = 5.5 \text{ weeks}$$

Guidelines to Estimate Activity Durations



Schedule Presentation Formats

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مخطط جانت
Gantt Chart

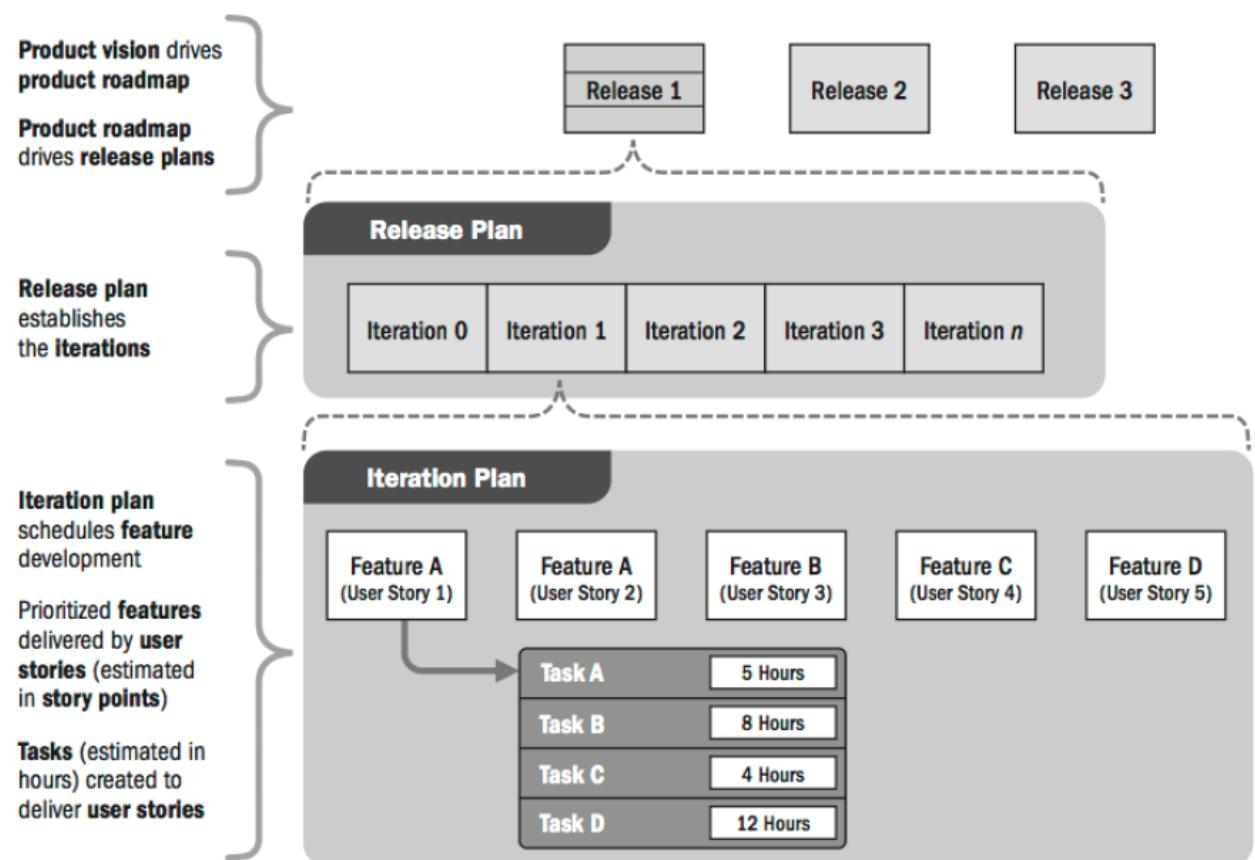


مخطط المعالم
Milestone Chart



المخطط الشبكي مع التواريف
Project Schedule Network
Diagram with Dates

Agile Release Planning



Agile Release Planning

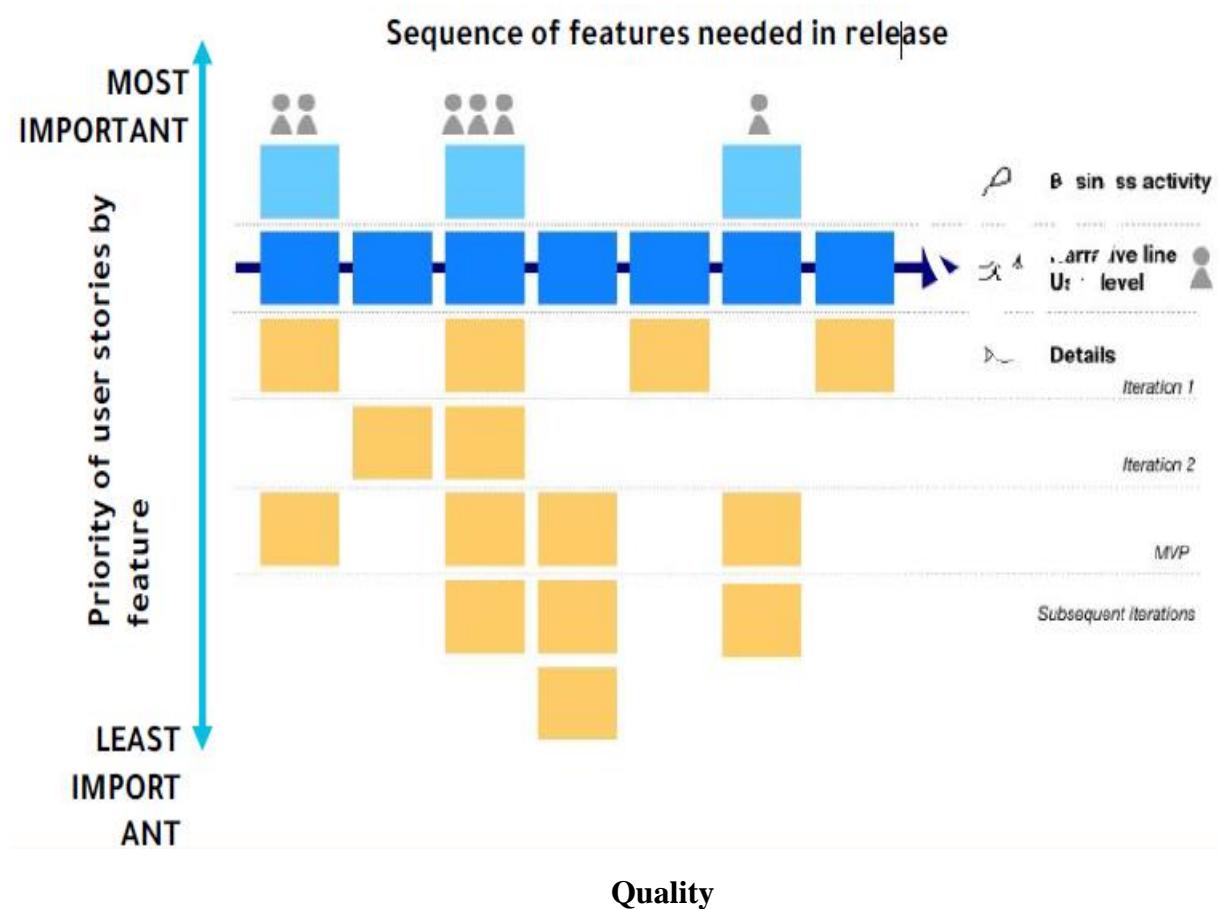
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Story Mapping

- Group stories by sequence and priority
- Sequence features and functions for the release
- Prioritize user stories in the release backlog and associate them with features and functions



Quality: The degree to which a set of inherent characteristics fulfill requirements.

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

Regulations: Requirements imposed by a governmental body.

These requirements can establish product, process, or service characteristics, including applicable administrative provisions that have government mandated compliance.

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.

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Cost of Conformance

Prevention Costs

- (Build a quality product)
- Training
 - Document processes
 - Equipment
 - Time to do it right

Appraisal Costs

- (Assess the quality)
- Testing
 - Destructive testing loss
 - Inspections

Money spent during the project
to avoid failures

Cost of Nonconformance

Internal Failure Costs

- (Failures found by the project)
- Rework
 - Scrap

External Failure Costs

- (Failures found by the customer)
- Liabilities
 - Warranty work
 - Lost business

Money spent during and after
the project because of failures



Quality metrics: A description of a project or product attribute and how to measure it.

Tolerance: The quantified description of acceptable variation for a quality requirement.

Examples of quality metrics include:

- Percentage of tasks completed on time
- Cost performance measured by CPI
- Failure rate

- Number of defects identified per day
- Total downtime per month
- Errors found per line of code
- Customer satisfaction scores
- Percentage of requirements covered by the test plan as a measure of test coverage

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Quality Control Tools

Data Gathering



- Checklists/Check Sheets
- Statistical Sampling
- Questionnaires and Surveys

Data Analysis



- Performance Reviews
- Root Cause Analysis

Data Representation



- Cause-and-Effect Diagram
- Control Charts
- Histograms
- Scatter Diagrams

Data Gathering

Questionnaires and Surveys



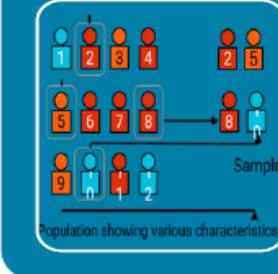
- Written set of questions, quickly accumulates information from a large number of respondents.
- Useful for varied audiences, for quick turnaround, or geographical dispersion of

Checklists



- Check Sheets
- A structured tool, usually component-specific
- Verifies performance of required steps or completion of requirements
- Used to organize facts to facilitate data

Statistical sampling



- Choosing part of a population of interest for inspection.
- Determine characteristics of an entire population based on measurement of representative sample.

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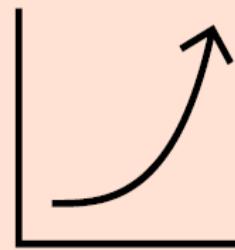
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Data Analysis

Performance Reviews

Technique that is used to measure, compare, and analyze actual performance of work in progress on the project against the baseline.

- Earned value management
- Trend analysis
- Critical path method



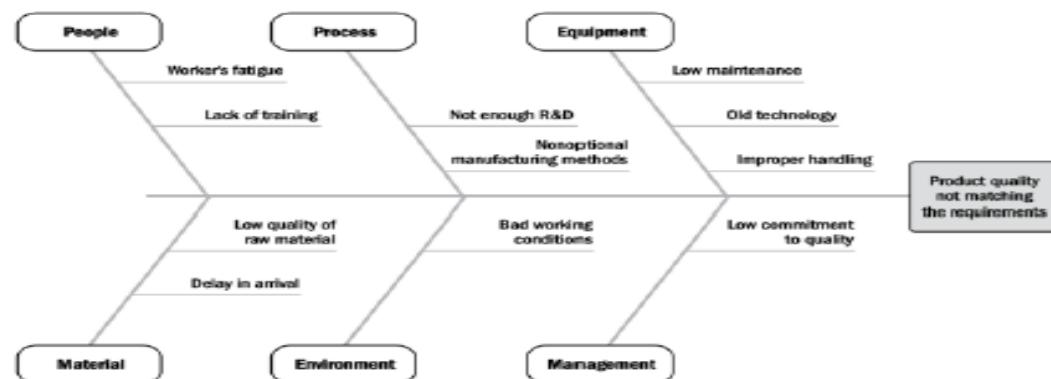
Root Cause Analysis

Analytical technique used to determine the basic underlying reason that causes a variance, defect, or a risk.

- Using gathered data, identify the cause of the problem.
- Goal is to pinpoint the exact cause.
- Follow issue back to the initial trigger.
- Use RCA tools - Failure Modes and Effects Analysis (FMEA), a fishbone diagram, a Pareto chart, a scatter diagram

Data Representation

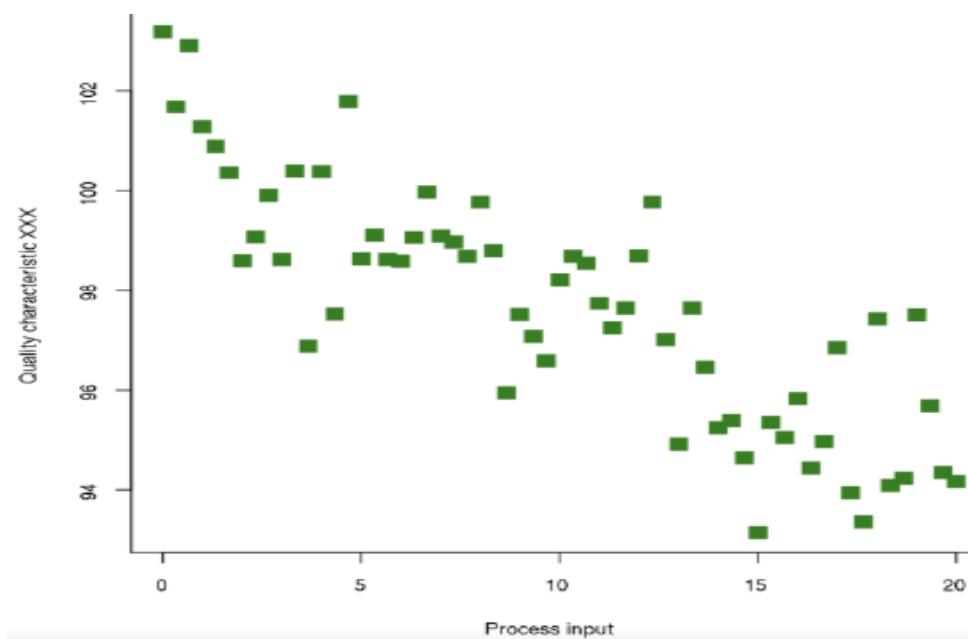
Cause and Effect Diagram



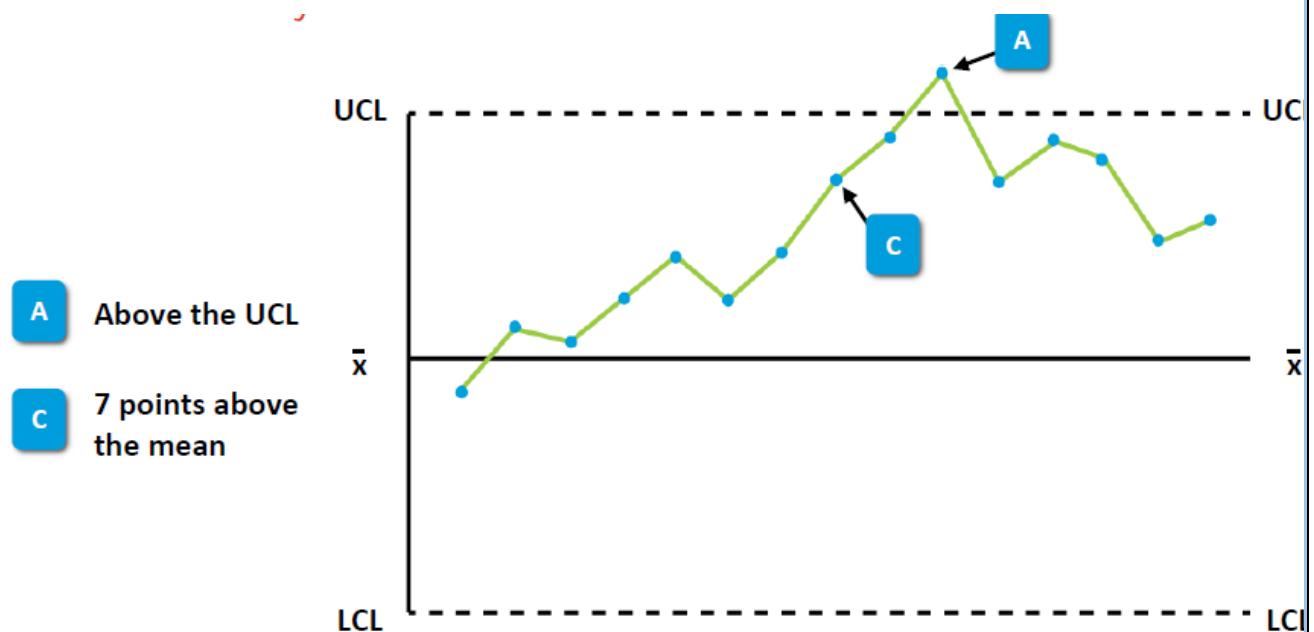
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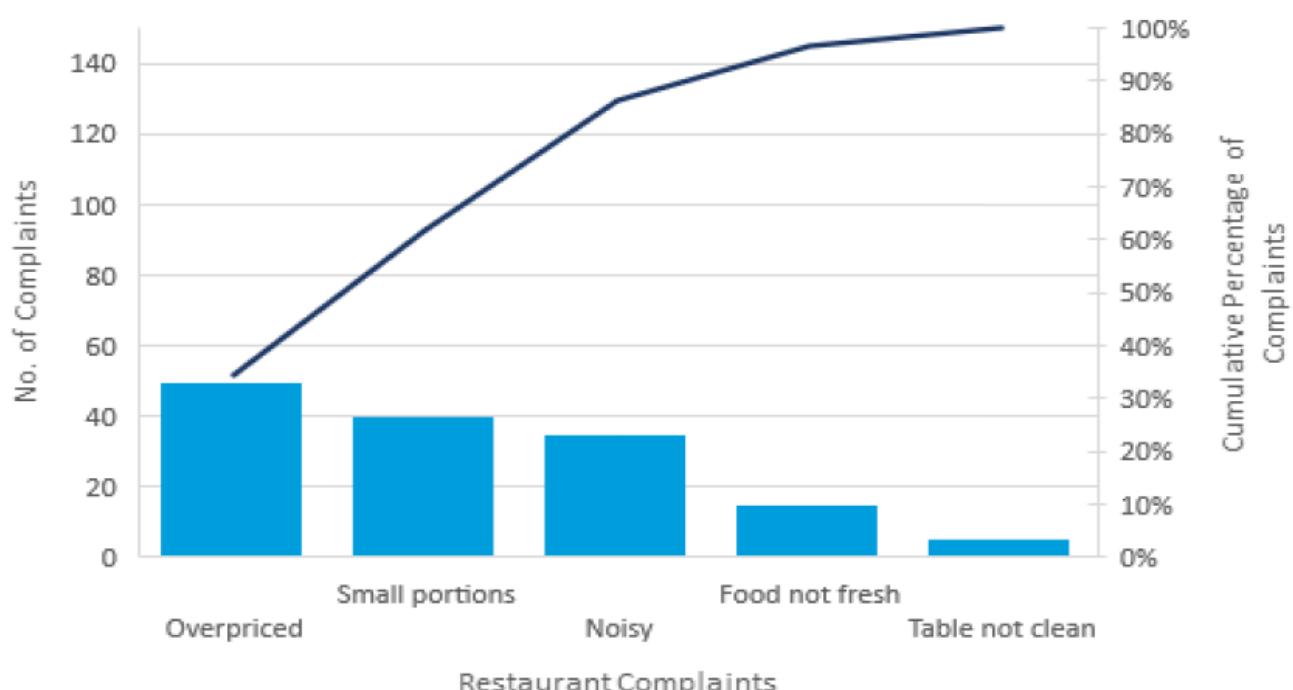
Scatter Diagram



Variability above the mean



Pareto Chart



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Project Management Plan Components

•Baselines

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

• 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*

• Life cycle

• Project processes

1. Project management processes
2. Level of implementation
3. Tools and techniques
4. How the selected processes will be used to manage

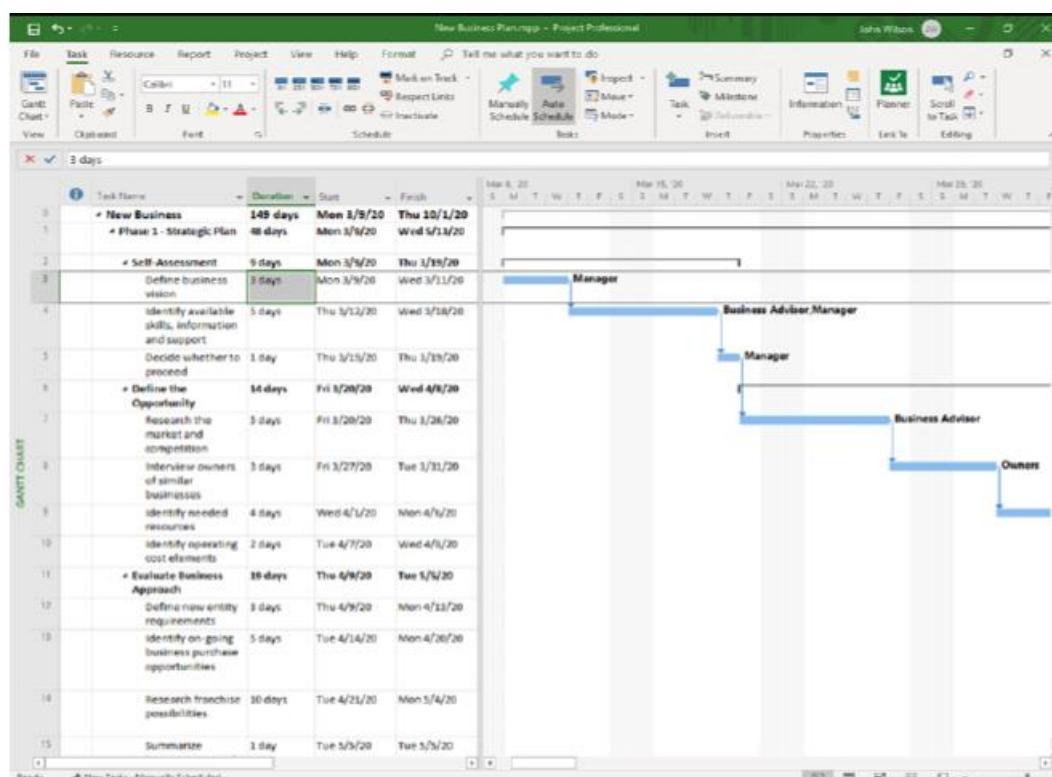
• Work explanation

• 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.

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



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Guidelines to Develop a Project Management Plan



Procurement Strategy

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

Make or buy analysis: The process of gathering and organizing data about product requirements and analyzing them against available alternatives including the purchase or internal manufacture of the product.

Make or buy decisions: Decisions made regarding the external purchase or internal manufacture of a product.

Procurement Documents / Bid and Proposal Activities

STATEMENT OF WORK (SOW) A narrative description of products, services, or results to be delivered.

REQUEST FOR PROPOSAL (RFP) A type of procurement document used to request proposals from prospective sellers of products or services. In some application areas, it may have a narrower or more specific meaning.

Statement of Work (SOW): Details of work required

Request for quotation (RFQ): Bid/tender or quotation, including only cost

Invitation for Bid (IFB): Buyer requests expressions of interest in work

Request for information (RFI): Buyer requests more information from seller

Request for proposal (RFP): Buyer issued statement of work required

Expression of Interest (EOI): Seller issued expression of interest in work

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.

- Specifies the types of contracts that will be used
- Describes the process for obtaining and evaluating bids
- Mandates the standardized procurement documents that must be used
- Describes how multiple providers will be managed

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Source Selection Criteria

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.

Sample source selection criteria:

- | | |
|-------------------------------|-------------------------------------|
| 1) Overall or life cycle cost | 8) Production capacity and interest |
| 2) Understanding of need | 9) Business size and type |
| 3) Technical capability | 10) Past performance of sellers |
| 4) Management approach | 11) References |
| 5) Technical approach | 12) Intellectual property rights |
| 6) Warranty | 13) Proprietary rights |
| 7) Financial capacity | |

Qualified Vendors List

Qualified Vendors List

Project Name: Computer Network Upgrade Project

Vendor	Industry/Expertise	Capacity	Staff	Reputation	References
Company 1	Computer networking consultants	100 to 500 machines in local network	60	Able to provide solutions for large businesses on time	Name 1: Designation/Contact details Name 2: Designation/Contact details
Company 2	Networking hardware router manufacturers	1000	500	Quality equipment providers – rated #1	Name 1: Designation/Contact details Name 2: Designation/Contact details
Company 3	Networking cable suppliers	Any quantity within 2 weeks	150	Can provide required brands at competitive prices	Name 1: Designation/Contact details Name 2: Designation/Contact details

Components of Contracts

مسؤوليات الطرفين <u>Responsibilities</u> of both parties	تحديد السلطة، عند الاقتضاء <u>Identification of authority</u> , where appropriate	تاريخ التسليم أو معلومات الجدول الزمني الأخرى <u>Delivery date or other schedule information</u>	وصف العمل الذي يتم شراؤه للمشروع، ومنجزاته، ونطاقه <u>Description of the work being procured for the project, its deliverables, and scope</u>
الضمانات المعمول بها <u>Applicable guarantees and warranties</u>	أحكام الإنهاء <u>Provisions for termination</u>	السعر وشروط الدفع <u>Price and payment terms</u>	إدارة الجوانب الفنية والتجارية <u>Management of technical and business aspects</u>

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Traditional Contract Types

Contract type	Description
Fixed-price*	<ul style="list-style-type: none"> An agreement that sets the fee that will be paid for a defined scope of work regardless of the cost or effort to deliver it. Also known as a <u>lump sum</u> contract. Provides <u>maximum protection</u> to buyer but requires a lengthy preparation and bid evaluation. Suited for projects with a <u>high degree of certainty</u> about their parameters.
Cost-reimbursable*	<ul style="list-style-type: none"> A contract involving payment to the seller for the seller's actual costs, plus a fee typically representing the seller's profit. Includes incentives for meeting certain objectives, such as costs, schedule, or technical performance targets. Suited for projects when <u>parameters are uncertain</u>.
Time and Material (T&M)*	<ul style="list-style-type: none"> A type of contract that is a hybrid contractual arrangement containing aspects of both cost-reimbursable and fixed-price contracts. Combines a negotiated hourly rate and full reimbursement for materials. Include not-to-exceed values and time limits to prevent unlimited cost growth. Suited for projects when a precise statement of work cannot be quickly prescribed.

Contract Types/ Fixed Price

الوصف	سعر ثابت
<p>أكثر أنواع العقود شيوعاً FFP. تفضل معظم المنظمات المشترية لأن سعر العمل محدد في البداية ولا يخضع للتغيير ما لم يتغير نطاق العمل</p> <ul style="list-style-type: none"> The most used contract type is the FFP. It is favored by most buying organizations because the price for goods is set at the outset and not subject to change unless the scope of work changes 	<p>سعر ثابت مسنيقر (FFP)</p> <p>Firm fixed price (FFP)</p>
<p>يمنح المشتري والبائع بعض المرونة من حيث أنه يسمح بالانحراف الإيجابي عن الأداء، مع ربطه بالحوافز المالية لإنجازات ما يتعلق بالتكلفة أو الجدول الزمني أو التقنية</p> <p>بموجب عقود FPIF، يتم تحديد سقف للسعر وتكون جميع التكاليف فوق سقف السعر من مسؤولية البائع</p> <ul style="list-style-type: none"> Gives the buyer and seller some flexibility in that it allows for deviation from performance, with financial incentives tied to achievements (Financial incentives are related to cost, schedule, or technical) Under FPIF contracts, a <u>price ceiling</u> is set, and all costs above the price ceiling are the responsibility of the seller 	<p>سعر ثابت مع حواجز (FPIF)</p> <p>Fixed price incentive fee (FPIF)</p>
<p>تُستخدم كلما امتدت فترة أداء البائع لفترة طويلة من السنوات، أو إذا تم سداد المدفوعات بعملة مختلفة.</p> <p>هو عقد ثابت السعر ولكن مع وجود بند خاص يسمح بإجراء تعديلات نهائية محددة مسبقاً على سعر العقد بسبب الظروف الاقتصادية المتغيرة، مثل التضخم</p> <ul style="list-style-type: none"> Used whenever the seller's performance period spans a considerable period of years, or if the payments are made in a different currency. It is a fixed-price contract, but with a special provision allowing for predefined final adjustments to the contract price due to changed conditions, such as inflation 	<p>سعر ثابت مع تعديلات الأسعار اقتصادياً (FPEPA)</p> <p>Fixed price with economic price adjustments (FPEPA)</p>

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Contract Types/ Cost Reimb

Cost reimbursable	Description
Cost plus fixed fee (CPFF)	<ul style="list-style-type: none"> The seller is reimbursed for all allowable costs for performing the contract work and receives a fixed-fee payment calculated as a percentage of the initial estimated project costs. Fee amounts do not change unless the project scope changes
Cost plus incentive fee (CPIF)	<ul style="list-style-type: none"> The seller is reimbursed for all allowable costs for performing the contract work and receives a predetermined incentive fee based on achieving certain performance objectives as set forth in the contract. If the final costs are less or greater than the original estimated costs, then both the buyer and seller share costs from the departures based upon a pre-negotiated cost-sharing formula (for example, an 80/20 split over/under target costs based on the actual performance of the seller)
Cost plus award fee (CPAF)	<ul style="list-style-type: none"> The seller is reimbursed for all legitimate costs, but the majority of the fee is earned based on the satisfaction of certain broad subjective performance criteria that are defined into the contract. The determination of fee is based solely on the subjective determination of seller performance by the buyer and is generally not subject to appeals

Agile Contract Types

Multi-tiered structure	<ul style="list-style-type: none"> Create a master service agreement to capture fixed items – e.g., warranties, arbitration List variable items in a schedule of services – e.g., service rates, product descriptions Use a SOW to itemize dynamic items – e.g., scope, schedule, budget
Emphasize value delivered	<ul style="list-style-type: none"> Structure milestone and payment terms based on value derived at milestones Focus on the value of feedback in product development
Fixed-price increments	Decompose scope into smaller, fixed-price micro-deliverables (user stories), giving customer more control over how the money is spent and limiting the supplier's financial risk.
Not-to-exceed time and materials	<ul style="list-style-type: none"> Limit budget to fixed amount, allowing customer to add ideas by removing existing ones Monitor work to avoid overage (or add contingency hours)
Graduated time and materials	<ul style="list-style-type: none"> Connect quality and timely delivery of work (use DoD) to financial award - reward for early and reduce for late delivery
Early cancellation option	<ul style="list-style-type: none"> Enable flexible delivery of scope, using DoD – e.g., if partial scope delivery satisfies customer, contract can be cancelled for a fee
Dynamic scope option	<ul style="list-style-type: none"> Gives option to vary scope and fund innovation at specific points while limiting supplier risk Vary scope at specific points to adjust features and innovate
Team augmentation	<ul style="list-style-type: none"> Embed supplier's services directly into the customer organization; fund team instead of scope

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Delivery Solution

- The goal of procurement is the delivery of procured goods or services by the supplier to the procuring organization.

الوصف - Description	مرحلة تسليم الحل Solution Delivery Phase
يتم توثيق متطلبات العملاء Customer requirements are documented	التخطيط والتحليل Planning and analysis
تم توثيق الحل Solution is documented	تصميم مفصل Detailed design
تم تنفيذ الحل Solution is implemented or installed	التنفيذ أو التثبيت Implementation or installation
يتم اختبار الحل Solution is tested	الاختبارات Testing
يتم توفير التدريب للعميل Training is provided to the customer	التدريب Training
يتم تسليم الحل رسميًا إلى العميل Solution is formally handed over to the customer	التسليم Handover
يتم نقل الحل إلى دعم العملاء Solution is transferred to customer support	الدعم والصيانة Support and maintenance

Types of Contract Changes

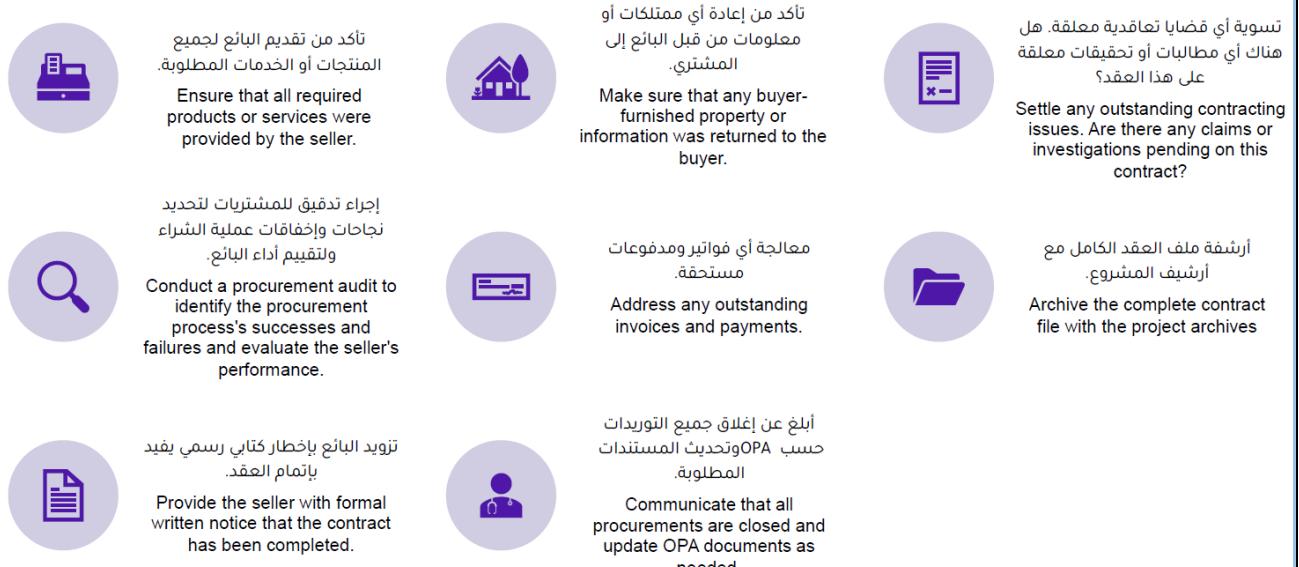
الوصف Description	المكونات Component
التغييرات غير الجوهرية، وهي أكثر التغييرات شيوعاً في طريقة إدارة العقد. Non-substantive changes, which are the most common changes to the way the contract is administered.	التغييرات الإدارية Administrative changes
تغير جوهري في متطلبات العقد مثل موعد نهائي جديد أو تغيير في متطلبات المنتج. A substantive change to the contract requirements such as a new deadline or a change to the product requirements.	تعديل العقد Contract modification
اتفاقية إضافية تتعلق بالعقد ولكن تم التفاوض عليها بشكل منفصل. An additional agreement related to the contract but negotiated separately.	الاتفاق التكميلي Supplemental agreement
التغييرات التي قد يكون المشتري قد تسبب بها من خلال العمل أو التفاسخ. Changes that the buyer may have caused through action or inaction.	التغييرات المتصلة بترتيبات المورد Constructive changes
قد يتم إنهاء العقد بسبب تقصير البائع أو لراحة العميل. تعود حالات التخلف عن السداد إلى عدم الأداء، مثل تأخر التسليم وسوء الجودة أو عدم أداء بعض أو كل متطلبات المشروع. A contract may be terminated due to vendor default or for customer convenience. Defaults are due to nonperformance, such as late deliveries and poor quality, or nonperformance of some or all project requirements.	إنهاء العقد Termination of contract

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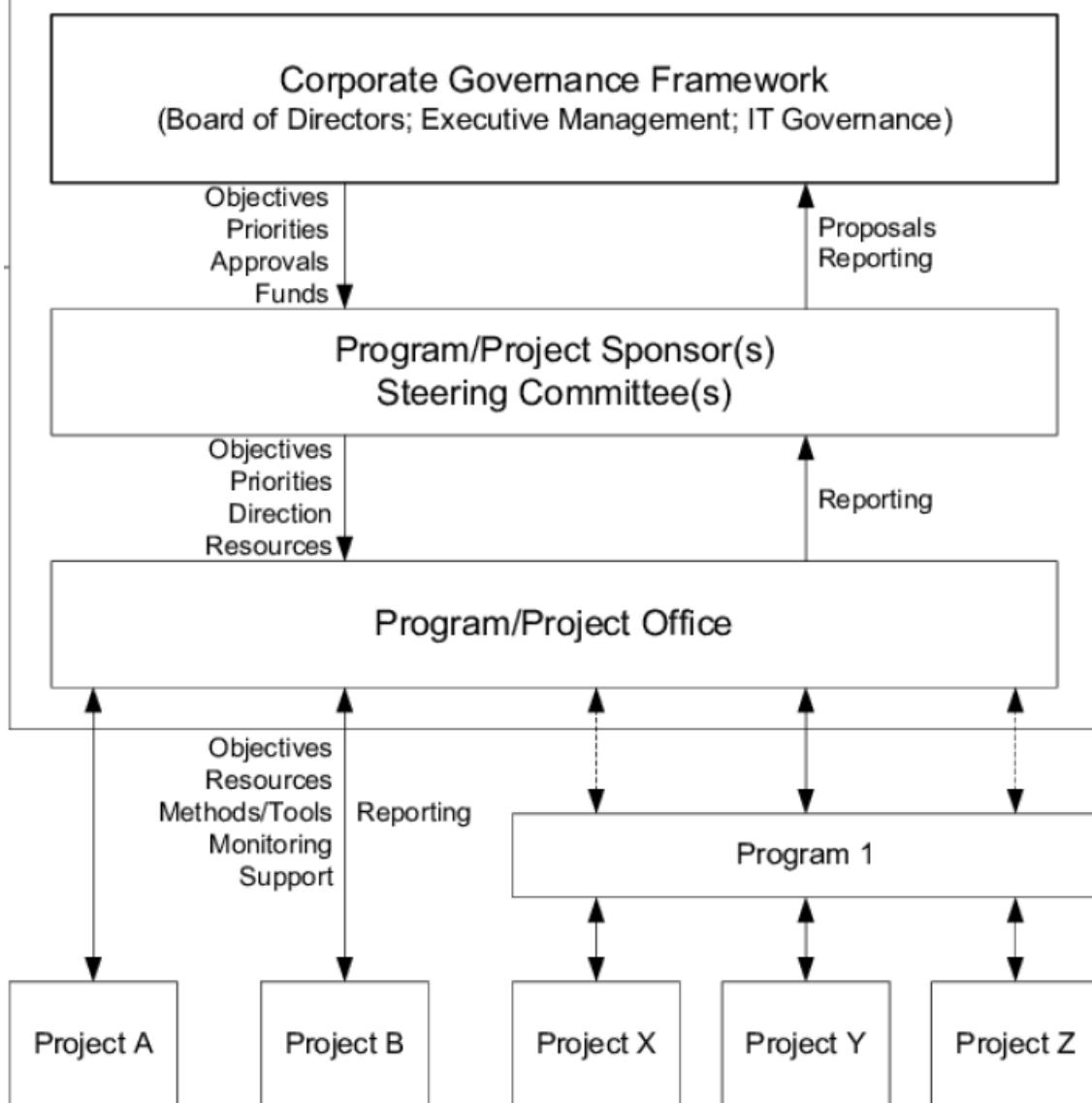


Guidelines to Close Procurements



Project Governance

Project Governance Framework



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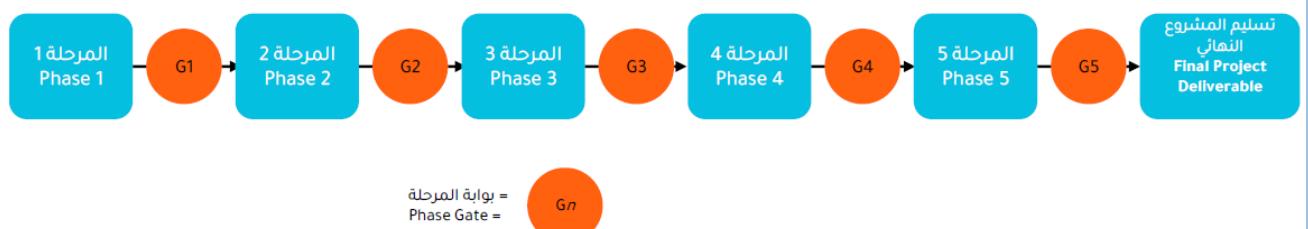
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Project Phases



Escalation Paths

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.

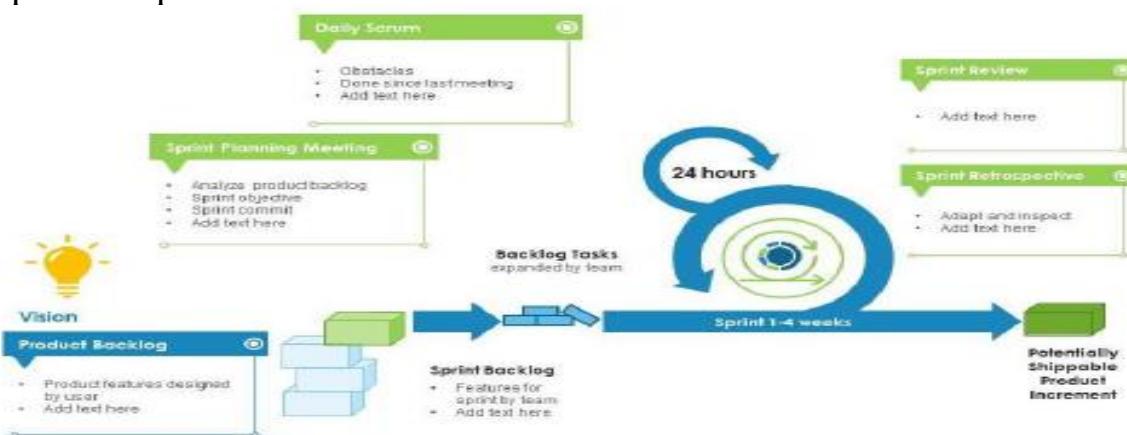


Governance in Adaptive Projects

Can:

- Document outputs and expectations
- Provide a clear view of project status from:
- Defined iteration/sprint expectations and outputs
- Releases tied to specific dates
- “Real-time” monitoring of project output through daily standups

Iterative approaches enable quicker and less costly identification of value-based outputs than predictive.



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Guidelines to Determine Appropriate Governance for a Project



DOING THE WORK 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.

Primary components include:

- A measure of probability that the risk event will occur.
- The impact of the risk occurring on a project.
- Positive risks: Risks that produce a positive project outcome.
- Also referred to as opportunities
- Negative risks: Risks that have a negative impact on the project.
- Also referred to as threats.

Risk Management Plan

Risk strategy: Describes the risk management approach for the project.

Methodology Describes and defines what specific tools, approaches, and data sources will be used to perform risk management for a project.

Roles and responsibilities Define the lead, support, and risk management team membership for each type of action in the risk management plan.

Funding Includes budgeting information that estimates and identifies risk funds that will need to be included in the cost

Timing Defines at what points the risk management process will be performed on the project and determines guidelines for use of schedule

contingency reserves Determines what risk management activities will be in the project schedule.

Risk categories can be used to group potential causes of risk. A Risk Breakdown Structure (RBS) * documents what sources a project risk

The categories could be technical, external, financial, organizational, and project management risk.

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Stakeholder risk appetite Identifies the amount of risk that is acceptable to stakeholders.

probability and impact Define the levels of probability and impact for the project using terms such as "very unlikely" to "almost certain" with respective numerical values assigned to the terms. For example, "very unlikely" may have 0.05 as a probability value.

Probability and impact matrix This maps the probability of occurrence for each risk and the impact on the project if that risk occurs. Risks need to be prioritized based on their impact by using a probability and impact matrix.

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.

Risk Identification

Tool	Description
Checklist analysis	Developed based on historical information as a standardized way to identify risks
Root cause analysis	examines a problem and seeks to determine the underlying reason or cause of the problem
Assumption and constraint analysis	explores the validity of the project assumptions within the constraints
SWOT	analysis examines the project from the perspective of strengths, weaknesses, opportunities, and threats.
Document analysis	is structured reviews of project plans and related documents to help identify risks
Prompt lists	A predefined list of risk categories that might help gathering and analyzing risk-related data
Meetings	special meeting called a risk workshop to focus on identifying risks
Expert judgment	Individuals with the proper experience in risk analysis provide appropriate feedback

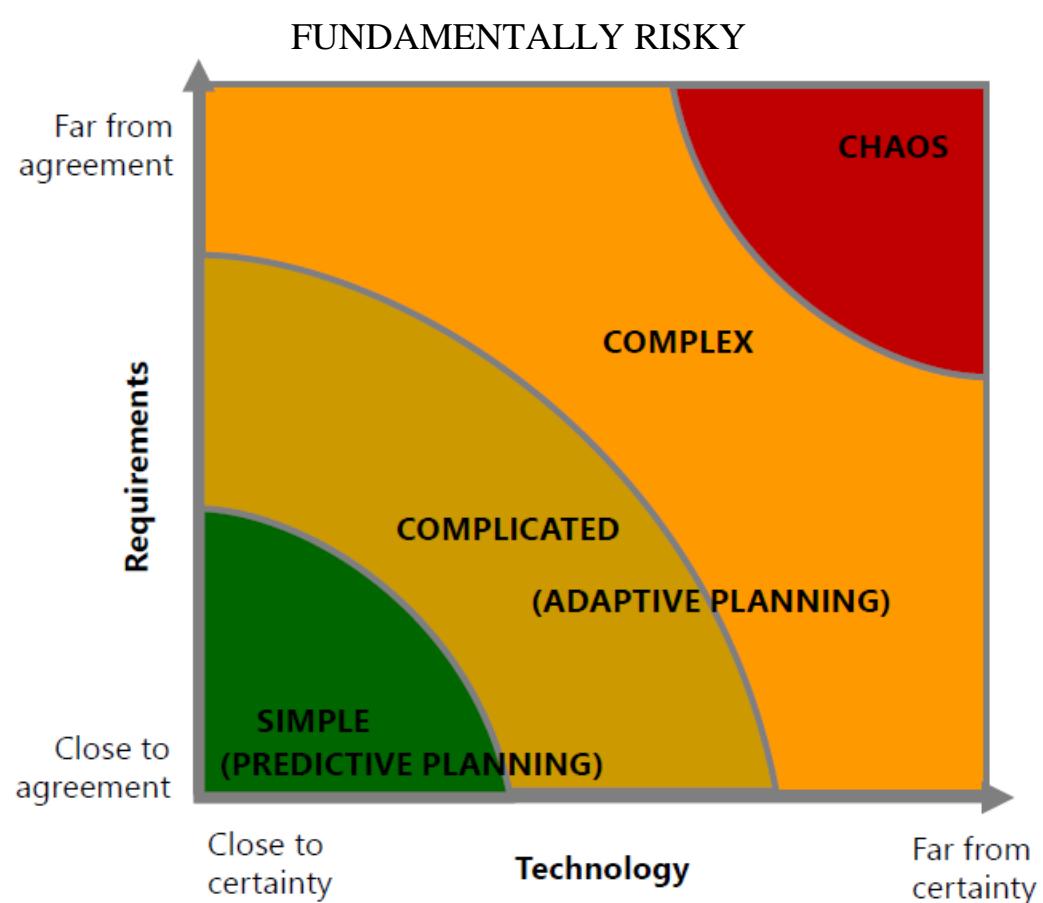
Qualitative Risk Analysis



Determines the risk exposure of the project by multiplying the probability and impact



Provides the list of prioritized risks for further actions



Probability and Impact Matrix

		SEVERITY IMPACT (SEVERITY)				
		1	2	3	4	5
PROBABILITY (LIKELIHOOD)	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

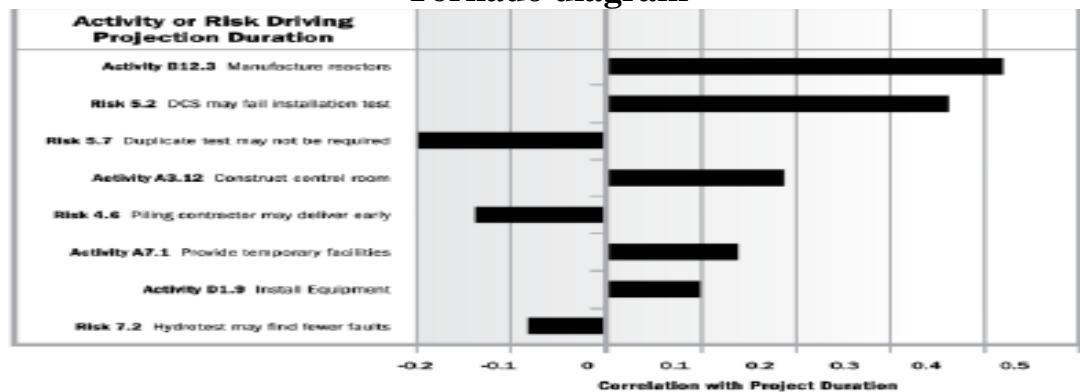
Quantitative Risk Analysis Methods

- Simulations
- Sensitivity analysis
- Decision tree analysis
- Influence diagrams
- Expected monetary value (EMV)
- Simulations - Use computer models to determine risk factors

Monte Carlo simulations produce a quantitative risk analysis model by using schedule and/or cost inputs to produce an integrated quantitative cost-schedule risk analysis

- Sensitivity analysis - Determine the greatest risk

Tornado diagram



- Decision tree analysis
- Influence diagrams
- Expected monetary value (EMV)

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Risk Responses



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



Risks are addressed by priority, and resources and activities can be added to the budget, schedule, and project management plan to support the risks.



Each risk is assigned a risk response, which is an action to address that risk and a person to implement that action.



There are various risk response strategies to choose from to determine a risk response for each risk.



A fallback plan can also be developed in case the primary strategy is not effective. Secondary risks should also be reviewed. These are risks that could occur as a result of implementing a risk response.

Negative Risk Strategies

Escalate

Avoid

Transfer

Mitigate

Accept

Positive Risk Strategies

Escalate

Exploit

Enhance

Share

Accept

Contingency Plans

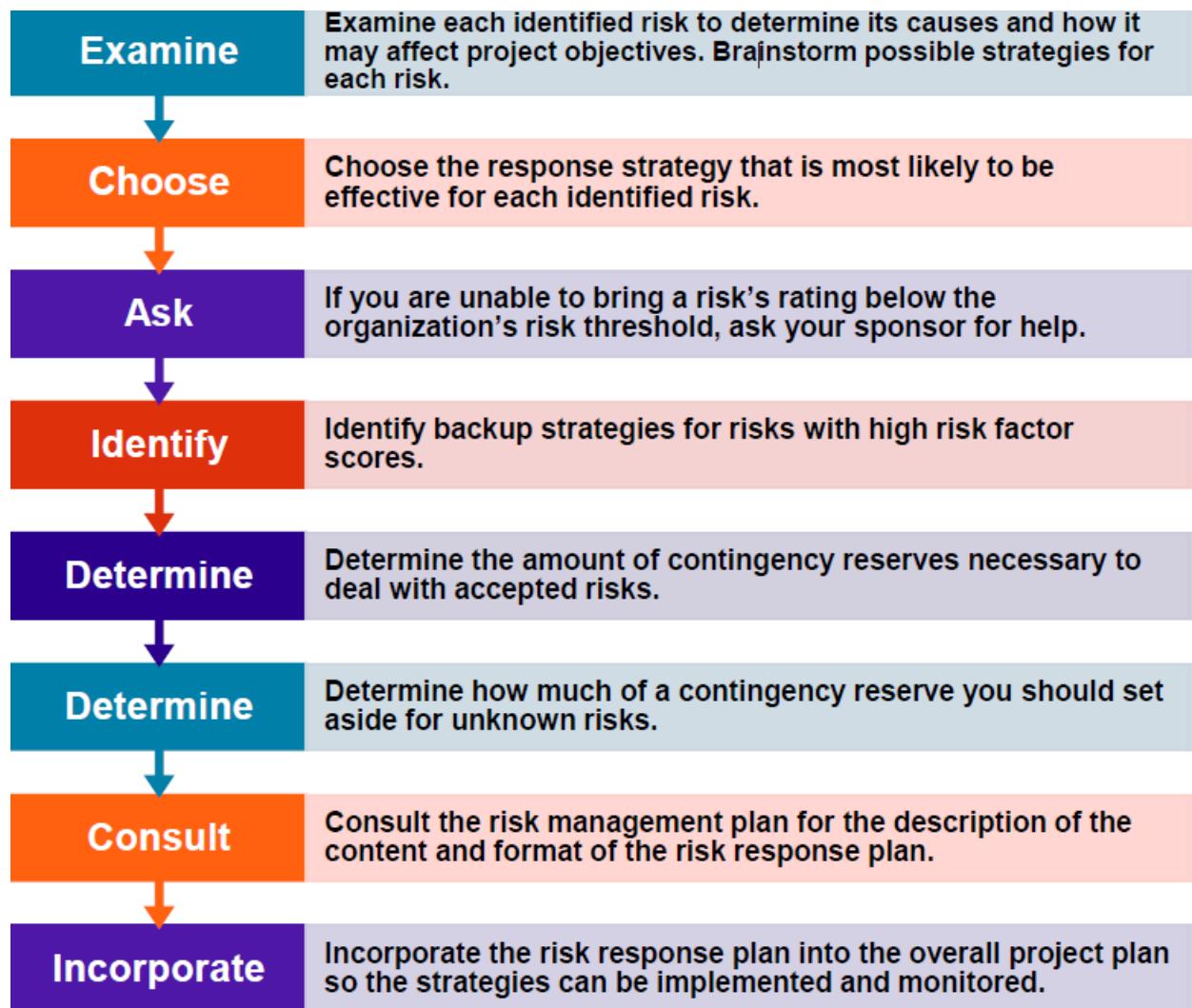
A risk response strategy developed in advance, before things go wrong; it is meant to be used if and when identified risks become reality.

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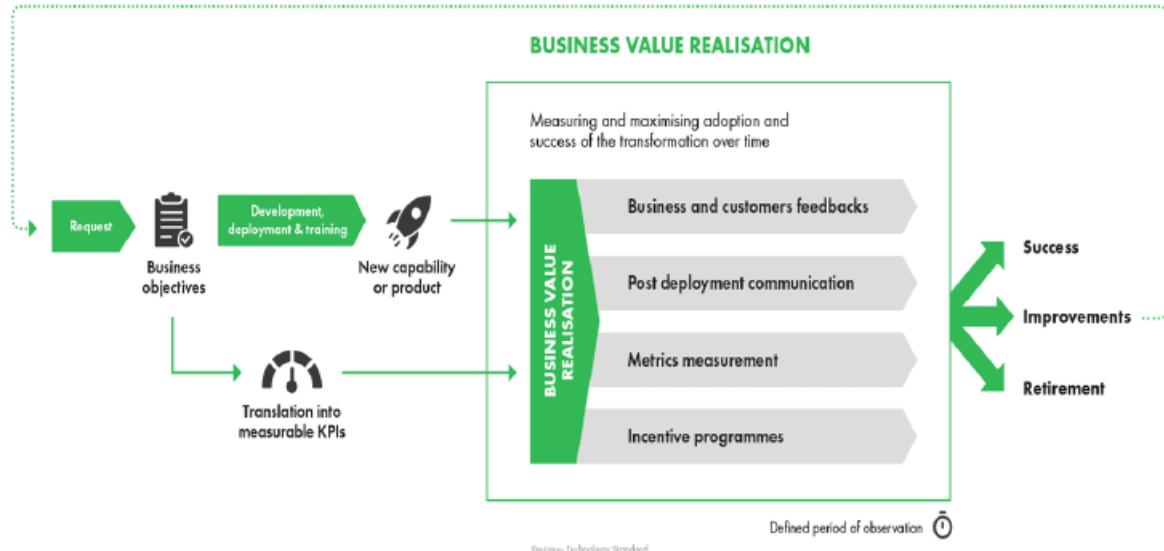
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Guidelines to Determine and Implement Risk Responses



Examination of Business Value



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Product Roadmaps



Roadmaps can vary in appearance and presentation.



Objective is to display the strategy and direction of the product being built and value to be delivered.



Roadmaps start with the overarching vision of the product.



Over time, the roadmap is progressively elaborated as more information is known, work is being completed or not completed, and vision is refined.



Themes, which equate to goals, emerge to provide structure and associations.



Product roadmaps provide short-term and long-term visualization of the product.

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Project Communications

- Internal or external stakeholders
- Formal or informal message content and format
- Hierarchical focus senior management or peers
- Official or unofficial annual reports or reports to other governing bodies compared to project team communication
- 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)

Components of the Communications Management Plan

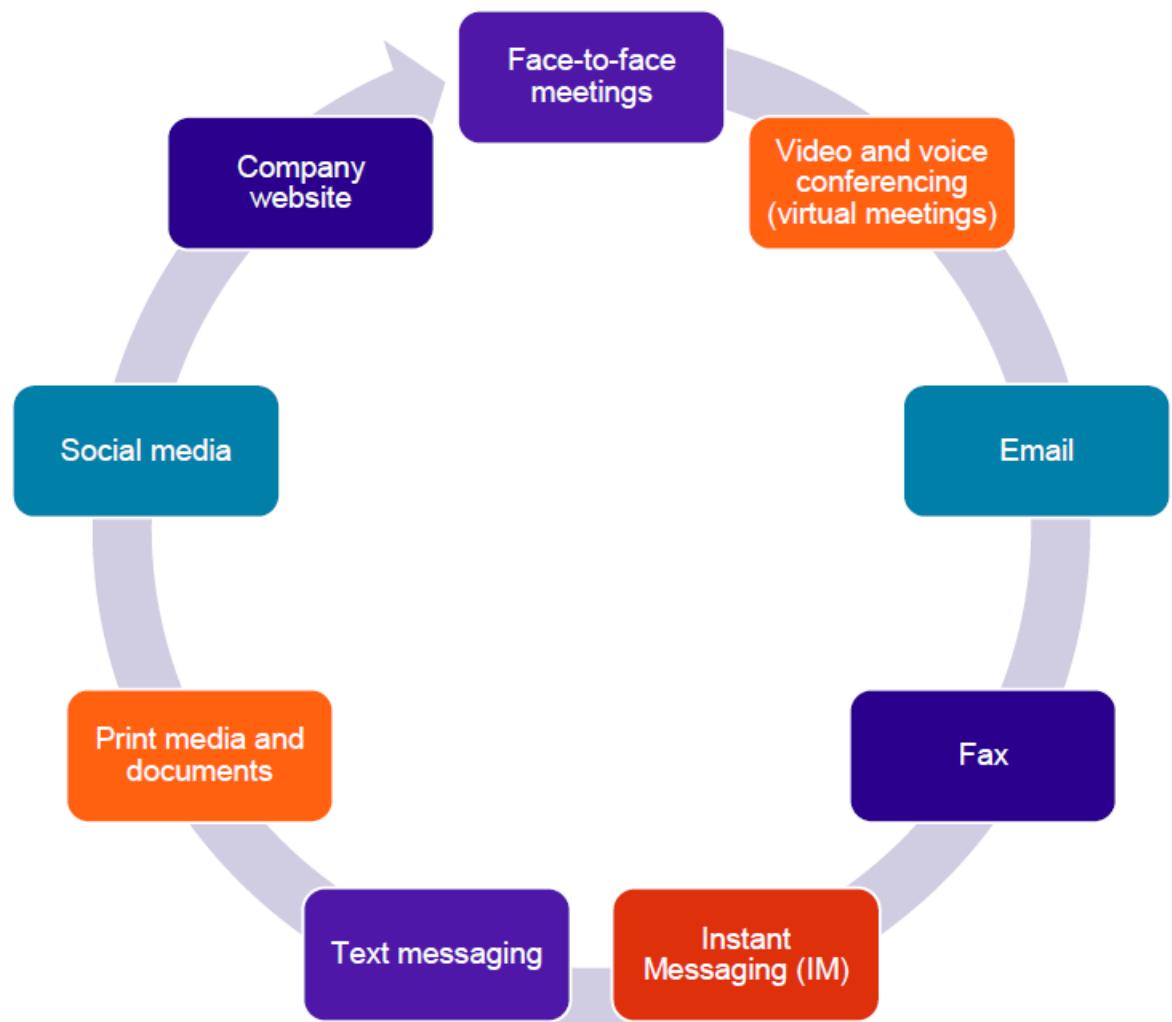
- Stakeholder communications requirements.
- Information to be communicated, including language to be used.
- Reason for the distribution of the information.
- Time frame and frequency of information distribution.
- Person responsible for the communication.
- Person responsible for the release of confidential information.
- People who will receive the information.
- Methods or technologies to convey the information.
- Time and budget allocated for communication.
- Escalation process for issues that need visibility.
- Method for updating the communications management plan.
- Glossary of common terminology.
- Flowcharts of information flow.
- Any communication constraints due to regulation or policies.

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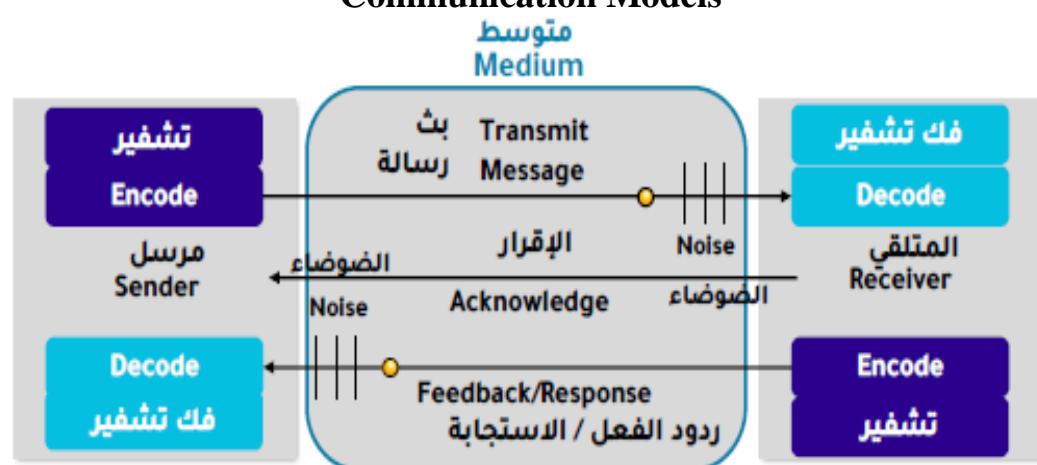
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Communication Types



Communication Models



Communication Methods

Involves communication between multiple people performing multi directional information exchange.



Involves sending information to a receiver. It ensures that the information has been distributed but does not guarantee that it has reached the receiver.



Involves receivers accessing information whenever required.

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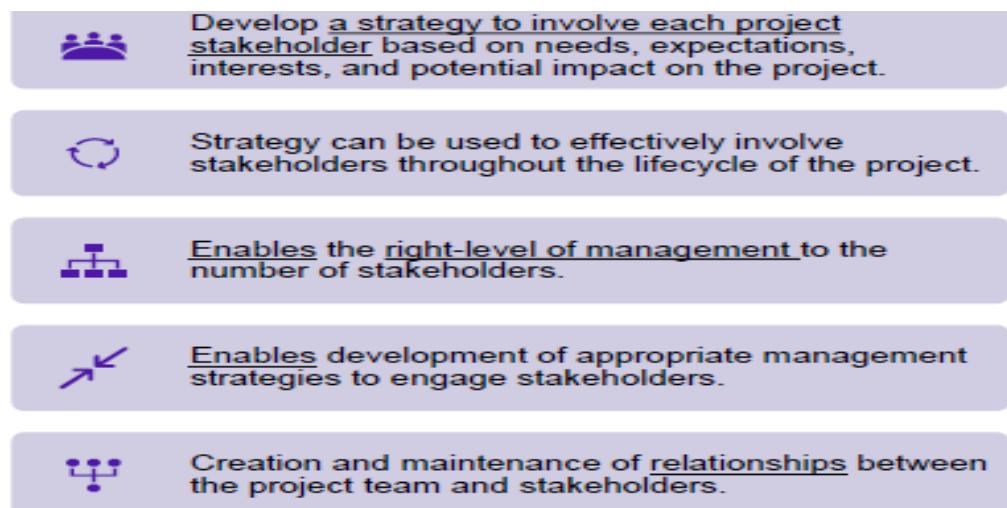
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Stakeholder Categories

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

Stakeholder Engagement Strategy



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



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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 Artifact Characteristics

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

Configuration Management

A tool used to manage changes to a product or service being produced as well as changes to any project documents.

Configuration management is used to:

- Control product iterations.
- Ensure that product specifications are current.
- Control the steps for reviewing and approving product prototypes, testing standards, and drawings or blueprints.

Configuration management system: A collection of procedures used to track project artifacts and monitor and control changes to these artifacts.

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.

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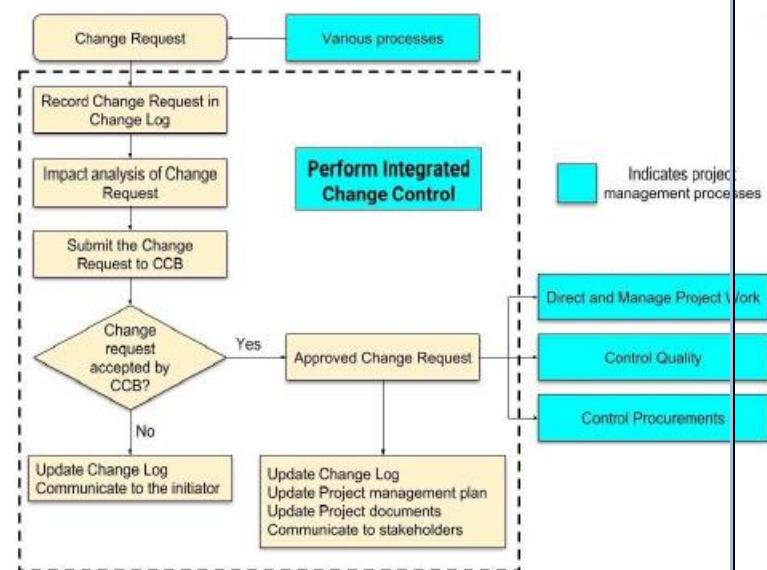
Causes of Project Changes

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

Change Control Systems

- Forms
- Tracking methods
- Processes
- Approval levels required for authorizing or rejecting requested changes

Change Control Strategy





Guidelines to Manage Project Changes



Issue

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.

Common areas include:

- Scope change control
- Schedule control
- Cost control
- Project variance analysis
- Quality
- Risk
- Procurement
- Communications

Issue Log

ID	Description	Opened	Due Date	Priority	Owner	Response	Status	Comments
25	Truck strike	10/15/20xx	11/01/20xx	High	R. Smith	TBD	Open	Tasks are on the critical path

Issue Resolution

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

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Lessons Learned

Knowledge gained during a 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.

يمكن أن تكون المعرفة المكتسبة أثناء المشروع مفيدة للمراحل اللاحقة من المشروع وللمشاريع الأخرى.

التجارب الإيجابية والسلبية التي تحدث طوال دورة حياة المشروع.

Considerations of Lessons Learned

- Scheduling lessons learned
- Conflict management lessons learned
- Vendor lessons learned
- Customer lessons learned
- Strategic lessons learned
- Tactical lessons learned
- Other aspects of lessons learned

Learning Goals

- Assess and manage risks.
- Execute the project with the urgency required to deliver business value.
- Manage communications.
- Engage stakeholders.
- Create project artifacts
- Manage project changes.
- Attack issues with the optimal action to achieve project success.
- Confirm approach for knowledge transfers.

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Vision and Mission

- 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

Project professionals use interpersonal power skills, "including collaborative leadership, communication, an innovative mindset, for purpose orientation and empathy.

Teams with these skills can maintain influence with a variety of stakeholders A critical component for making change.

Leadership Skills

- | | |
|--|--|
| <ul style="list-style-type: none">• Conflict management• Cultural awareness• Decision making• Facilitation• Meeting management | <ul style="list-style-type: none">• Negotiation• Networking• Observation/conversation• Servant Leadership• Team building |
|--|--|

Leadership Traits

Leadership ≠ Management

- Leadership Guiding the team by using discussion and an exchange of ideas
- Management Directing actions using a prescribed set of behaviors
- Adapt leadership style to situations and stakeholders
- Be aware of individual and team aims and working relationships
- Use political awareness and emotional intelligence

Leadership Styles

Tailoring Considerations

- 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 behaviors
Consensus/Collaborative	Team operates autonomously
Situational	Style changes to fit context and maturity/experience of team

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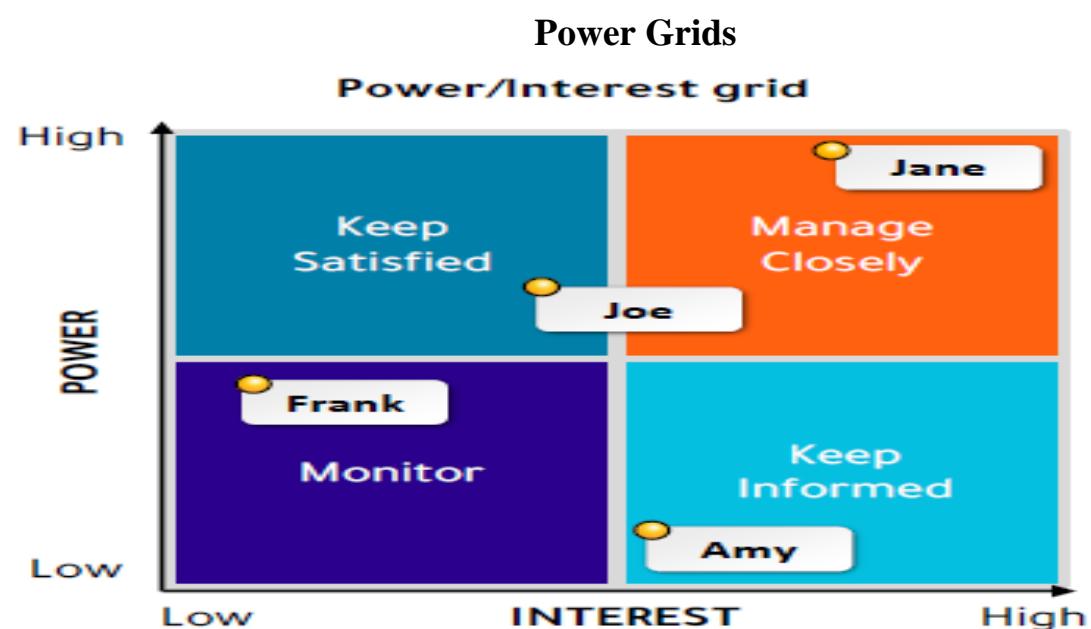
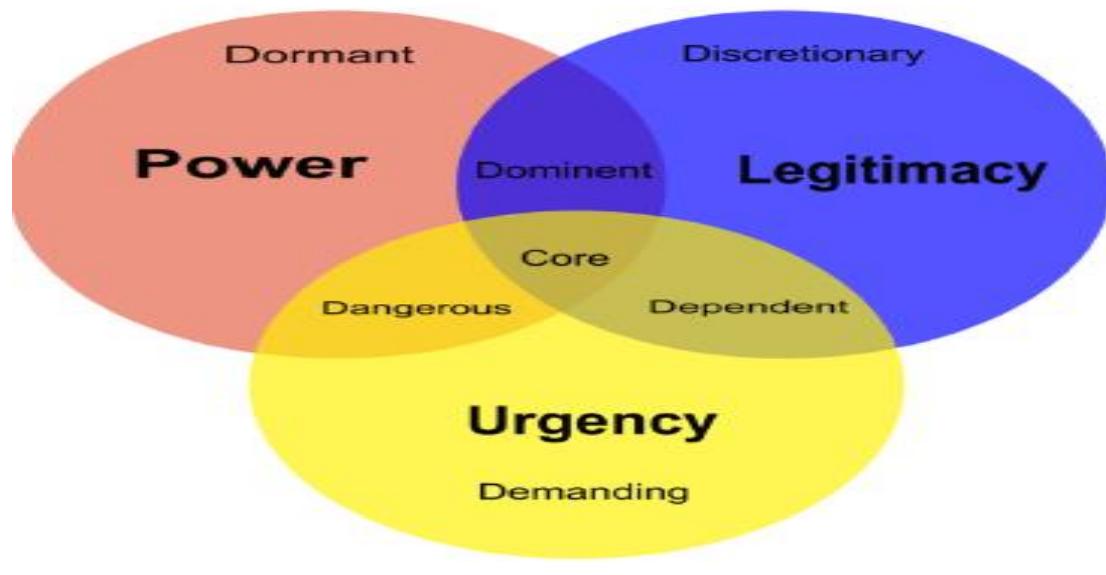


Servant Leadership

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.



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





Reward and Recognition Plans

Recognition	Rewards
<ul style="list-style-type: none"> حدث غير ملموس، تجريبي Intangible, experiential event تمنح نظراً إلى سلوك المتنقي بدلاً من تحقيق نتائج معينة Given as a result of recipient's behavior rather than outcome غير مقيد بوقت معين Not restricted to a set time عادةً ما يكون غير متوقع من قبل المستلم Usually unexpected by recipient والغرض من ذلك هو زيادة شعور المتنقي بالتقدير؛ يمكن أن تعطى دون مكافأة Purpose is to increase recipient's feeling of appreciation; can be given without a reward 	<ul style="list-style-type: none"> العناصر الملمسة والقابلة للاستهلاك Tangible, consumable items يعطي كنتيجة للوصول إلى نتيجة أو إنجاز معين Given as a result of reaching a specific outcome or achievement بداية ونهاية محددة، أو وقت ثابت Definite start and finish, or fixed time عادةً ما يكون متوقعاً عندما يتم تحقيق الهدف Usually expected when goal is met والغرض من ذلك هو التحفيز على تحقيق نتيجة محددة؛ لا تعطى أبداً دون التقدير أيضاً Purpose is to motivate towards a specific outcome; never given without recognition too

Keeping the Team on track

Lead a Team	قم بقيادة فريق	القيادة
	Lead	
Support Team Performance	أدعم أداء الفريق	الدعم
	Support	
Address and Remove Impediments, Obstacles, and Blockers	معالجة وإزالة العوائق والعقبات والحواجز	المعالجة والإزالة
	Address and Remove	
Manage Conflict	إدارة الخلاف	مدير
	Manage	
Collaborate with Stakeholders	التعاون مع أصحاب المصلحة	التعاون
	Collaborate	
Mentor Relevant Stakeholders	توجيه أصحاب المصلحة المعنيين	التوجيه
	Mentor	
Apply Emotional Intelligence to Promote Team Performance	تطبيق الذكاء العاطفي لتعزيز أداء الفريق	تطبيق
	Apply	

Key Performance Indicators (KPI)

	مقيدة زمنياً		ذو صلة		قابل للتحقيق		قابل للقياس		محدد
Time-bound	Relevant	Achievable	Measurable	Specific					

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Performance Assessment Tasks



Guidelines to Measuring Performance

Only Measure What Matters” John Doerr

Monitor Scope

Monitor Schedule

Continuous Flow Diagram

Physical Resource Management

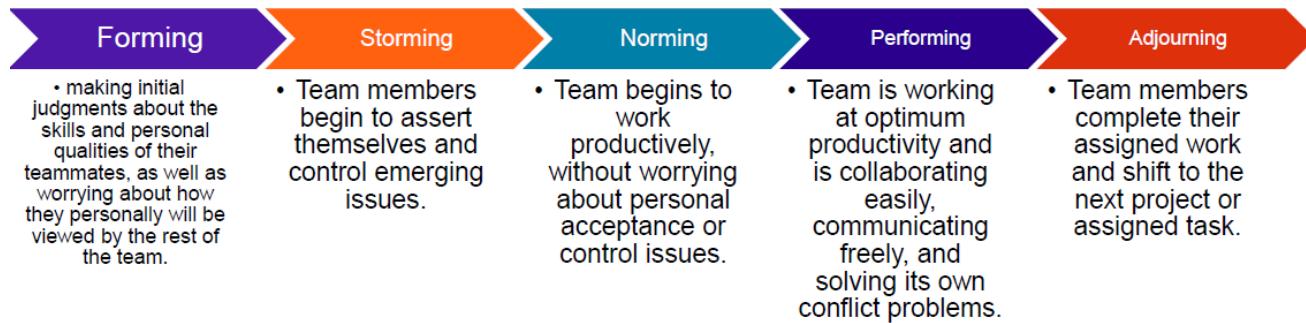
Update Resource Allocation Evaluate and Manage Quality

Verify Deliverables

Monitor Risks

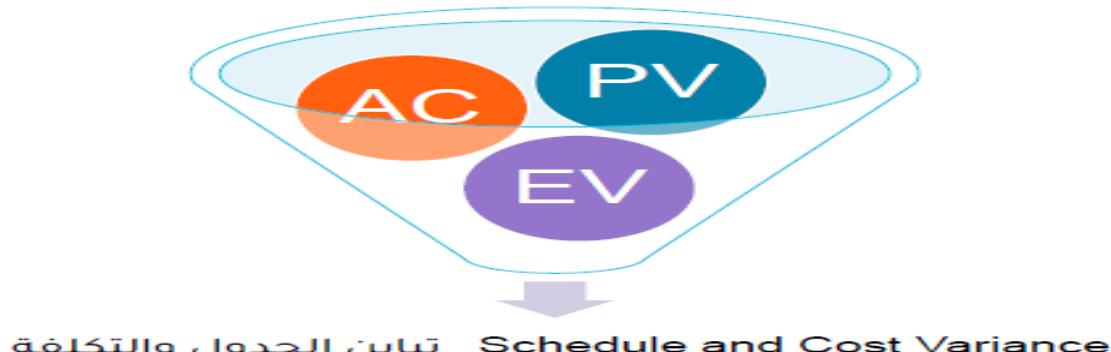
Review your Reserves

Team Development Stages



Earned Value Management (EVM)

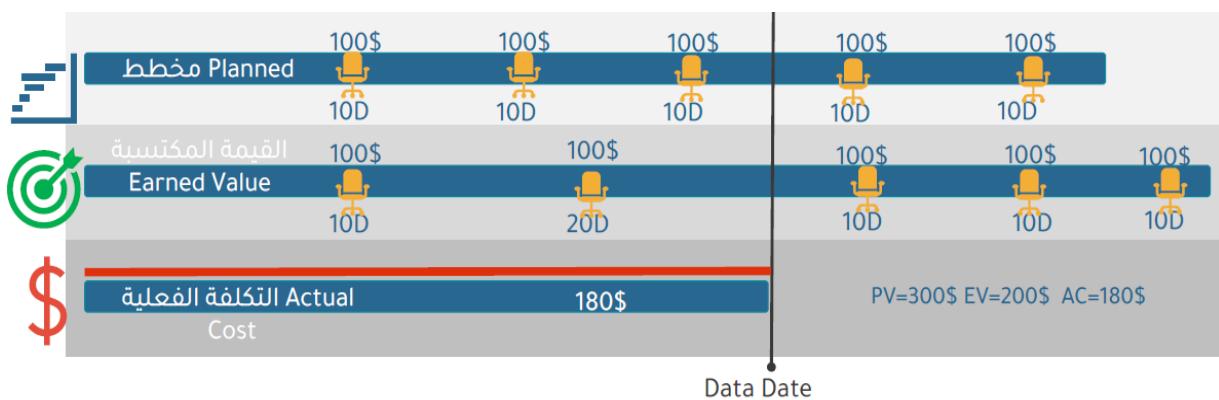
A methodology that combines scope, schedule, and resource measurements to assess project performance and progress.



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Control Costs



$$CV = EV - AC = 200 - 180 = 20$$



أقل من التكلفة المخطططة
طبقاً للتكلفة المخطططة
أعلى من التكلفة المخطططة

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



متقدم عن البرنامج الزمني
طبقاً للجدول الزمني
متاخر عن البرنامج الزمني

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

$$CPI = EV / AC = 200 / 180 = 1.1$$



أقل من التكلفة المخطططة
طبقاً للتكلفة المخطططة
أعلى من التكلفة المخطططة

$$SPI = EV / PV = 200 / 300 = 0.67$$



متقدم عن البرنامج الزمني
طبقاً للجدول الزمني
متاخر عن البرنامج الزمني

التقدير عند الانتهاء EAC Estimation at completion

EAC

BAC/CPI

$$= 500 / 1.1 = 454.5$$



إذا كان 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

التقدير حتى الإكمال ETC Estimation to completion

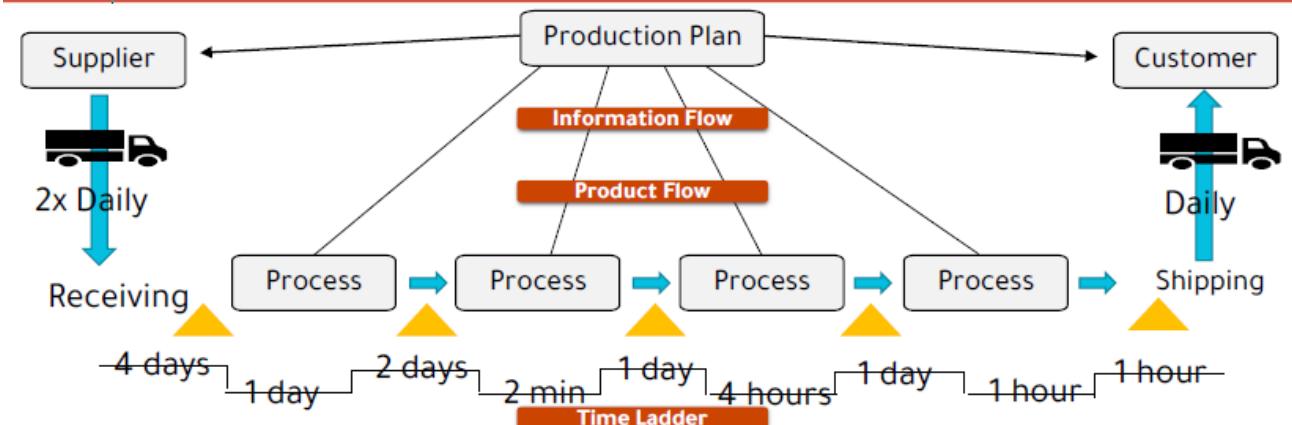
$$ETC = EAC - AC$$

$$454 - 180 = +274$$

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Value Stream Map



Impediments, Obstacles, and Blockers

- 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)

Daily standups

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. Also known as a Daily Scrum

The Project Manager's 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.

Causes of Conflict

- Competition
- Differences in objectives, values, and perceptions
- Disagreements about role requirements, work activities, and individual approaches
- Communication breakdowns

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Conflict Management Approaches

Withdraw/Avoid

- Retreat from conflict situation
- Postpone the issue

Smooth/Accommodate

- Emphasize areas of agreement
- Concede position to maintain harmony and relationships

Compromise/Reconcile

- Search for solutions that bring some degree of satisfaction to everyone
- Temporarily or partially resolve the conflict through compromise

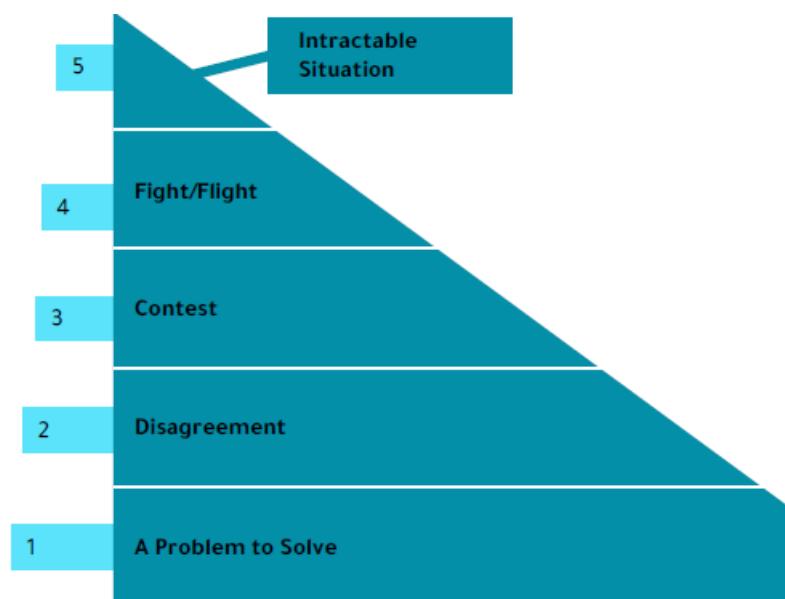
Force/Direct

- Pursue your viewpoint at the expense of others
- Offer only win/lose solutions

Collaborate/Problem Solve

- Incorporate multiple viewpoints
- Enable cooperative attitudes and open dialog to reach consensus and commitment

Use Leas' Levels of Conflict



Collaboration

- Effective collaboration builds trust between all parties.
- Open dialog and meaningful communication optimize understanding of aims and expectations.
- Everyone's involvement and engagement levels may fluctuate during project.
- Keep discussions transparent to ensure stakeholders are knowledgeable and expectations are set.
- Leverage communication and interpersonal skills, feedback, and meeting management to maximize feedback loop and engagement between stakeholders.

Project Stakeholders



STAKEHOLDER REGISTER

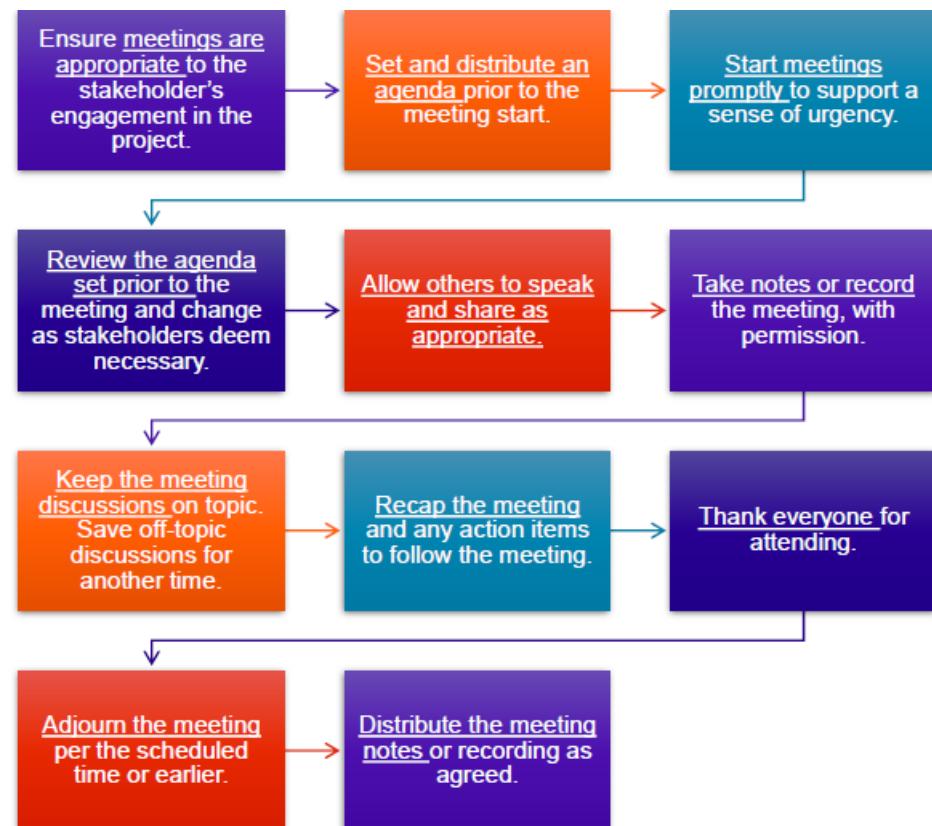
Name	Organization	Project Role	Major Requirements	Expectations	Influence	Areas of Interest	Internal/External	Supporter?
Linda Michaels	CEO	Sponsor	Budget, schedule, quality	Community involvement	Major	Community	Internal	Yes
Ron Gordon		Mortgage lenders		Growth	Major	Development	External	Yes
	Community		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

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Guidelines for Facilitating a Meeting



Coaching and Mentoring

يساعد تدريب وتوجيه الآخرين على أن يصبحوا أعضاء فريق أكثر كفاءة.

Coaching and mentoring others helps them become more proficient team members.



رفع قدرات الفريق، يزيد من إنتاجه وقيمتها.

Raising the abilities of the team increases their output and their value.



تعمل، زيادة قاعدة المعرفة ومجموعات المهارات لجميع أصحاب المصلحة في المشروع على تعزيز المشاريع الناجحة وفعالية.

Increasing the knowledge base and the skill sets of all project stakeholders promotes more successful and effectively managed projects.



مع محدودية الوقت والموارد ، يجب عليك تقديم تضحيات حول كيفية إرشاد الآخرين.

With limited time and resources, you must make sacrifices on how to mentor others.



ابداً في توجيه أصحاب المصلحة المعنيين في المشروع وتوسيع من هناك في جميع أنحاء المنظمة.

Start mentoring the relevant stakeholders in a project and expand from there throughout the organization.



Transformation Skills

4

في عالم اليوم الرقمي، قد تكون مجموعة المهارات المستخدمة اليوم قدية أو محدودة غداً.

In today's digital world, the skill set being used today may be obsolete or limited tomorrow.

3

أكثر وضوحاً في الفرق التي تحول من نهج إدارة مشروع واحد إلى آخر.

Most noticeable in teams transforming from one project management approach to another.

2

يتطلب دعم التحول الصبور والتوجيه الحساس. Supporting the transformation requires patience and compassionate mentoring.

1

تتغير وتتطور المنظمة والأعمال والعالم باستمرار. The organization, business, and the world are constantly changing and evolving.

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Emotional Intelligence



Personal Skills Interpersonal Skills

Self-awareness

Social skills

Self-regulation

Empathy

Motivation

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.

Risk Register



Used to track and manage risks during the project



Compliance-related risks
might include:

The identified risk
Risk owner
Impact of a realized risk
Risk responses



Create testing and validation plans to ensure project deliverables meet compliance requirements



Recommended to perform a summary check of compliance before the end of the project



When possible, legal and regulatory compliance for deliverables should be validated on an ongoing basis during the project.

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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.

Execution Reports

- Project manager regularly creates execution reports.
- These include information about:
 - Project activities
 - Deliverable status
 - Overall progress
- Important to include status of risks, including compliance related risks
- Actions to be taken to manage the risks
- Testing and validation activities
- Audits
- Any other actions to verify deliverable compliance.

Variance Analysis



Project managers create regular reports on project variances and any actions taken to control the project to keep it on track.



Variances related to compliance are critical because of potential impact on usability of the deliverable.



Variance analysis should detail:

The variance identified
Plans for bringing the project or deliverable back into compliance
Any proposed changes required to meet compliance requirements

Compliance Five Best Practices

- Documentation: Updated compliance needs and risks
- Risk planning: Prioritize compliance in risk planning
- Compliance council: Includes quality/audit specialists and relevant legal/technical specialists
- Compliance audit: Formal process
- Compliance stewardship: It's your responsibility!

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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.

Nonfunctional Requirements

Type	Considerations
Availability	<ul style="list-style-type: none">• How and when is the service available?• If the service were to become unavailable, how quickly can it be restored to working?
Capacity	<ul style="list-style-type: none">• What level of service performance, speed, and throughput is required?• Given the number of stakeholders using the service, is there enough supply to meet demand?
Continuity	<ul style="list-style-type: none">• If there were a disaster of some kind, how quickly could the service be recovered to support operations.
Security	<ul style="list-style-type: none">• How well is the service and its information protected from security risks and threats?• How do you guarantee the confidentiality, integrity, and availability of the information?

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.

Guidelines to Analyze the Consequences of Noncompliance

- Define the legal, regulatory, and other constraints, and define the business rules that constrain the project solution and improve the likelihood of compliance.
- Define parts of the potential solution subject to compliance requirements, the scope of the compliance requirement, and the stakeholders responsible for reviewing, approving, and signing off on the component's compliance.
- Track and manage the review and approval activities related to compliance requirements.
- Track and manage the risks and risk responses related to compliance requirements.

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Quality Assurance Outputs



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.

Quality Management Plan

- Describes the resources and activities needed for the project team to achieve the necessary quality objectives.
- Sets the expectations for the project's quality requirements.
- 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

Audits

- Conducted by a team external to the project, such as an internal audit team or PMO
- Used to verify compliance with organizational policies, processes, and procedures.
- Possibly used to verify implementation of change requests.
- Designed to accomplish the following
 - Identify that all good and best practices are being used.
 - Identify any nonconformity, gaps, and shortcomings.
 - Share good practices from other projects in the organization or industry.
 - Proactively offer improvements to improve productivity.
 - Highlight contributions to lessons learned.

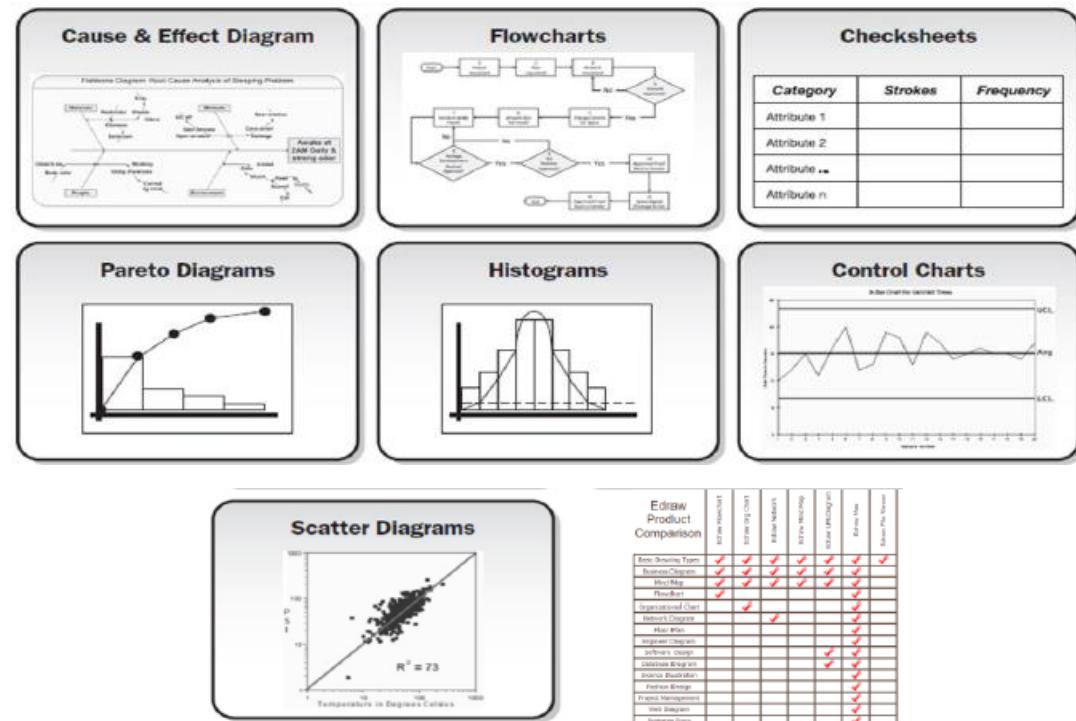
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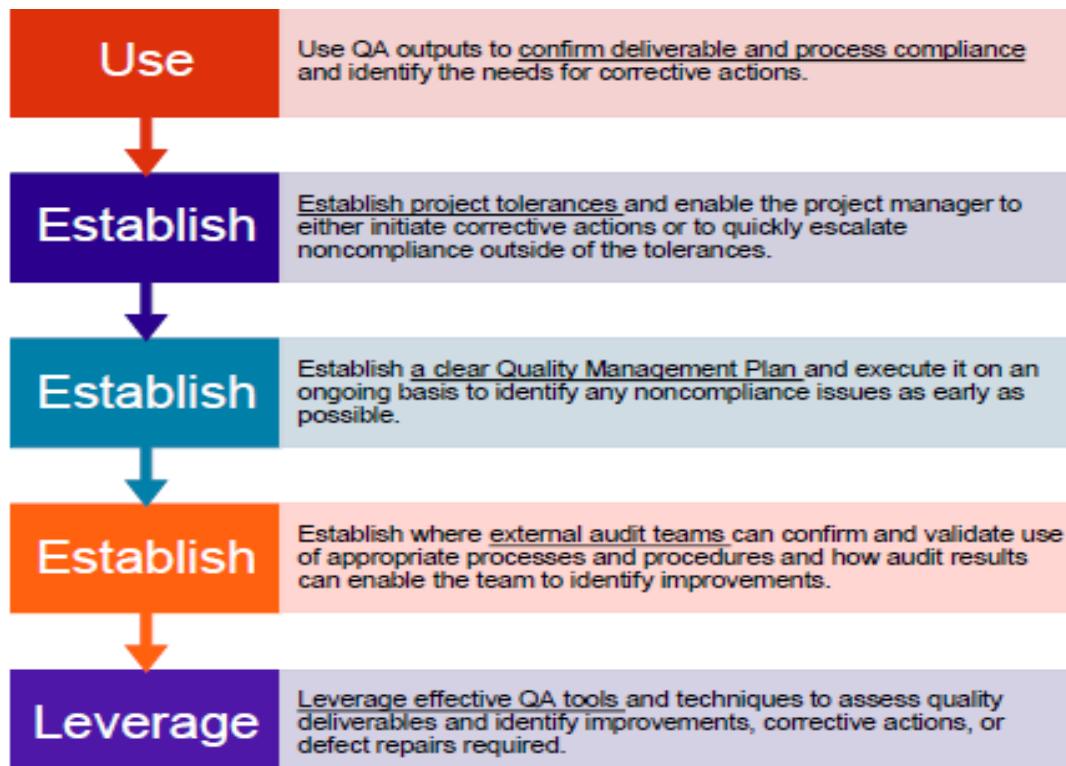


QA Tools

	Data gathering: <u>Checklists</u> and other lists of acceptance criteria
	Data analysis: <u>Alternatives analysis</u> , document analysis, <u>process analysis</u> , or <u>formal root cause analysis</u>
	Decision making techniques
	Data representations: <u>Affinity diagrams</u> , <u>cause and effect diagrams</u> , <u>flowcharts</u> , <u>histograms</u> , <u>matrix diagrams</u> , and <u>scatter diagrams</u>
	<u>Audit reports</u>
	<u>Design for X</u> : Focuses on a particular value X and its impact on design quality
	Problem solving techniques
	Quality management methods: <u>Six Sigma</u> , <u>Plan-Do-Check-Act</u>



Guidelines to Measure the Compliance of a Project



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Strategic Management Elements and Frameworks



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 (strengths, weaknesses, opportunities and threats) analysis
- Assumption analysis
- Historical information analysis
- Risk alignment with organizational strategy

How OKRs Help Deliver Business Value

OKRs (Objectives and Key Results) is a goal setting framework used by individuals, teams, and organizations to define measurable goals and track their outcomes. It helps clarify investment ideas and the metrics used to measure success.

Business Value

- An informal term that goes beyond economic value.
- Components include:
 - Shareholder value
 - Customer value
 - Employee knowledge
 - Channel partner value

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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

Component	Description
Target benefits	The expected tangible and intangible business value to be realized from the project.
Strategic alignment	How the benefits align with the business strategies of the organization.
Timeframe	When the benefits (short-term and long-term) will be realized, usually by project phase
Benefits owner	The person or group that monitors, records, and reports the benefits.
Metrics	The direct and indirect measurements of the realized benefits.
Risks	The risks associated with achieving the targeted benefits.

Benefits Transition and Sustainment

Responsibilities

Handover

Transition

Review of the benefits management plan



Any improvement or modification to delivered benefits is a new project



Any improvements or modifications to delivered benefits are proposed as work for the next/future iteration and placed/reprioritized on the backlog



Organizations and teams tailor solutions for benefits realization and sustainment — e.g., post-implementation support (aka “DevOps” or “hyper care”)

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Benefits Transition and Sustainment an Explanation

Project Team	Customer	Product Owner or Project Manager
Delivers benefits to customer organization	<ul style="list-style-type: none"> Ensures continued generation of improvements and delivered benefits Captures additional customer inputs 	Works with customer to identify work required for desired improvements
Provides planned performance data	Compares actual performance to planned performance, including KPIs	Uses metrics chosen with team to measure performance
Works with business owner to suggest benefits realization metrics, including frequency and monitoring responsibilities	Implements benefits realization metrics at suitable intervals, tailored to needs	Collaborates with team to determine suitable metrics
Determines if any remaining risks might prevent benefit achievement	<ul style="list-style-type: none"> Identifies risks, processes and tools needed to ensure continued benefits realization Monitors risks affecting delivered benefits 	Monitors risks on impediments log and collaborates with team about response
Provides technical information required to use the product or service	Updates technical information – e.g., FAQs	Collaborates with team to update technical information

Verify Benefits Realization

Using the chosen metrics, the product owner reports on progress for each tangible benefit
 For intangible benefits, a subjective (qualitative) determination may be more useful
 Reporting should include:

- For tangible benefits—progress toward being met
- Any benefits at risk of not being realized as planned
- Any resulting negative impact on strategic objectives
- Potential ending of the project team's support

Benefit Cost Analysis

- **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.

Return on Investment (ROI)

Return on Investment: A financial metric of profitability that measures the gain or loss from an investment relative to the amount of money invested



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Present Value (PV)

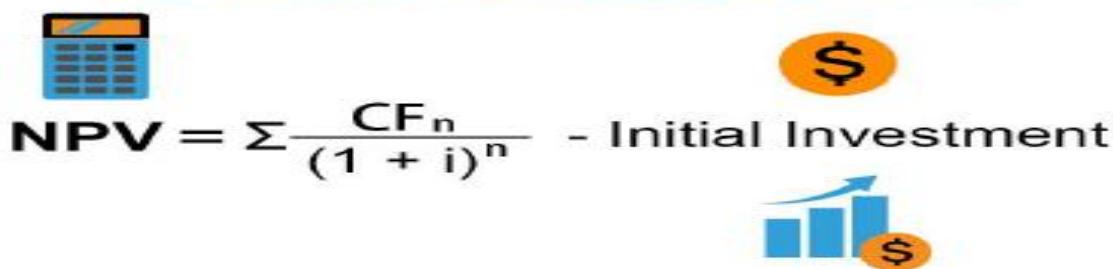
Present Value: The current value of a future sum of money or stream of cash flows given a specific rate of return.

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

Net Present Value (NPV)

Net Present Value: The present value of all cash outflows minus the present value of all cash inflows.

Net Present Value Formula

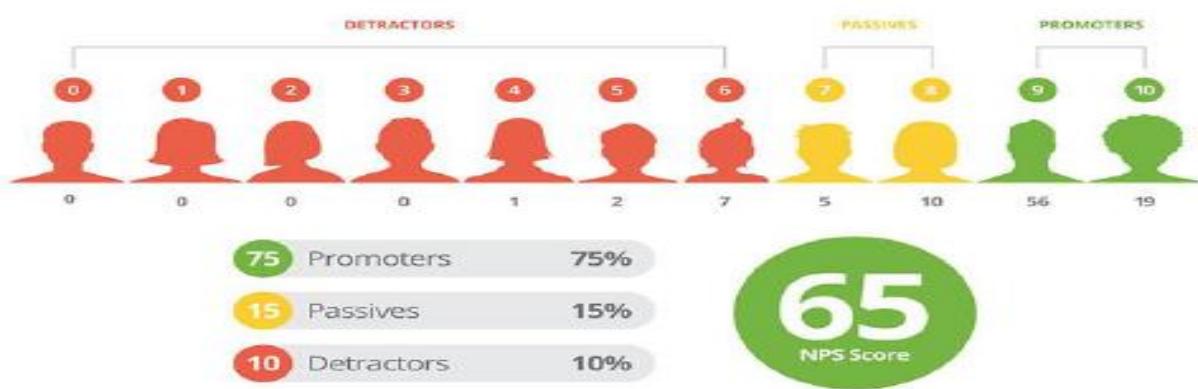


Internal Rate of Return (IRR)

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

Net Promoter Score (NPS)

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



AB Testing



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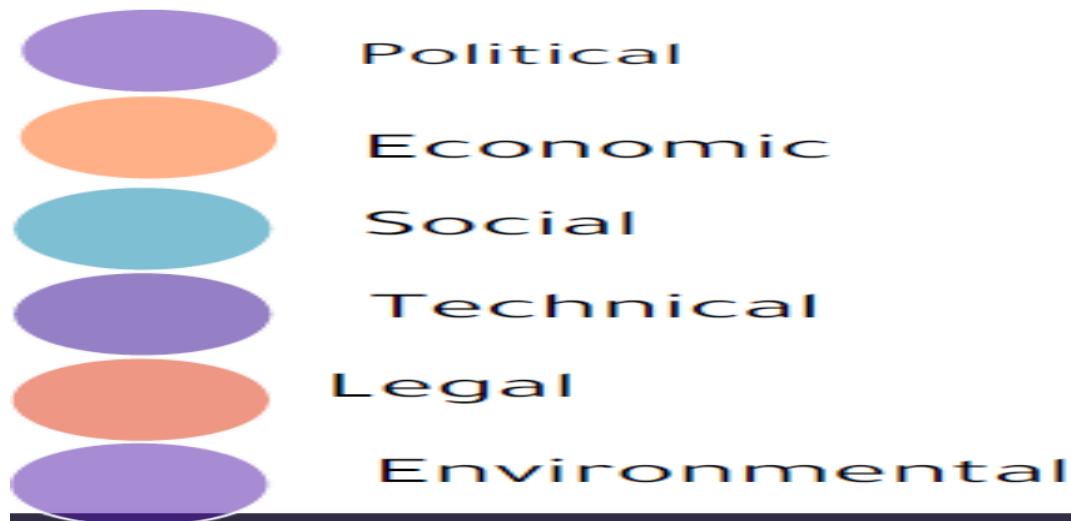
Internal Business Environment

Organizational changes can dramatically impact the scope of a project.

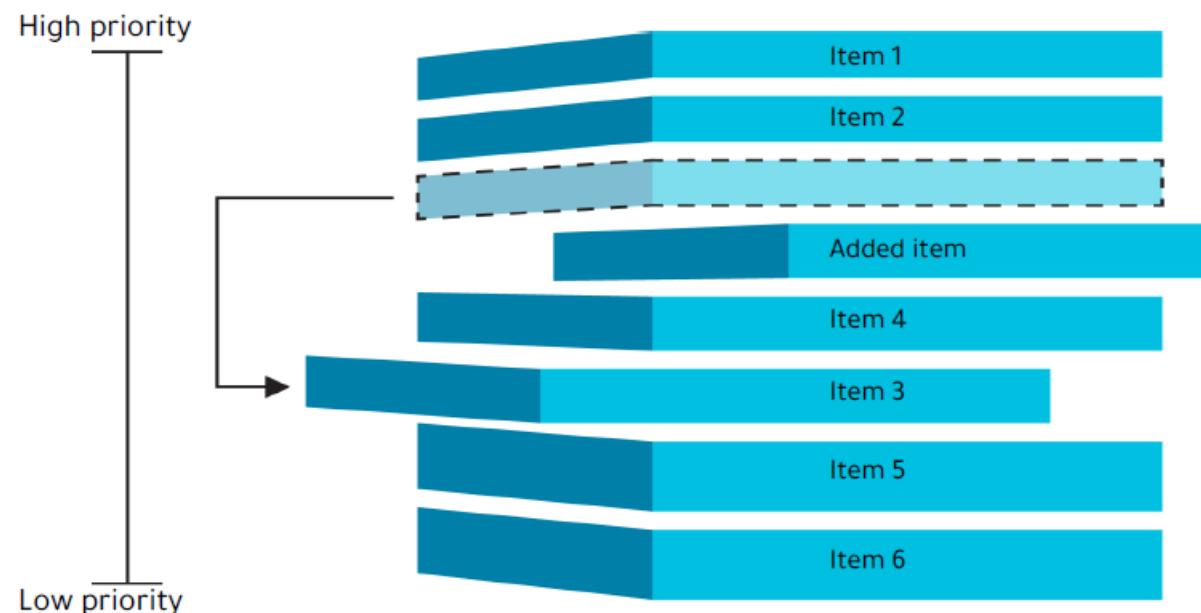
- Project manager and project sponsor need to have visibility into business plans, reorganizations, process changes, and other internal activities.
- Internal business changes might cause:
 - Need for new deliverables
 - Reprioritization of existing deliverables
 - Elimination of deliverables no longer required

External Business Environment

PESTLE is an acronym to identify the external business environment factors that can affect the value and desired outcomes of a project.



Backlog Reprioritization





Product Owner Duties



Role is to **help** the project team **prioritize** work based on the value that the capability will provide to the business.



Accountable for the **ultimate business value** of the solution produced by the project team.



Creates and socialize the **product vision**.



Coordinates different **business needs** from different stakeholders together into the product backlog.



Responsible for **defining and prioritizing the user stories** with the help of the team.



Answers team questions about the needed solution.



Provides **timely feedback** to the team.

Governance Board aka Project Board or Steering Committee

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



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

Organizational Cultures and Styles



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Change Management

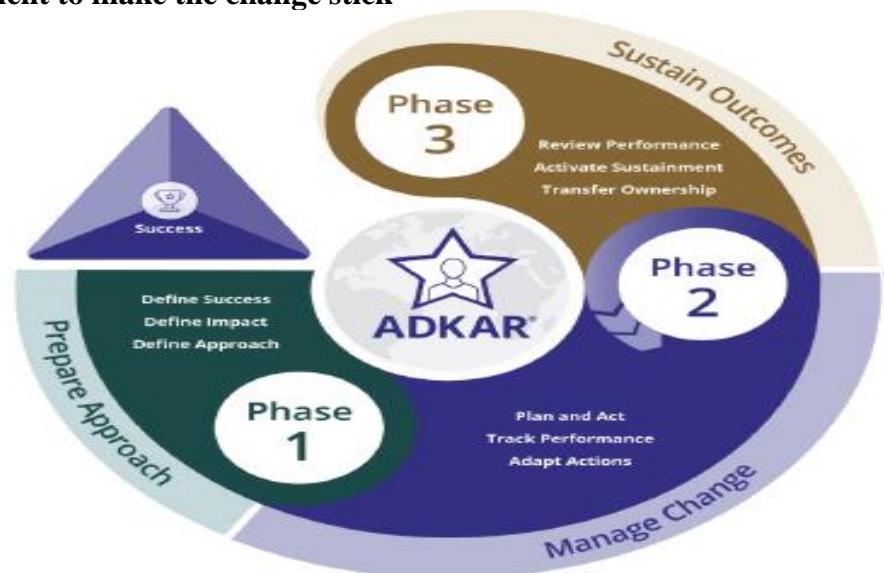
CHANGE MANAGEMENT

A comprehensive, cyclic, and structured approach for transitioning individuals, groups, and organizations from a current state to a future state in which they realize desired benefits. It is different from project change control, which is a process whereby modifications to documents, deliverables, or baselines associated with the project are identified and documented, and then are approved or rejected.

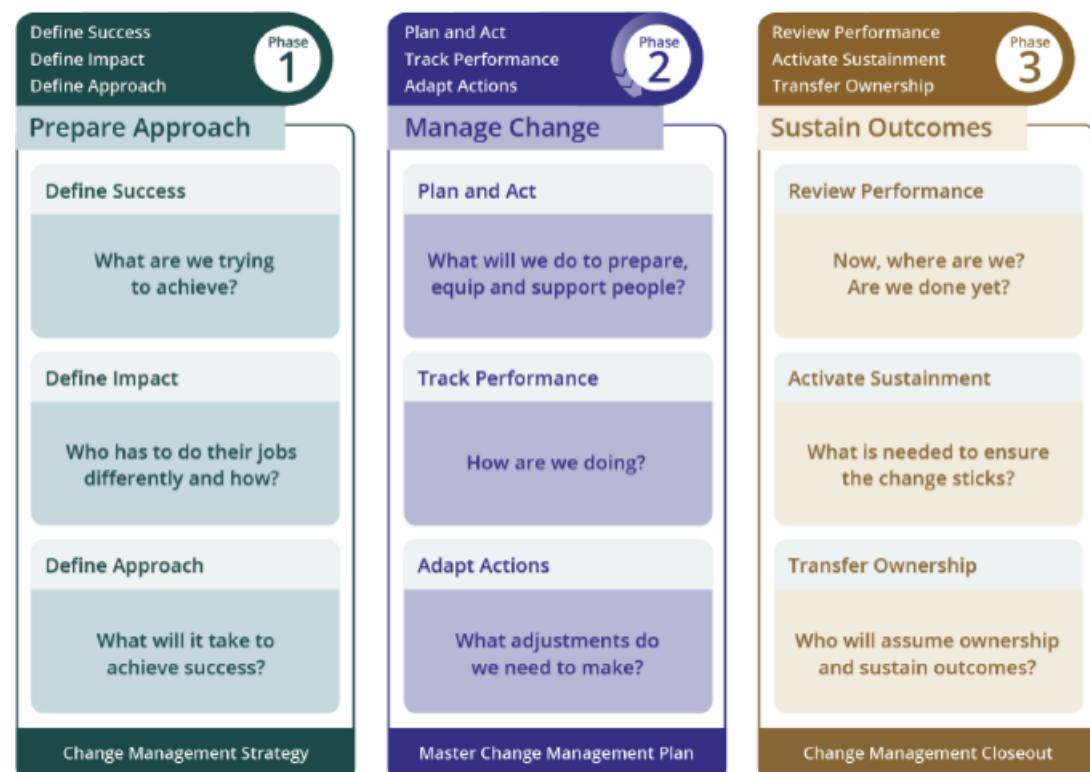
The ADKAR® model

names five milestones an individual must achieve in order 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 behaviors
- R Reinforcement to make the change stick



Plan for Change

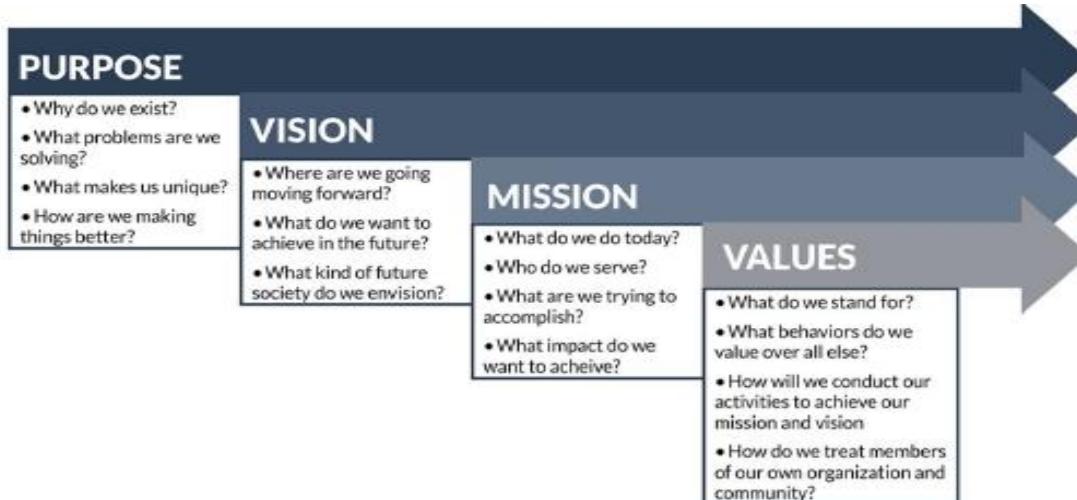


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Organizational Transformation for Project Practitioners

- A North Star statement articulates the vision and strategic objectives
- Customer insights and global megatrends
- A flat, adaptable cross functional transformation operating system
- Internal volunteer champions (not external consultants)
- Inside Out Employee Transformation (similar to ADKAR)



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 type	Definition
Supportive PMOs	Provide a <u>consultative role</u> to projects by supplying templates, best practices, training access to information, and lessons learned from other projects.
Controlling PMOs	Provide <u>support and require compliance</u> through various means. Compliance may involve adopting project management frameworks or methodologies; using <u>specific</u> templates, forms, and tools; or conforming to governance.
Directive PMOs	<u>Take control of the projects</u> by directly managing the projects. A relatively small number of PMOs fall into this category.

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Close Project or Phase

تحدد عدة أنشطة مهمة أثناء الإغلاق:

Several important activities occur during closeout:

اكتمال العمل المخطط له.

The planned work is completed.

أرشفة معلومات المشروع أو المرحلة.

Project or phase information is archived.

تحرير موارد فريق المشروع لمتابعة المساعي الأخرى.

Project team resources are released to pursue other endeavors.

بالإضافة إلى دفع جميع الفواتير والمستخلصات، إغلاق العقود ومناقشة الدروس المستفادة من المشروع وتوثيقها.

In addition, all invoices are paid, contracts are closed out, and project lessons learned are discussed and documented.

Close Project or Phase Criteria

- Any one of the following events can result in closure
- The project or phase successfully met its completion objectives.
- The requirements changed during execution to the point where the project is no longer feasible.
- Adequate funding is no longer available to complete the requirements.
- Significant risks are encountered that make the successful completion of the project impossible.
- The organization no longer needs the project deliverables.
- External factors arise that do away with the need for the project. Examples of these factors include:
 - Change in laws or regulations
 - Merger or acquisition that affects the organization.
 - Global or national economic changes

Why Projects or Phases Close / Fulfillment

ACCEPTANCE CRITERIA

A set of conditions that is required to be met before deliverables are accepted.

DEFINITION OF DONE (DoD)

A team's checklist of all the criteria required to be met so that a deliverable can be considered ready for customer use.



Stakeholders accept deliverables based on acceptance criteria established at the beginning of the project in the project management plan

Acceptance criteria may be modified during a project life cycle

Use the requirements traceability matrix to ensure completion and approval of all requirements



At the end of an iteration, the team and stakeholders assess the product/service against their mutually agreed definition of done (DoD)

Final acceptance occurs prior to product release.



Acceptance criteria and definition of done (DoD) express the same status of stakeholder satisfaction with the product. Teams may use the terms interchangeably.

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Final Report: Summary of project or phase performance result

Description	Describe activity undertaken, including deliverables or milestones
Scope objectives	Document scope evaluation criteria and give evidence of met completion criteria
Quality objectives	Describe evaluation criteria for project and product quality. Verify objectives are met, give actual milestone delivery dates and reasons for any variances
Cost objectives	Restate acceptable cost range, give actual costs and reasons for any variances
Validation information	Include required approvals for final product, service or result—e.g., user satisfaction survey results
Schedule objectives	Verify project objectives were completed on time; report on any variance and effects of the variance
Benefits realization	State how the final product, service or result achieved the business needs and expected benefits; if partial, give details of variance and fulfillment schedule
Risks or issues encountered	List risks and issues and state how they were addressed

Knowledge Management

Lessons learned repository: A store of historical information about lessons learned in projects.

Transition Planning Artifacts

Coordination and strategy about how to best deliver and transition the product and other deliverables is needed.

Releasing and deploying deliverables in the most suitable manner ensures end-user awareness and increases the proper usages and adoption of outputs.

Preparation of artifacts includes:

Training

Communication

Documentation

Support

Close-Out Meetings

Sessions held at end of project or phase

Involve:

Discussing the work

Reviewing lessons

Learned

May include stakeholders, team members, project resources, and customers

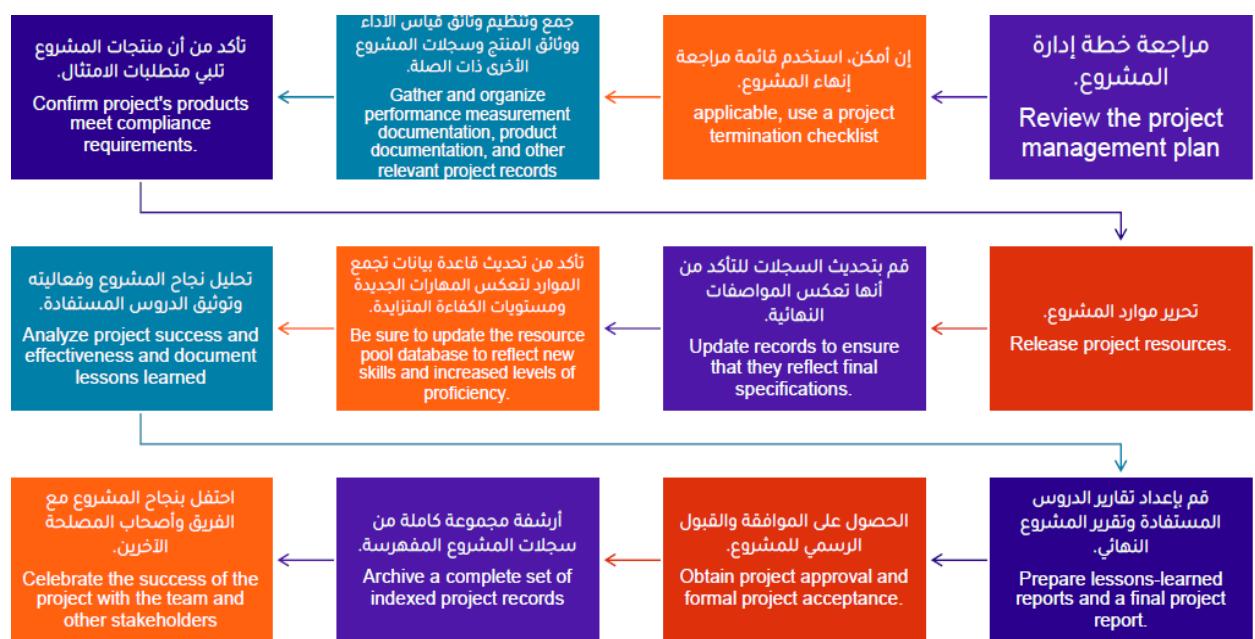
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Guidelines to Close a Project or Phase



Continuous Improvement

Continuous improvement: An ongoing effort to improve products, services, or processes.

- Effort can look for small incremental improvements or large breakthroughs.
- Institute of Quality Assurance definition includes improving business strategy, business results, and customer, employee, and supplier relationships.
- A business strategy that is developed at the organizational level for projects to adopt and use.
- Might be implemented by an organizations PMO.

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