

INFO 6245

Planning &

Managing

Information

Systems

Development

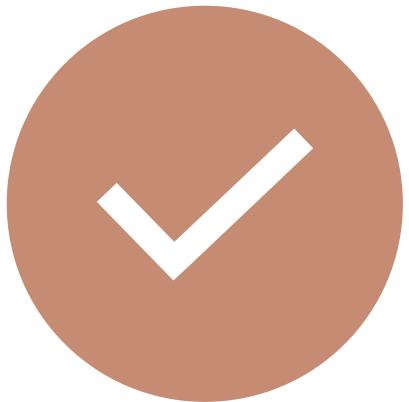
Module 13

PMBOK 7th Ed (Part 2)

Agenda

- Project Management Principles
- Project Performance Domains
- Tailoring
- Models, Methods, & Artifacts
- Systems View
- Software Development Approaches
- Class Project Overview

Sections of PMBOK 7th Ed



1. PROJECT
PERFORMANCE DOMAINS



2. TAILORING



3. MODELS, METHODS, &
ARTIFACTS

Project Performance Domains

1.1
STAKEHOLDER

1.2
TEAM

1.3
DEVELOPMENT
APPROACH &
LIFECYCLE

1.4
PLANNING

1.5
PROJECT WORK

1.6
DELIVERY

1.7
MEASUREMENT

1.8
UNCERTAINTY

A photograph showing a person's hands holding a laptop. The screen displays a video conference with eight participants in a grid. In the background, there is a blue cup filled with various colored pencils and pens, and some green plants.

1.6 Delivery

Outcomes:

- Projects contribute to business objectives and strategy
- Projects realise the outcomes they intended
- Benefits are realised in the intended timeframe
- The project team is clear on requirements
- Stakeholders accept and are happy with the deliverables

Key Terms

- Requirement (the capability needed in a product/feature)
- Work breakdown structure (WBS)
- Definition of Done
- Quality
- Cost of Quality

1.6 Delivery

Delivery of Value

How do you need to deliver value?

Adaptive

(Incremental and Iterative)

Delivers value along the journey



Project Business Case

Date: 10 August 20xx
Subject: Title of Business Case / change required
To: Project Sponsor or approving manager
From: Analyst or document creator(s)

1. Summary
- One or two lines: What is the business problem or opportunity to be addressed, including the value to be delivered to the organization?

2. Current Issue
- What is prompting the need for action, or the cost of not taking action?
- Where are we now, and where we want to be? Advise what is needed versus existing capabilities of the organization.
- Include data and facts showing the root cause of the problem (or opportunity)
- Identify the stakeholders affected

3. Solution Approach
- Solution Summary, including must-have solutions with their cost versus benefit.

#	Solution Option	High Level Benefit	High Level Cost	Required, Desired, Optional
1				
2				
3				

Predictive

Delivers value all in one go



Value remains long after the project is finished.

Value is defined and monitored with a Business Case, and then in baselined documents within the project.

1.6 Delivery

Deliverables

“To draw out.”
Document them as:
Clear
Concise
Verifiable
Consistent
Complete
Traceable

Ineffective requirements equal:
Rework
Scope creep
Customer dissatisfaction
Budget overruns
Schedule delay
Project failure.
Often one person accountable.
Use backlogs or a traceability matrix.

Requirements elicitation

Managing Requirements

Requirements

Evolving and Discovering Requirements



Deliverable:

an increment of value – a feature, a product

The condition or capability that needs to be met to satisfy a customer need.

Can use:
Prototypes,
mock ups,
storyboards.

1.6 Delivery

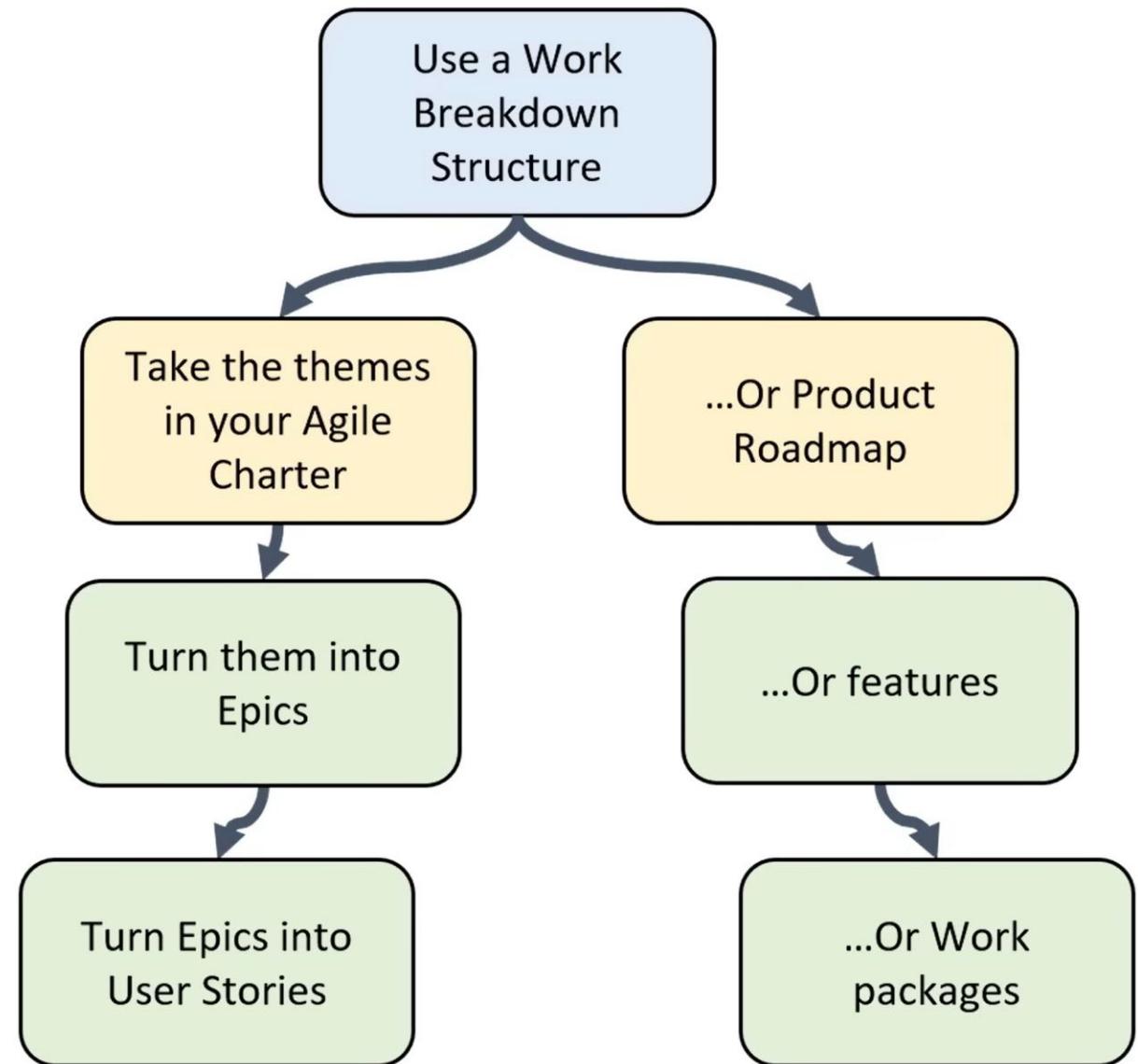
Deliverables

How do we define completion of deliverables?

- Acceptance criteria
- Technical performance measures
- Definition of Ready
- Definition of Done



Scope decomposition



1.6 Delivery

Deliverables



Moving targets of completion:



Projects operating in uncertainty or changing markets may impact deliverables.

This is known as "done drift".

1.6 Delivery

Quality

Quality requirements are reflected in:

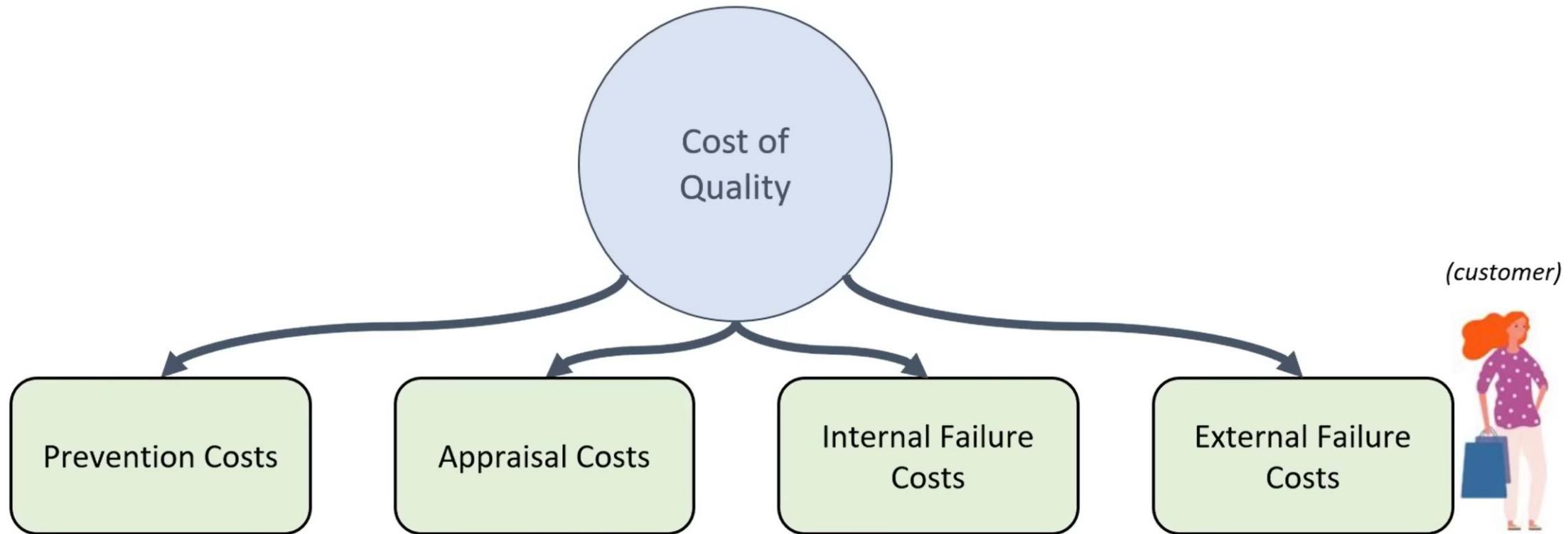
completion criteria,
definition of done,
statement of work and;
requirements documentation.

*Those who receive the benefit,
bear the cost of bad quality*



1.6 Delivery

Quality



The Cost of Change is higher towards the end of the project.

To counter this, teams **build in quality**.



1.6 Delivery

Suboptimal outcomes

There is always the chance a project does not meet its outcomes.

- Uncertain environment or market
- Changing market
- Competitor gets there first

Effective project management can help, but there is always risk.



1.7 Measurement

- Outcomes:
 - Reliable understanding of the status of the project
 - Actionable data for decision making
 - Timely actions to keep project on track
 - Achieving targets and generating business value due to correct decisions
- Key Terms:
 - Metric
 - Baseline (Approved Version)
 - Dashboard (charts or graphs)

Goal is to evaluate performance compared to the plan, track and utilize resources, demonstrate accountability, and feed conversations about trade offs.

1.7 Measurement

Establishing effective measures

Key Performance Indicators (KPIs)

Objectives & Key Results (OKRs)

Leading indicators

- Items in backlog
- Size of a project
- Lack of processes



Lagging indicators

- Deliverables completed
- Schedule or cost variance
- Resources consumed



Effective metrics are SMART

Specific
Measurable
Achievable
Relevant
Timely

1.7 Measurement

What to measure

Deliverable metrics *(product or feature)*

- Errors or defects
- Measures of performance;
 - Efficiency
 - Reliability
- Technical performance measures



Delivery metrics

- Work in progress
- Lead time
- Cycle time
- Queue size (i.e. backlog)
- Batch size (i.e. sprint velocity)
- Process efficiency

1.7 Measurement

What to measure

Baselined performance vs Actual

- Start and finish dates
- Effort and duration
- Schedule variance
- Schedule performance index
- Feature completion rates
- Actual cost to planned cost
- Cost variance
- Cost performance index.



Resources

- Planned versus actual resource use and cost

1.7 Measurement

What to measure

Business value

- Cost to Benefit ratio
- Planned v actual benefits delivery
- Return on investment (ROI)
- Net present value (NPV)

Stakeholders

- Net Promoter Score (NPS)
- Mood chart
- Morale
- Turnover



1.7 Measurement

What to measure

Forecasts

- Estimate to complete (ETC)
- Estimate at completion (EAC)
- Variance at completion (VAC)
- To Complete Performance Index (TCPI)
- Regression analysis
- Throughput analysis



1.7 Measurement

Presenting information

Use:

- Dashboards
- Information radiators
- Visual controls

Task boards
Burn charts
Other charts

Visible backlog
Burndown charts
Risks



1.7 Measurement

Measurement pitfalls

- Hawthorne effect
- Vanity metrics
- Demoralisation
- Misusing the metrics
- Confirmation bias
- Correlation versus causation

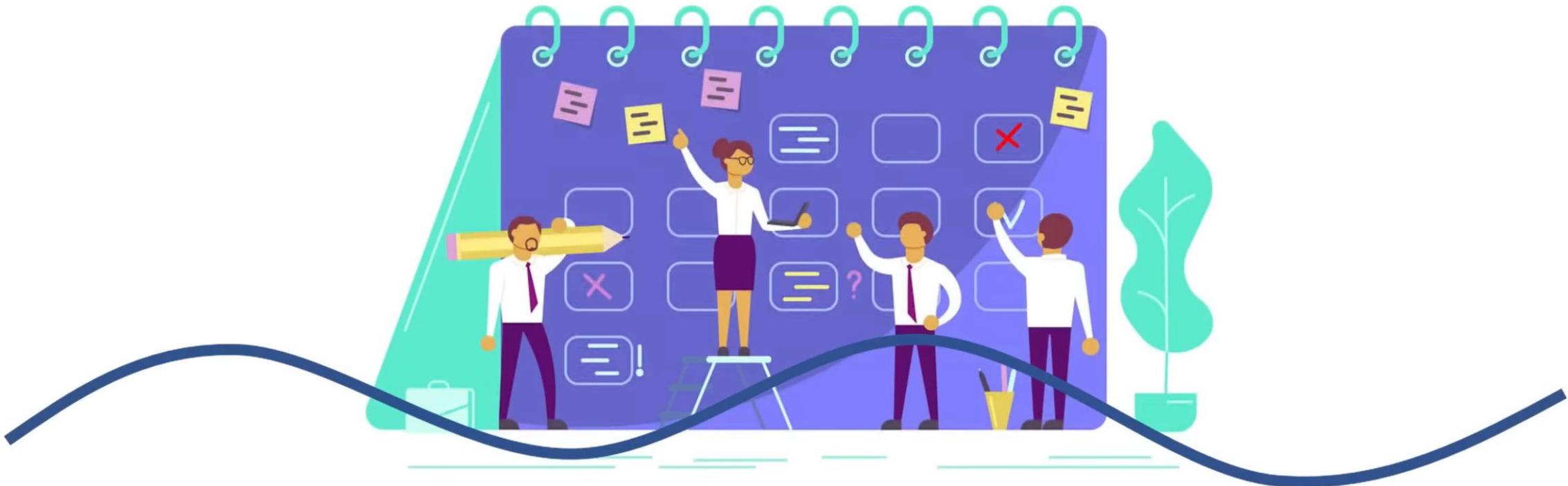
What we measure influences behaviour
If it's not achievable



1.7 Measurement

Troubleshooting performance

Have agreed-to plans for measures outside of threshold ranges.



1.7 Measurement

Growing and improving

The intent of displaying data is to learn and improve.

Only report information that will allow the team to:

- Learn
- Facilitate a decision
- Help avoid an issue
- Prevent performance breakdown



1.8 Uncertainty

Outcomes:

- Awareness of the environment (PESTLE)
- Proactively exploring uncertainty
- Awareness of the interdependence of multiple variables on the project
- Ability to anticipate threats and opportunities and understand their consequence
- Project delivery with little impact from unforeseen events
- Opportunities realised to improve project performance
- Using cost and schedule reserves to meet project objectives

Key Terms

- Uncertainty, Ambiguity, Complexity, Volatility, Risk
- PESTLE and VUCA



1.8 Uncertainty

General Uncertainty

Options for responding to uncertainty:

- Gather information
- Prepare for multiple outcomes
- Use set based design and prototyping
- Build resilience into the process
 - Respond or change quickly



1.8 Uncertainty

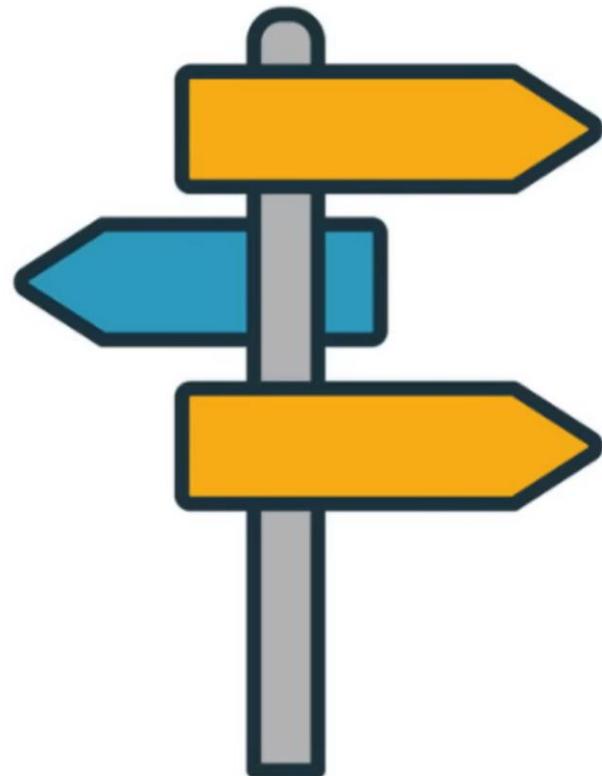
Ambiguity

Conceptual ambiguity (lack of understanding)

Situational ambiguity (more than one outcome possible)

Use:

- Progressive elaboration
- Experiments
- Prototypes



1.8 Uncertainty

Complexity

A characteristic that makes something difficult to manage, with many interconnected influences.

Approaches:

Systems-based

- Decoupling (disconnecting parts to reduce variables)
- Simulation (multiple scenarios, Monte Carlo)

Reframing

- Diversity (view from different perspectives)
- Balance (lagging and leading data)

Process-based

- Iterate/add features incrementally
- Engage with stakeholders
- Error proof or fail safe



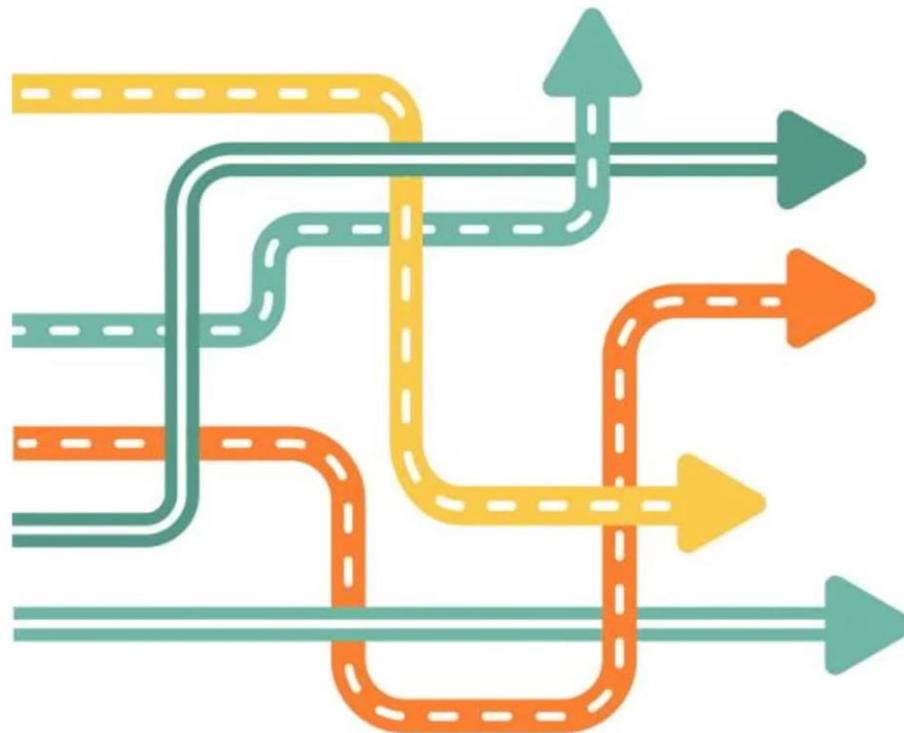
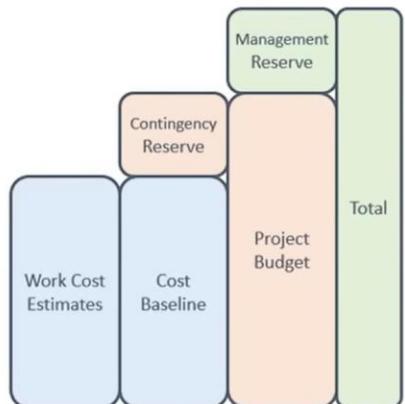
1.8 Uncertainty

Volatility

Subject to rapid and unpredictable change.

Use:

- Alternatives analysis
- Reserves
 - Contingency reserve
 - Management reserve

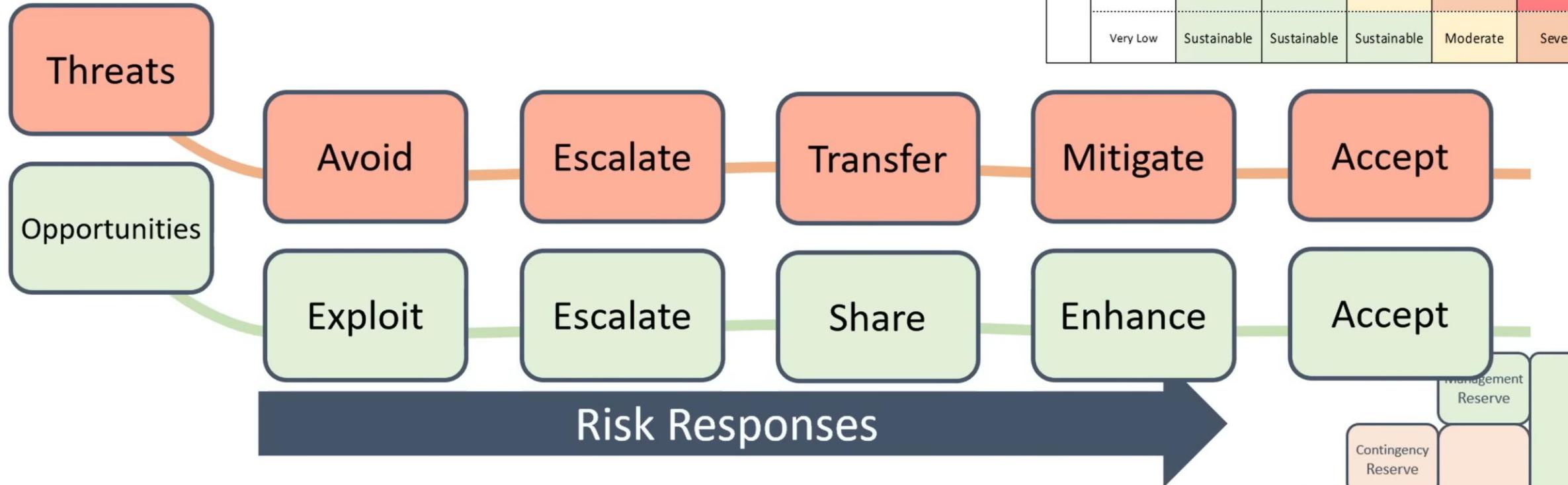


1.8 Uncertainty

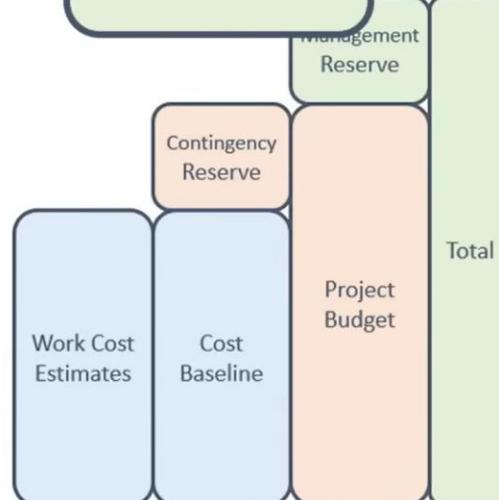
Risk

Capture risk with its Probability and Impact

		Impact:					
		Very High	Moderate	Severe	Severe	Critical	Critical
Probability	Very High	Sustainable	Moderate	Severe	Critical	Critical	
	High	Sustainable	Moderate	Severe	Critical	Critical	
	Medium	Sustainable	Moderate	Moderate	Severe	Critical	
	Low	Sustainable	Sustainable	Moderate	Severe	Critical	
		Very Low	Sustainable	Sustainable	Moderate	Severe	

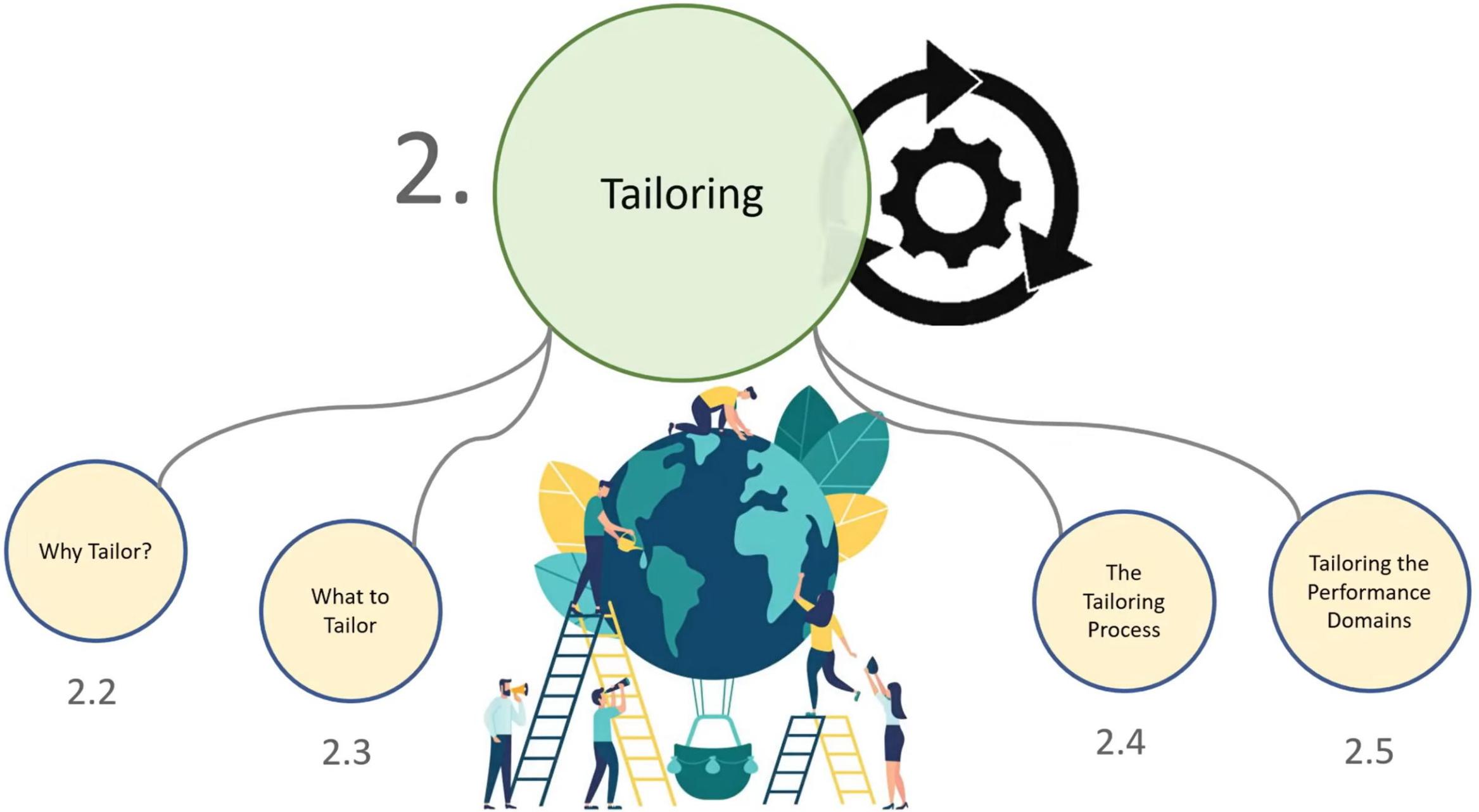


Use Management and Contingency reserves
Have a regular risk review



2.0 Tailoring





2.2 Why Tailor?

Why Tailor?

Tailoring should reflect the:

Size

Duration

Complexity of the project,
be adapted to the industry and
Project management maturity of the organisation



For example, a project team with less experience could use an “out of the box” method.

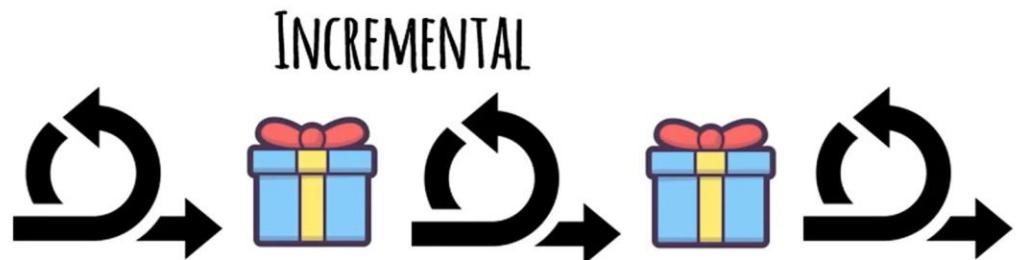
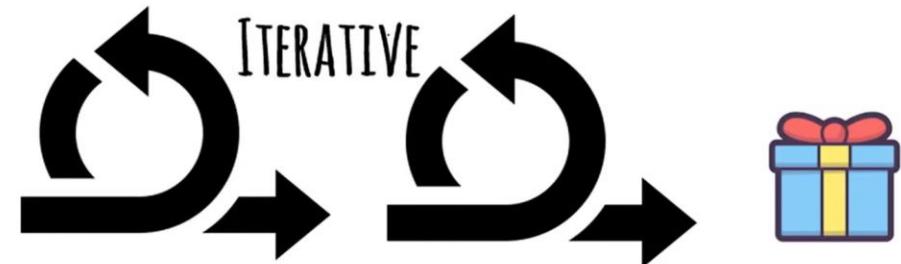
2.3 What to Tailor

Life cycle and Development approach selection

You can use a combination of

Predictive
Hybrid
Iterative
Incremental
Adaptive/Agile

development approaches.

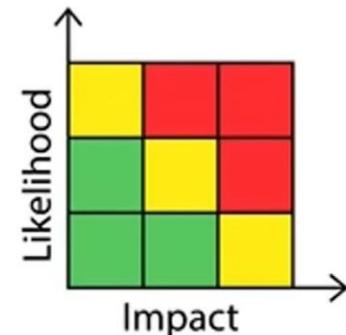
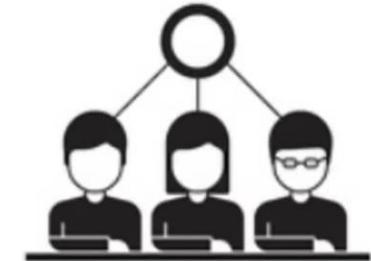
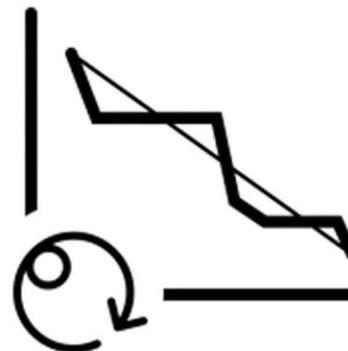


2.3 What to Tailor

Processes

Decide which portions of the Development approach should be:

- Added
- Modified
- Removed
- Blended
- Aligned *(consistent definition of same thing i.e. Risk)*



2.3 What to Tailor

Engagement

People



- Decide who to use in particular areas
- What is their experience?



Empowerment



- Can you give more empowerment and flexibility?
- In other situations, more supervision and direction may be needed

Integration



- How to create a diverse project team, including external members

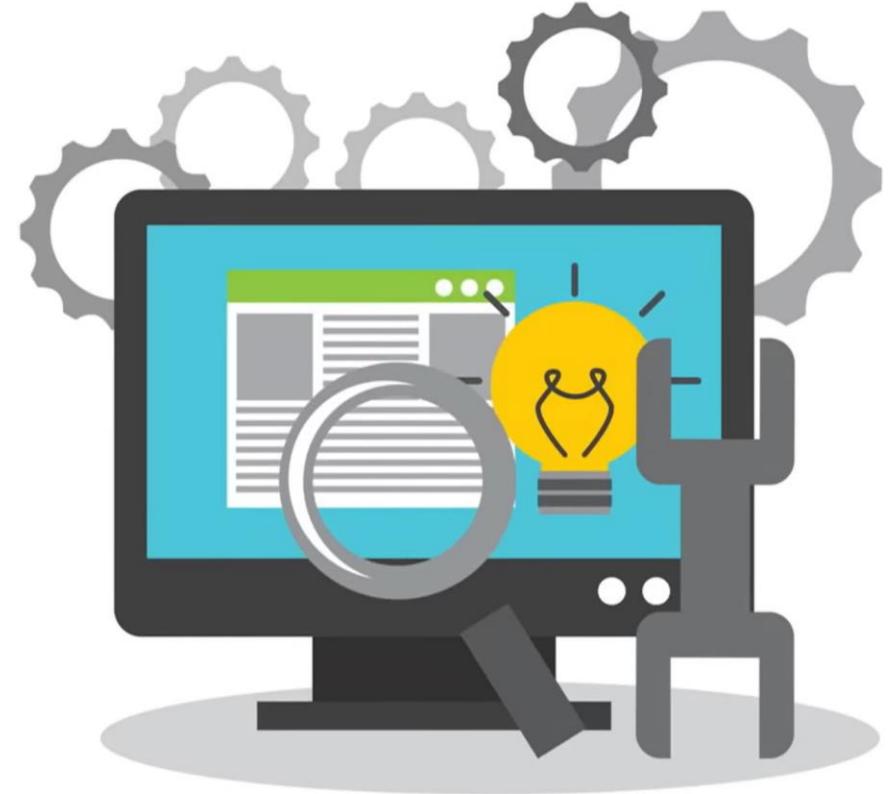


2.3 What to Tailor

Tools

What software or equipment should we use?

Factor in cost, organisational preferences and existing items.



2.3 What to Tailor

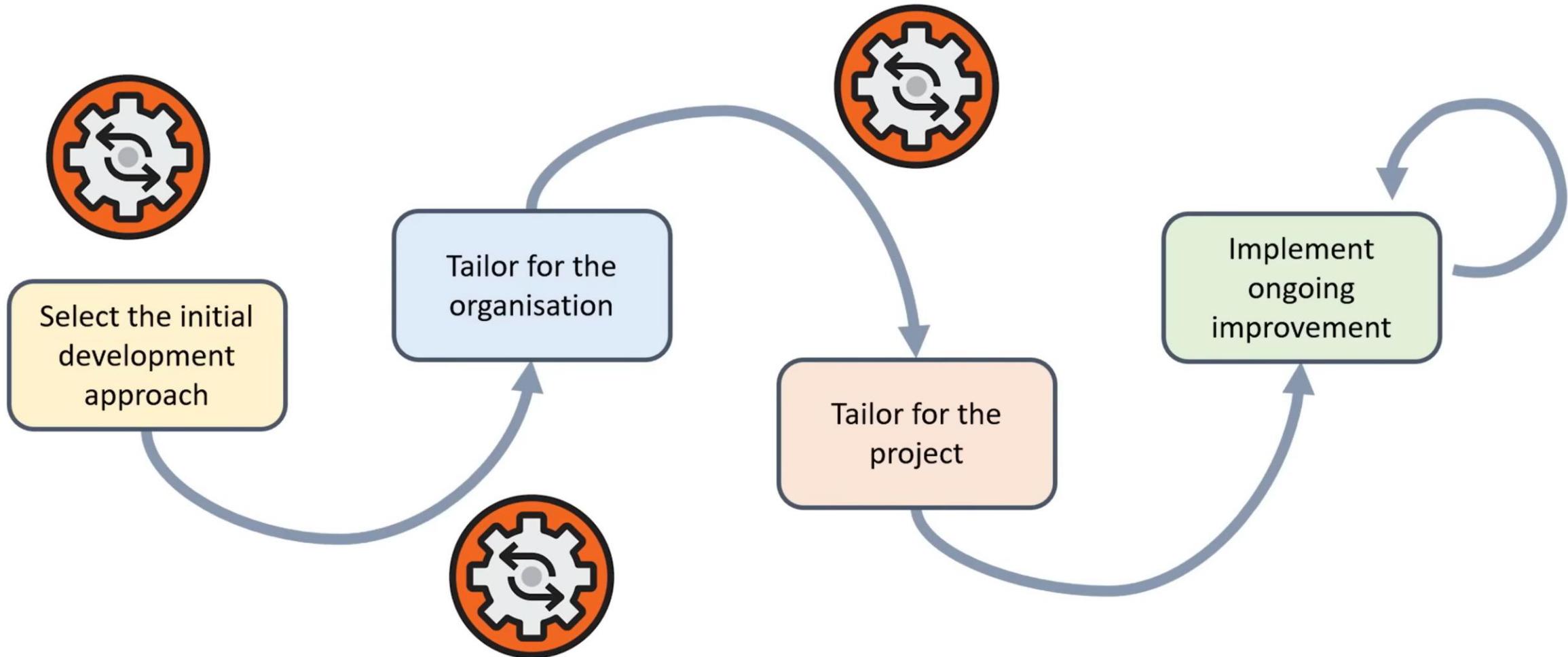
Methods and Artefacts



Tailor the documents, artefacts, and methods so they are appropriate for the **project** and the **organisation**.

2.4 The Tailoring Process

Overview



2.4 The Tailoring Process

Select initial Development approach

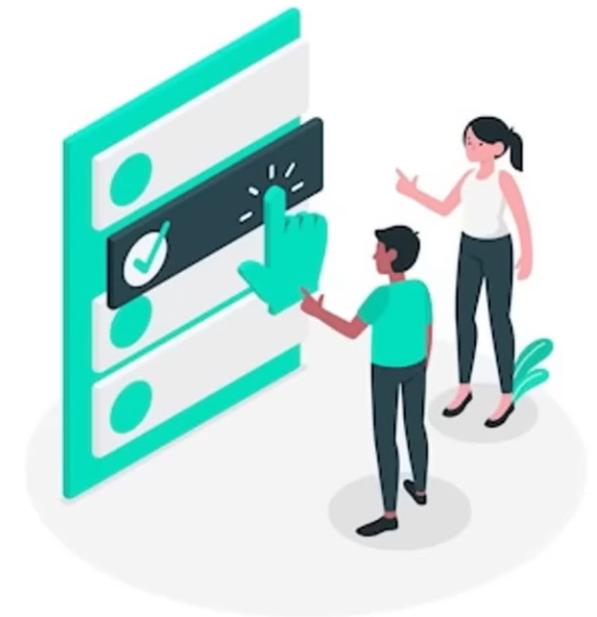
Apply your knowledge of the **product** and necessary **delivery cadence**.

You can use a **suitability filter**, based on predictive, hybrid, adaptive approaches.

i.e.

Predictive  Is there high risk?
Is the timeframe long?

Adaptive  Changing requirements?
Need to deliver value early or move fast?

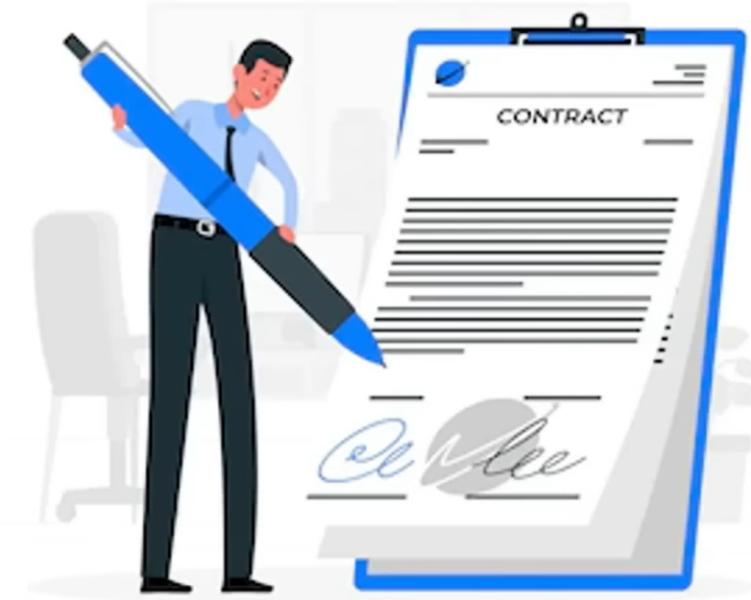


2.4 The Tailoring Process

Tailor for the organisation

The **organisation** might have a project methodology, management or development approach in place, and established governance processes.

There may be contract terms you need to meet (if under contract).



2.4 The Tailoring Process

Tailor for the project

Product or Deliverable

Project Team

Culture

Organizational Culture

- Compliance/criticality
- Type of product
- Industry or market
- Technology involved
- Timeframe
- Stability of requirements
- Security
- Incremental delivery

- Team size
- Team geography
- Organisational distribution
- Project team experience
- Access to customer

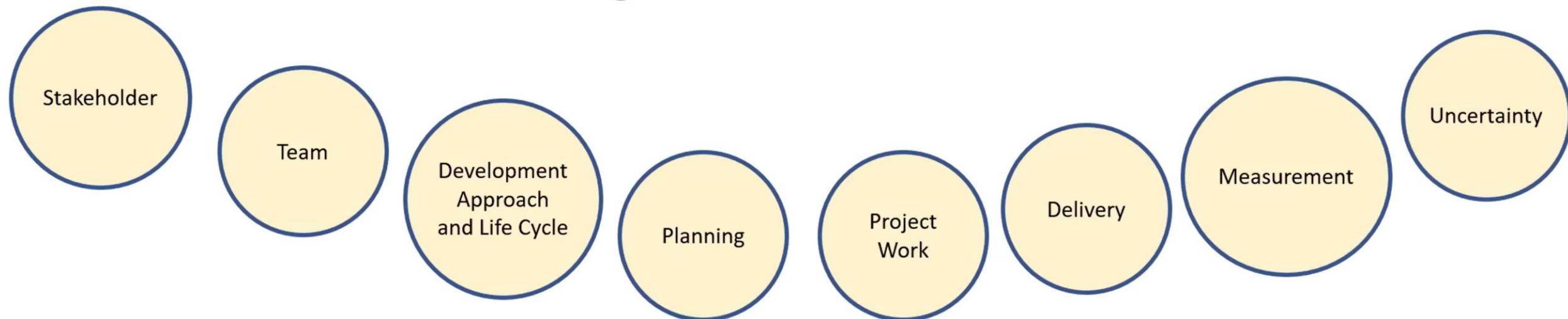
- Sufficient buy-in
- Trust
- Empowerment

- Aligns with project approach
- Implement ongoing improvement

2.5 Tailoring the Performance Domains



Tailoring the Performance Domains



2.5 Tailoring the Performance Domains

Stakeholders



- Is there a collaborative environment?
- Are stakeholders internal or external?
- Is technology available for communicating?
- Are diverse languages spoken (or even jargon)?
- How many stakeholders?
 - More networks = more complexity
- Existing relationships?

2.5 Tailoring the Performance Domains

Project Team

- Is the team co-located or dispersed?
- Are there diverse viewpoints and cultures?
- Internal or contractors?
- Is there an established project team culture?
- Existing tools or new tools?
- Does the team need training?
- Any special needs?



2.5 Tailoring the Performance Domains

Development approach and lifecycle

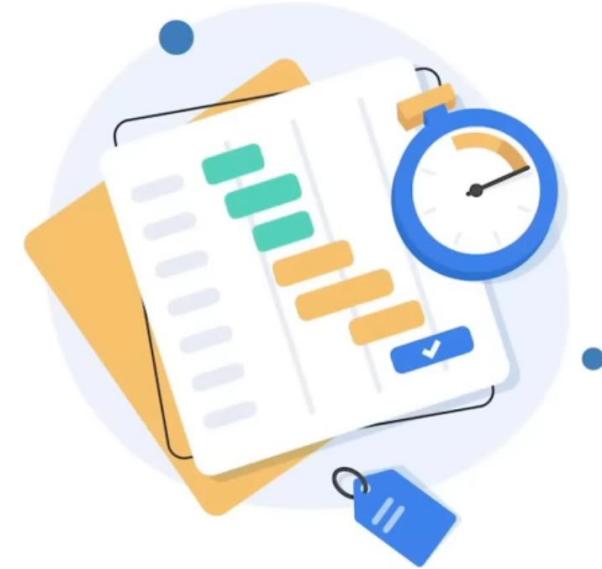


- Which development approach is appropriate for the product, service or result?
 - Based on speed, quality, scope needs.
- Are there formal or informal audit and governance policies, procedures in place?

2.5 Tailoring the Performance Domains

Planning

- Do any internal and external environmental factors impact planning?
- Do resources and their productivity affect durations?
- Are there formal or informal policies for cost estimating and budgeting?
- How does the organisation estimate cost with adaptive approaches?
- What if we have multiple procurements?
- Are there laws and regulations affecting contracting?



2.5 Tailoring the Performance Domains

Project work



- Management processes based on culture, complexity?
- How will knowledge be used to foster collaboration?
- What information will be collected and how will it be managed?
- How will we handle lessons learned?
- Is there a formal knowledge management repository?

2.5 Tailoring the Performance Domains

Delivery

- Are there formal or informal requirements management systems?
- Are there formal or informal validation and control related policies?
- What Quality policies, tools, techniques, templates exist in the organisation?
- Any specific industry standards?
- Are there unstable requirements - how will we manage them?



2.5 Tailoring the Performance Domains

Uncertainty



- What is the risk appetite?
- How are threats and opportunities identified and addressed?
- How will complexity, uncertainty impact the project?
- Does project size impact risk approach?
- How strategically important is the project?

2.5 Tailoring the Performance Domains

Measurement

- How is value measured?
- Can we measure financial and non-financial value?
- How will the project enable data capture and report benefits to the organisation?
- What are project status reporting requirements?



3.0 Models, Methods, & Artifacts





3.1 Models

A Model helps explain how something works in the real world.

3.1 Commonly Used Models

Situational Leadership

Ken Blanchard's situational leadership II



Measures
competence and
commitment



OSCAR coaching Model



- Outcome
- Situation
- Choices / Consequences
- Actions
- Review

3.1 Commonly Used Models

Communication

Cross Cultural Communication

Effectiveness of Communication
Channels

Gulf of Execution and Evaluation



The message is influenced by the sender and receiver's current:

- Knowledge
- Experience
- Language
- Thinking and
- Communication style



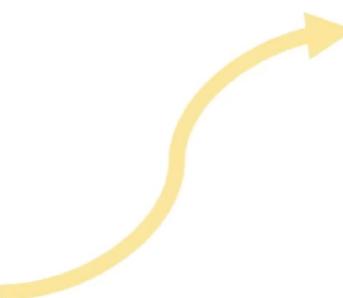
3.1 Commonly Used Models

Communication

*From Alistair Cockburn;
Measured by **richness** and **effectiveness**.*

Cross Cultural Communication

Effectiveness of Communication
Channels



Richness means we're able to handle multiple information cues simultaneously,
Get rapid feedback,
It is personal, and
Uses natural language.
(i.e. speaking face to face)

Gulf of Execution and Evaluation



3.1 Commonly Used Models

Communication

Cross Cultural Communication

Effectiveness of Communication
Channels

Gulf of Execution and Evaluation



From Donald Norman;

Gulf of execution – Does it match what we expect it to do?



Evaluation – Does it support the user to discover how to interact with it?

3.1 Commonly Used Models

Motivation

Herzberg's Theory of Motivation

Intrinsic versus Extrinsic motivation

Theory of needs

Theory X, Y, Z



Hygiene factors:

- Salary
- Policies
- Physical environment

Motivational Factors

- Achievement
- Growth

3.1 Commonly Used Models

Motivation

Herzberg's Theory of Motivation

Intrinsic versus Extrinsic motivation

Theory of needs

Theory X, Y, Z



Intrinsic – internal motivation

- Autonomy
- Mastery
- Purpose

Extrinsic – external motivation

- Money
- Bonuses
- Status

3.1 Commonly Used Models

Motivation

Herzberg's Theory of Motivation

Intrinsic versus Extrinsic motivation

Theory of needs

Theory X, Y, Z



From David McClellan, people are driven by:

- Achievement
- Power
- Affiliation

3.1 Commonly Used Models

Motivation

Herzberg's Theory of Motivation

Intrinsic versus Extrinsic motivation

Theory of needs

Theory X, Y, Z



From Douglas McGregor

X: Driven only by income, not ambitious, needs micro management

Y: Intrinsically motivated to do good work - manage as more of a coach

Z: Motivated by a higher calling, a job for life.



3.1 Commonly Used Models

Change

Managing change in organisations

ADKAR

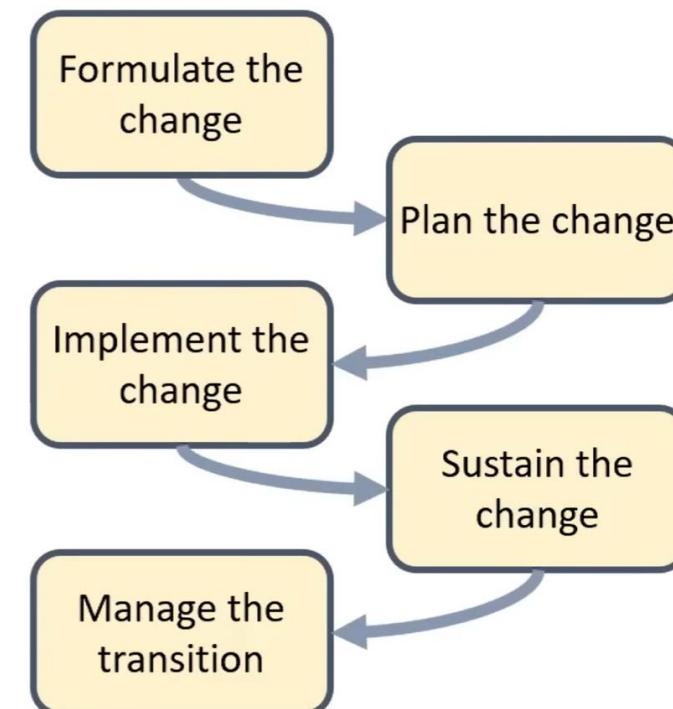
8 Steps to Change

Virginia Satir Change Model

Transition Model



From Project Management Institute (PMI)



3.1 Commonly Used Models

Change

Managing change in
organisations

ADKAR

8 Steps to Change

Virginia Satir Change Model

Transition Model



- Awareness
- Desire
- Knowledge
- Ability
- Reinforcement

3.1 Commonly Used Models

Change

Managing change in
organisations

ADKAR

8 Steps to Change

Virginia Satir Change Model

Transition Model



From John Kotter

- 1) Create urgency
- 2) Form a powerful coalition
- 3) Create a vision for change
- 4) Communicate the vision
- 5) Remove obstacles
- 6) Create short term wins
- 7) Build on the change
- 8) Anchor the changes in corporate culture

3.1 Commonly Used Models

Change

Managing change in
organisations

ADKAR

8 Steps to Change

Virginia Satir Change Model

Transition Model



- 1) Late status quo (Business as usual)
- 2) The foreign element (shift in status quo)
- 3) Chaos
- 4) The transforming idea
- 5) Practice and integration
- 6) The new status quo

3.1 Commonly Used Models

Change

Managing change in organisations

ADKAR

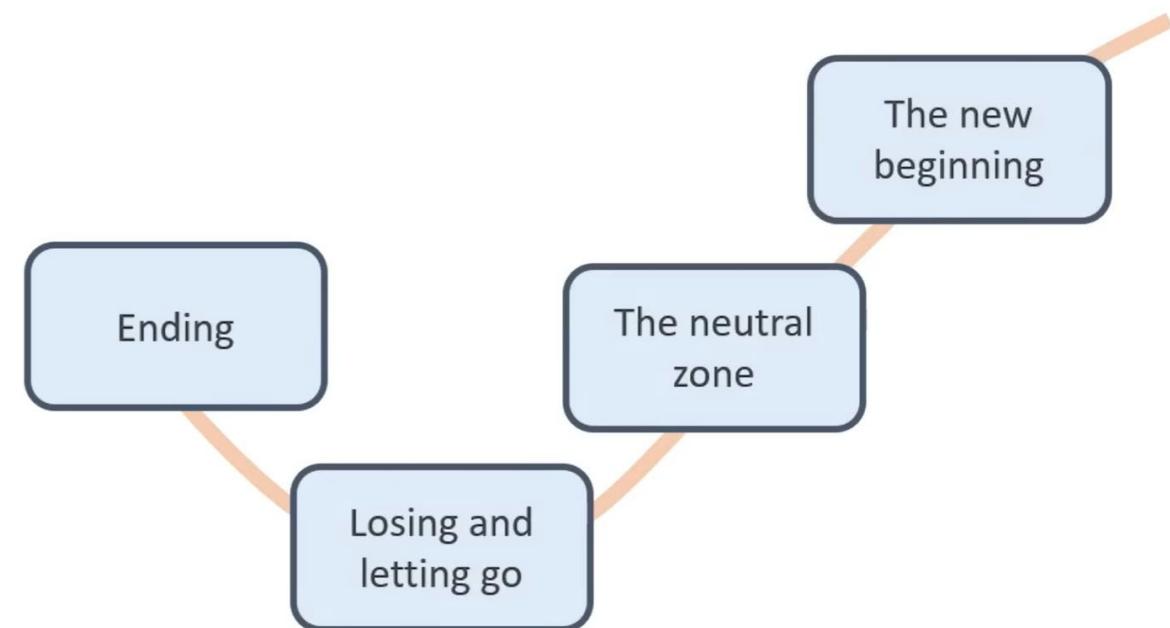
8 Steps to Change

Virginia Satir Change Model

Transition Model



From William Bridges



3.1 Commonly Used Models

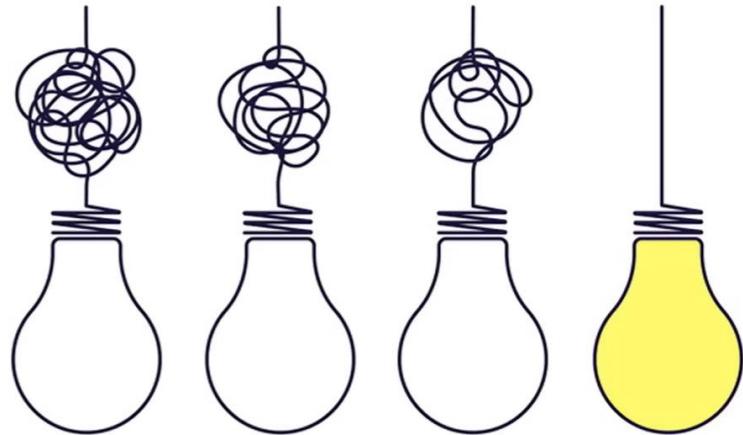
Complexity

Cynefin Framework

Stacey Matrix



From Dave Snowden



If an **obvious** cause-effect relationship exists:

- Use best practices to make a decision

If **Complicated** relationships or known unknowns exist:

- Assess the facts and use good practices

If **Complex** relationships or unknown unknowns exist:

- Probe the environment (iterate forward)

If **Chaotic** environments exist:

- Stabilise the situation and take steps to reduce to "Complex"

If a **disordered** situation exists break it into smaller parts and assess from there.

3.1 Commonly Used Models

Complexity

Cynefin Framework

Stacey Matrix

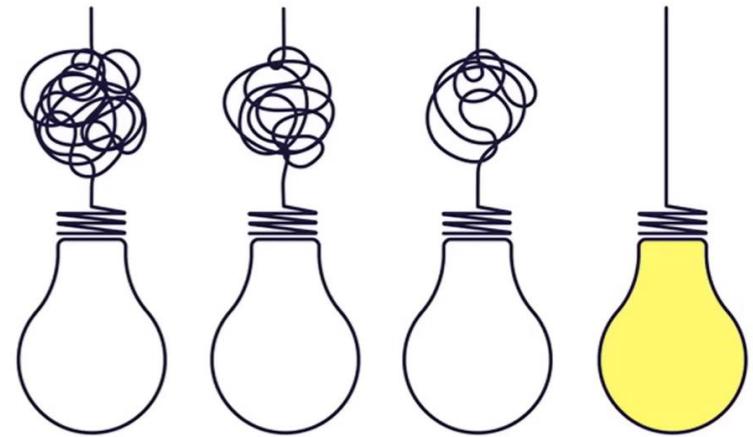


From Ralph Stacey

Measures by the uncertainty of the deliverable and the technology to create it, by how:

- Simple
- Complicated
- Complex
- Chaotic

the item is.



3.1 Commonly Used Models

Project Team Development



Tuckman's Ladder



From John Tuckman

- Forming
- Storming
- Norming
- Performing
- Adjourning

Drexler/Sibbet Team
Performance Model

3.1 Commonly Used Models

Project Team Development

Tuckman's Ladder

Drexler/Sibbet Team
Performance Model



- Orientation (Why)
- Trust building (Who)
- Goal clarification (What)
- Commitment (How)
- Implementation (Plans)
- High performance
- Renewal

3.1 Commonly Used Models

Other

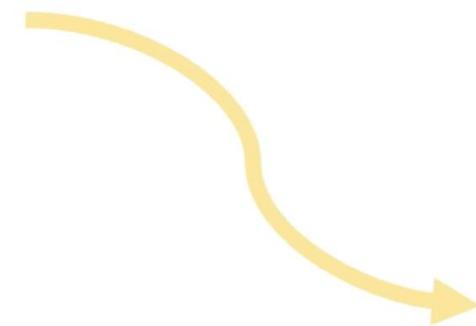
Conflict Model

Negotiation

Planning Sweet Spot

Process Groups

Salience model



- Confronting/Problem Solving
- Collaborating
- Compromising
- Smoothing/Accommodating
- Forcing
- Withdrawal/Avoiding

3.1 Commonly Used Models

Other

Conflict Model

Negotiation

Planning Sweet Spot

Process Groups

Salience model



- Win / win
- Win / lose or lose/win
- Lose / lose

Win/win needs Character (Maturity), Trust, and Approach, where each looks at the other's point of view.



3.1 Commonly Used Models

Other

Conflict Model

Negotiation

Planning Sweet Spot

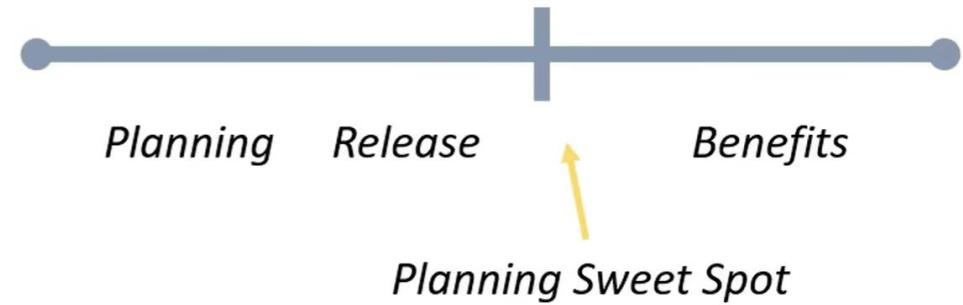
Process Groups

Salience model



From Barry Boehm

The planning sweet spot is between planning up-front to reduce risk, and the time to market benefits.



3.1 Commonly Used Models

Other

Conflict Model

Negotiation

Planning Sweet Spot

Process Groups

Salience model



- 1) Initiating
- 2) Planning
- 3) Executing
- 4) Monitoring and Controlling
- 5) Closing



3.1 Commonly Used Models

Other

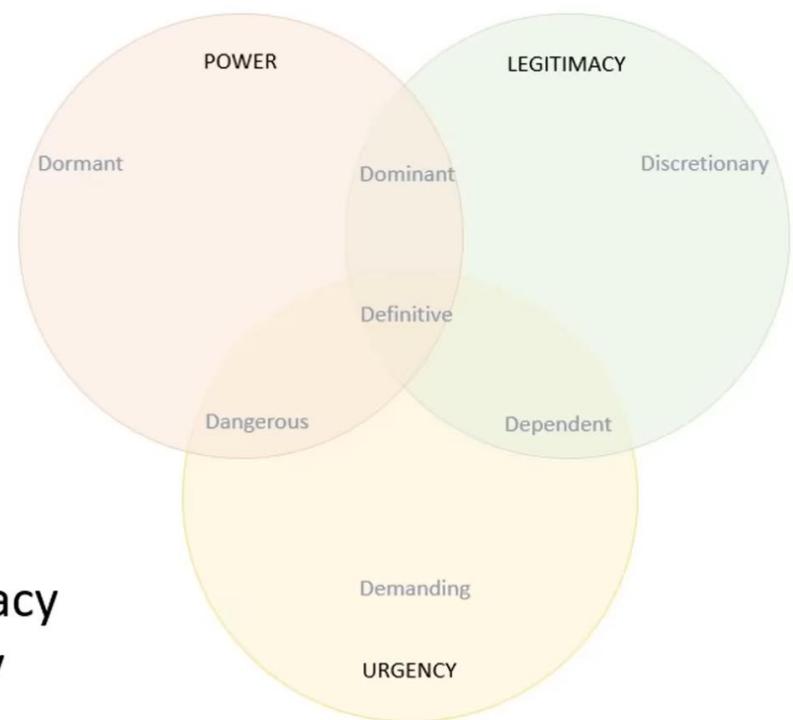
Conflict Model

Negotiation

Planning Sweet Spot

Process Groups

Salience model



- Power
- Legitimacy
- Urgency



3.2 Methods

A Method is a means for achieving an outcome, result, or deliverable.

3.3 Commonly Used Methods

Data gathering and analysis



$$\frac{\text{Current Value of Investment} - \text{Cost of Investment}}{\text{Cost of Investment}}$$

- Alternatives analysis
- Assumption and constraint analysis
- Benchmarking
- Business justification analysis
- Return on investment (ROI)
- Net Present Value
- Cost benefit analysis
- Check sheet
- Cost of Quality
- Decision tree analysis
- Earned value analysis
- Expected monetary value (EMV)
- Forecasting
- Influence diagram

Multi-Criteria Benchmarking						
Rating	3	2	4	1	3	3
Feature	Company Name					
Feature 1	✓	✗	✗	✗	✗	✓
Feature 2	✓	✗	✓	✗	✗	✓
Feature 3	✓	✗	✓	✓	✓	✗
Feature 4	✗	✓	✓	✗	✓	✓
Feature 5	✗	✓	✓	✗	✓	✗

Payback period
 $\text{Cost of Investment} \div \text{Average Annual Cash Flow}$

Internal rate of return (IRR)

- Higher is better

Today's value of Expected Cashflow
 $-$
 Today's value of Invested Cash

Prevention
 Appraisal
 Internal Failure
 External Failure

Planned Value
 Earned Value
 Actual Cost
 Budget at Completion

 Schedule Variance
 Cost variance
 Schedule Performance Index
 Cost Performance Index
 Estimate to Complete

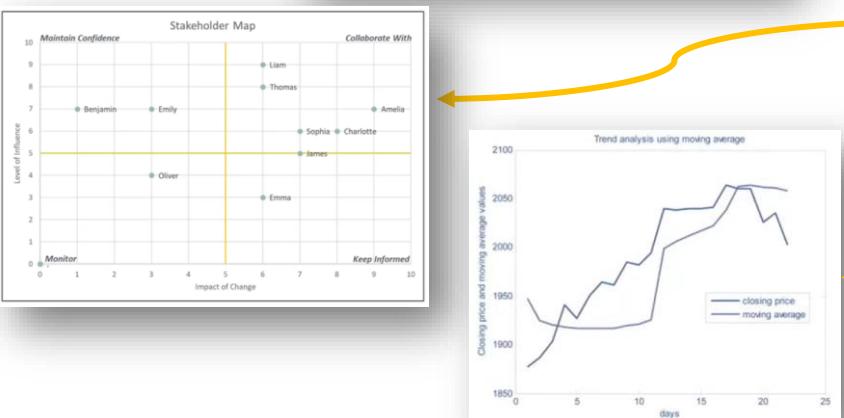
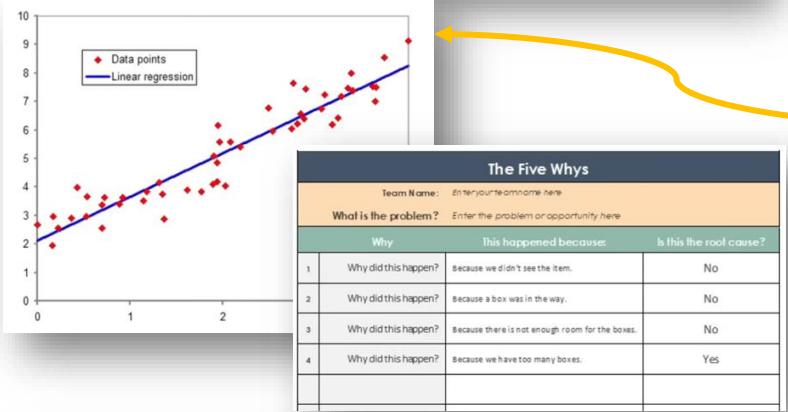
Probability x Benefit

Types, Items or Events	Total	1	2	3	4	5	6	7	8	9	10	11	12
Item 1	2	x											
Item 2	5	x	x	x	x								
Item 3	5	x	x	x	x								
Item 4	3	x	x										
Item 5	12	x	x	x	x	x	x	x	x	x	x		
Item 6	5	x	x	x	x								
Item 7	2	x											
Item 8	7	x	x	x	x	x							
Item 9	4	x	x	x									
Item 10	2	x											

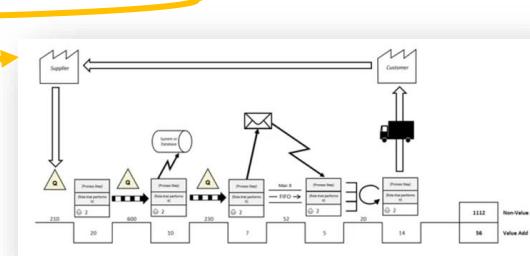
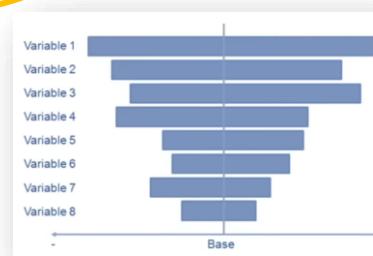
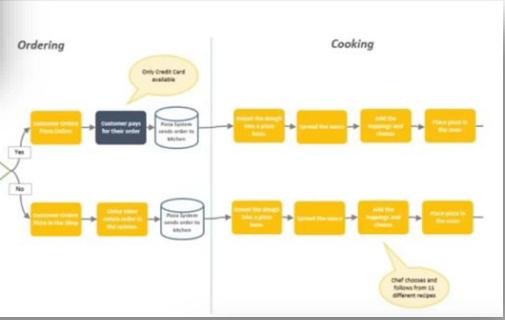


3.3 Commonly Used Methods

Data gathering and analysis



- Lifecycle assessment
- Make or buy analysis
- Probability and impact matrix
- Process analysis
- Regression analysis
- Reserve analysis
- Root cause analysis
- Sensitivity analysis
- Simulations
- Stakeholder analysis
- SWOT analysis
- Trend analysis
- Value stream mapping
- Variance analysis
- What-if scenario analysis



S	Strengths
1	what could we improve?
2	what disadvantages do we have?
3	where do we lack efficiency?
4	what are we wasting money?
5	what makes us stand out?

W	Weaknesses
1	what could we improve?
2	what disadvantages do we have?
3	where do we lack efficiency?
4	what are we wasting money?
5	what makes us stand out?

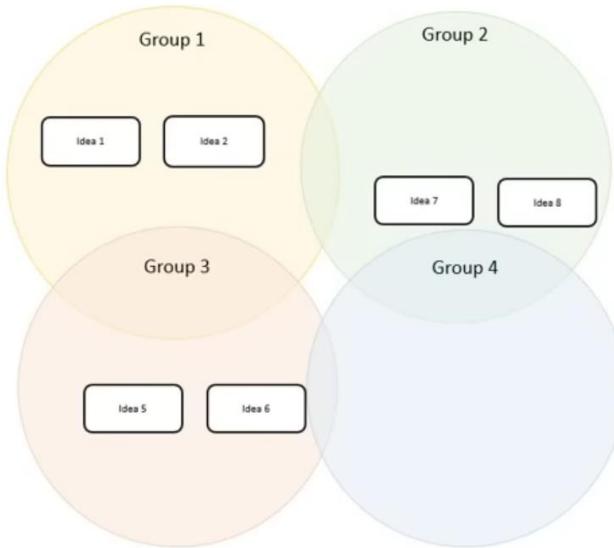
O	Opportunities
1	what is missing in our market?
2	what could we create or do better than a competitor?
3	what obstacles do we face?
4	what changes are occurring in our market or industry?
5	what new trends are occurring?
6	what new technology could we use?
7	what openings in the market are there?

T	Threats
1	what are our weaknesses that could prevent us from meeting our goals?
2	what obstacles do we face?
3	what changes are occurring in our market or industry?
4	what threats are there in technology that could disrupt our operations?
5	what social changes or trends could threaten us?
6	are there any policies or regulations changing that might threaten our success?

3.3 Commonly Used Methods

Estimating

- Affinity grouping
- Analogous estimating
- Function point metric



The amount of “business functionality” in an information system



3.3 Commonly Used Methods

Estimating

- Affinity grouping
- Analogous estimating
- Function point metric
- Multi point estimating
- Parametric estimating
- Relative estimating

Uses:

Optimistic + Most Likely + Pessimistic

3



Uses a Parameter, like:

\$50 a meter

\$80 an hour

Used in Agile

Estimated by how they relate to other estimates.



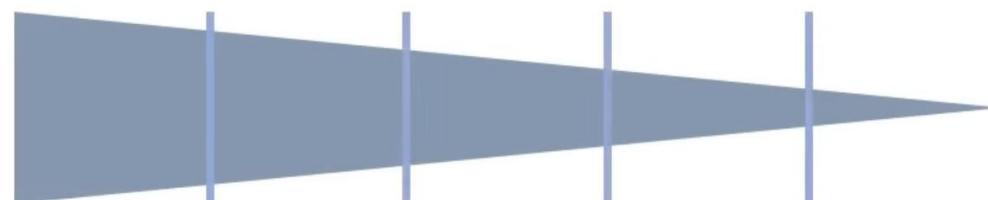
3.3 Commonly Used Methods

Estimating

- Affinity grouping
- Analogous estimating
- Function point metric
- Multi point estimating
- Parametric estimating
- Relative estimating
- Single point estimating
- Story point estimating
- Wideband Delphi

Relative, Fibonacci:
1, 2, 3, 5, 8, 13, 21

Multiple rounds: starts broad, becomes accurate.



3.3 Commonly Used Methods

Meetings and Events

- Kick-off meeting
- Iteration planning
- Backlog refinement
- Daily stand-ups
- Iteration review
- Retrospectives



Agile / Adaptive

- Change control board
- Bidder conferences
- Lessons learned
- Planning meetings
- Project closeouts
- Project review
- Release planning
- Risk reviews
- Status meeting
- Steering committee



Similar to a
Retrospective



At the end of a
phase

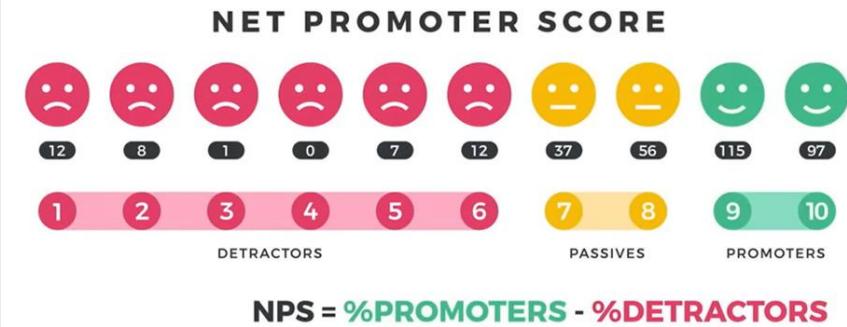


3.3 Commonly Used Methods

Other

- Impact mapping
- Modelling
- Net Promoter Score
- Prioritisation schema (MoSCoW)

"On a scale of 1 to 10
How likely would you be to recommend us to a friend?"



MoSCoW

Project Name: <i>M</i> ust have <i>S</i> hould have <i>C</i> ould have <i>W</i> on't have Place an X in the appropriate cell - one per row				
Requirements	Must have	Should Have	Could Have	Won't Have
[Enter requirement here]	X			
[Enter requirement here]		X		
[Enter requirement here]			C	
[Enter requirement here]				X
[Enter requirement here]		X		
[Enter requirement here]	X			

A close-up photograph of a person's hands wearing white gloves, working on a small electronic device or circuit board. The person is wearing a blue lab coat. The background is blurred, showing more electronic equipment and components.

3.3 Artifacts

An artifact is a template, document, or project deliverable.

3.6 Commonly Used Artifacts

Strategy

- Business case
- Business model canvas
- Project brief
- Project charter
- Project vision statement
- Roadmap

Project Charter

GENERAL PROJECT INFORMATION		CHARTER DATE: 1 March 2023
PROJECT NAME	e.g. Online Self Serve Payment System	
PROJECT SPONSOR	The executive paying for the project, or giving resources.	
PROJECT MANAGER	The person leading the project.	
EXPECTED START DATE	01 June 23	
EXPECTED COMPLETION DATE	30 September 23	
PROJECT DETAILS		
PROJECT DESCRIPTION	High-level project description, purpose and reason "why" for the project.	
KEY REQUIREMENTS	What is required to be delivered? Also written as "features": a high-level list of what is required as an output of this project. e.g.: 1. Web page - working design 2. Online payment system 3. Back-end integration	
EXPECTED BENEFITS	Enhanced customer experience providing access to an online channel for our customers, thereby personalising their channel of choice. Reduction in wait times for customers. Staff savings of around 9,800 hours of effort each year.	
ESTIMATED COSTS / RESOURCES	e.g. 35k costs including utilisation of internal delivery team and Subject Matter Experts	
ESTIMATED MILESTONES	Feature 1 - June 20 Feature 2 - July 20 Feature 3 - September 20	
PROJECT TEAM (RESOURCES)	Project Sponsor: Project Manager: Business Analysts: Subject Matter Experts: Test Leads: Subject Matter Experts:	
STAKEHOLDERS (IMPACTED)	Name, Role Name, Role Name, Role Name, Role Department or area Team	
OVERALL PROJECT RISK	High level: what could go wrong? Risk, Likelihood, Impact Risk, Likelihood, Impact	
PROJECT EXIT CRITERIA	Also "Success Criteria" e.g. Working, useable features released on time. What are the conditions to be met in order to close or to cancel the project or phase.	

Project Business Case

Date: 10 August 20xx
Subject: Title of Business Case / change required
To: Project Sponsor or approving manager
From: Analyst or document creator/s

1. Summary
- One or two lines: What is the business problem or opportunity to be addressed, including the value to be delivered to the organization?

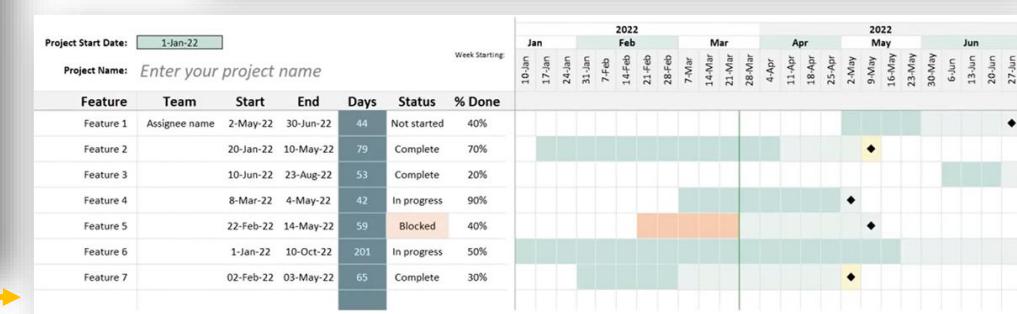
2. Current Issue
- What is prompting the need for action, or the cost of not taking action?
- Where is the gap between where we are and where we want to be? Advise what is needed versus existing capabilities of the organization
- Include data and facts showing the root cause of the problem (or opportunity)
- Identify the stakeholders affected

3. Solution Approach
- Solution Summary, including must-have solutions with their cost versus benefit.

#	Solution Option	High Level Benefit	High Level Cost	Required, Desired, Optional
1				
2				
3				
-				

Business Model Canvas

Business Name: []		Prepared By: []		
Key Partners	Key Activities	Value Propositions	Customer Relationships	Customer Segments
► Which key resource do we acquire from partners? ► Which key activities do our partners perform? ► Who are our most important partners?	► What are the activities we perform every day to create and deliver value to our customer? ► What customer problems are we solving? ► What are our value propositions? ► What are the products and services we create for our customer?	► What is the value we deliver to our customer? ► What customer problems are we solving? ► What are our value propositions? ► What are the products and services we create for our customer?	► What relationship does each customer segment expect us to maintain? ► Who are the customer segments or groups who pay for or receive our product or service?	► For whom are we creating value? ► Who are the customer segments or groups who pay for or receive our product or service?
Key Resources	Channels	Cost Structure	Revenue Streams	
► What are the resources we need to create & deliver our value proposition?	► How does our value proposition reach our customer? Where can our customer buy or use our products or services?			



3.6 Commonly Used Artifacts

Logs and Registrars

- Assumption log
- Backlog
- Risk adjusted backlog
- Change log
- Issue Log
- Lessons learned register
- Risk register
- Stakeholder register



Unique ID	Risk Description	Caused by & Consequences	Risk Owner (s) Name and Role	Inherent Risk (Without controls)			Control (s)	Control Owner (s) Name and Role	Residual Risk (with controls)		
				Probability	Impact	Risk Rating			Residual Probability	Residual Impact	Residual Risk Rating
1	Risk 1	Caused by: Consequences:	Jemima Hamilton, VP Sales;	Medium	Very Low	Sustainable			Low	Very Low	Sustainable
2	When you enter risks, the numbers to the left will appear automatically.	Caused by: Consequences:		Low	High	Severe			Low	High	Severe
		Caused by: Consequences:		Medium	Medium	Moderate			Medium	Medium	Moderate
		Caused by: Consequences:		Low	Medium	Moderate			Low	Low	Sustainable
		Caused by: Consequences:		High	High	Critical			Medium	Medium	Moderate
		Caused by: Consequences:		High	Very Low	Sustainable			Medium	Very Low	Sustainable
		Caused by: Consequences:		Medium	Low	Moderate			Low	Low	Sustainable



NAME	PROJECT ROLE	Deliverables					
		Task or Deliverable					
Billy Jenkins	Project Manager		C		A		
Michelle Havana	Business Analyst		R	C		R	
Jenny Fulton	Quality Tester				C		
Terry Smith	Change Manager			C			
[Name]							
[Name]							
[Name]							

3.6 Commonly Used Artifacts

Plans

- **Change Control Plan**
- **Communications management plan**
- **Cost management Plan**
- **Iteration** plan
- **Procurement** management plan
- **Project Management** plan
- **Quality Management Plan**
- **Release Plan**
- **Requirements Management** plan
- **Resource Management Plan**
- **Risk Management Plan**
- **Scope Management** plan
- **Schedule Management** plan
- **Stakeholder engagement** plan
- **Test** plan

How

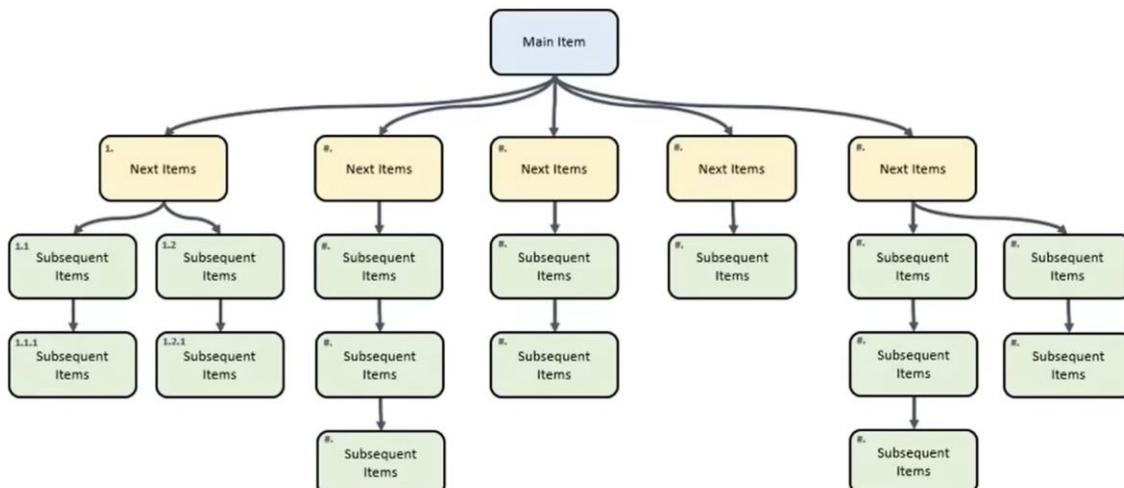
Describes each “How to”,
The process you will use,
The boundaries



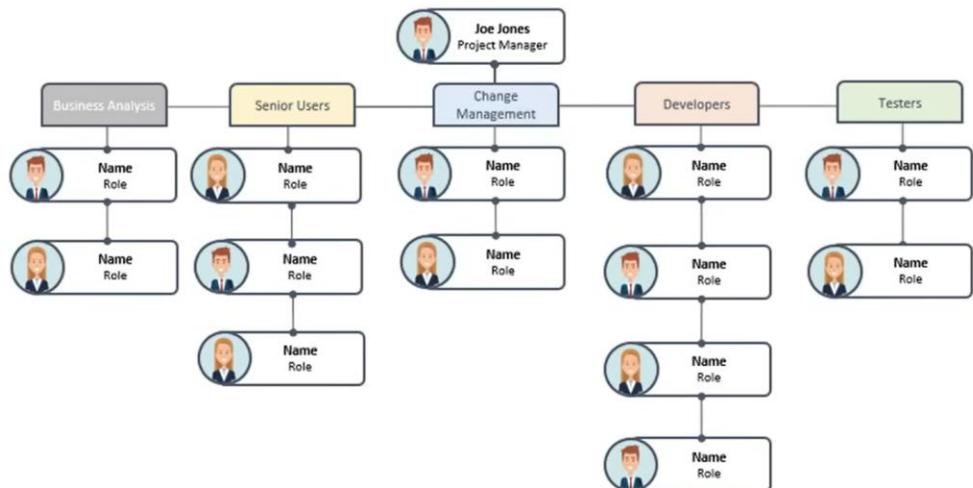
3.6 Commonly Used Artifacts

Hierarchy charts

- Organisational breakdown structure
- Product breakdown structure
- Resource breakdown structure
- Risk breakdown structure
- Work breakdown structure



“Decomposition”



Work Breakdown Structure Dictionary							
Unique ID	Description	Currently Assigned To:	Percentage Complete	Dependent on:	Resources Required	Cost Estimates	Acceptance Criteria
1	Feature 1						
1.1	Task	James	80%	-	► James ► Martha	\$1,000.00	► Functioning system
1.1.1	Subtask	Anne	70%	1.1			
1.1.2	Subtask	Michael	20%	2.1			
1.2	Task	Tina	50%	-			
1.2.1	Subtask	Kelly	0%	-			
1.2.2	Subtask	-	0%	1.12			
2	Feature 2						
2.1	Task	-		-			
2.1.1	Subtask	-		-			
2.2	Task	-		-			

3.6 Commonly Used Artifacts

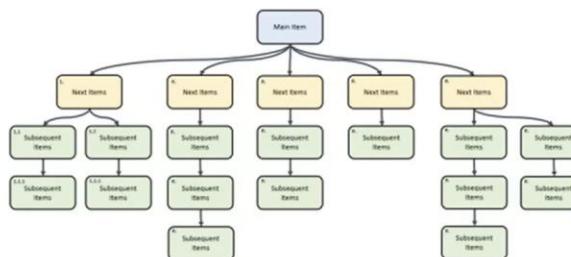
Baselines

The original estimate for:

- Budget
- Milestone schedule
- Performance measurement baseline
- Project schedule
- Scope baseline



- Scope
- Schedule
- Cost
- Scope statement
- Work Breakdown Structure
- WBS dictionary

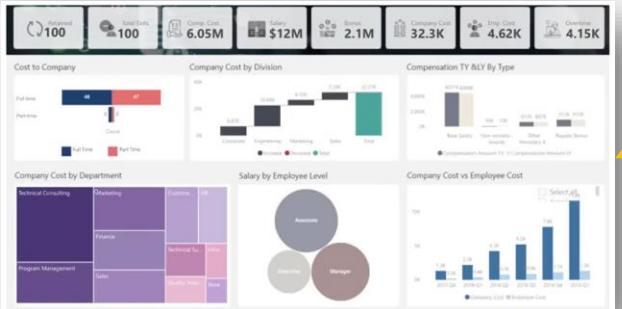
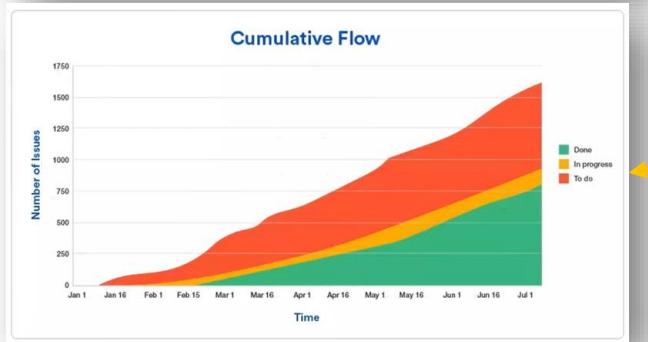
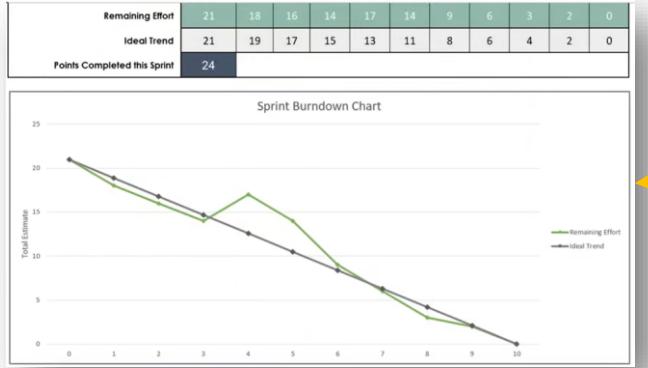


Work Breakdown Structure Dictionary						
Category ID	Description	Category Required	Resource Category	Resource ID	Resources Required	Cost Estimate
1	Feature 1	Series	80%	-	James	\$1,000.00
1.1	Task	Arise	20%	1.1	Shirley	
1.1.1	Subtask	Michael	10%	1.1.1		
1.1.2	Subtask	Tina	10%	1.1.2		
1.2	Task	Kelly	0%	1.2.1		
1.2.1	Subtask	0%	0%	1.2.1.1		
1.2.2	Subtask	0%	0%	1.2.1.2		
2	Feature 2					
2.1	Task					
2.1.1	Subtask					
2.2	Task					

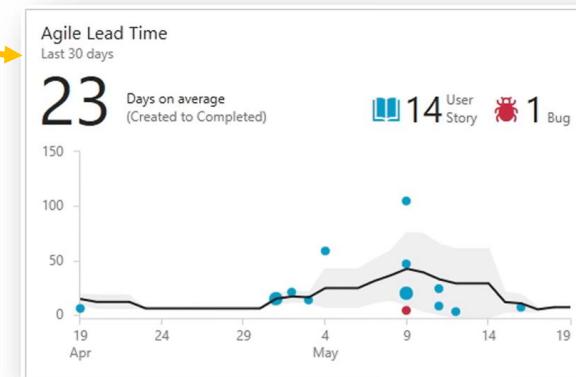
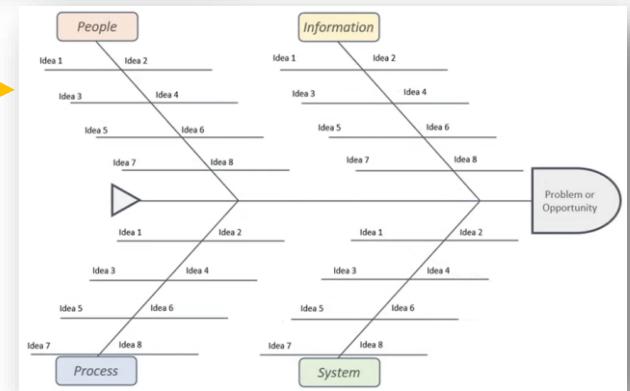
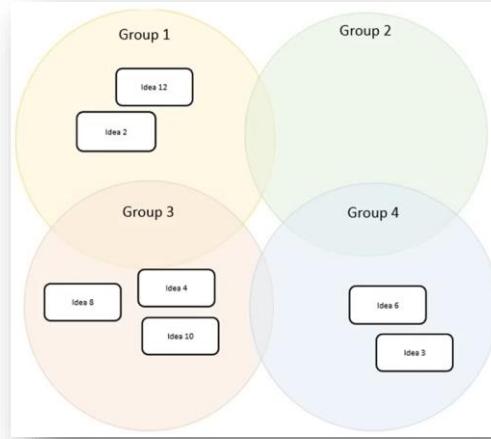


3.6 Commonly Used Artifacts

Visual Data and Information



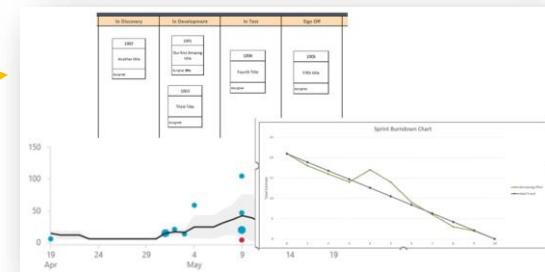
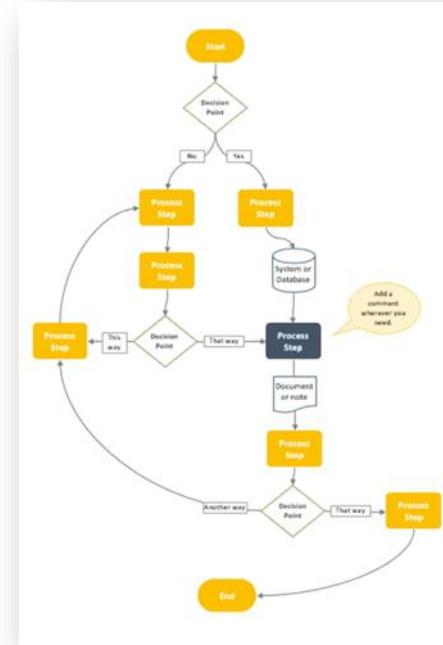
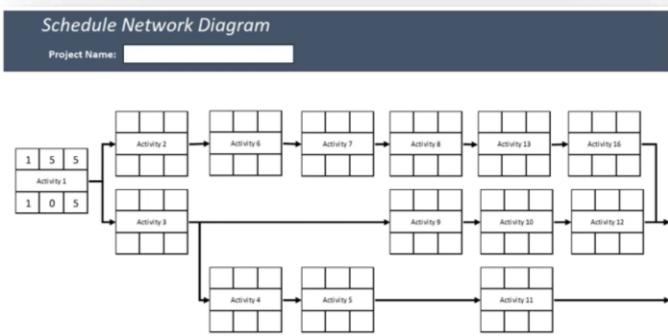
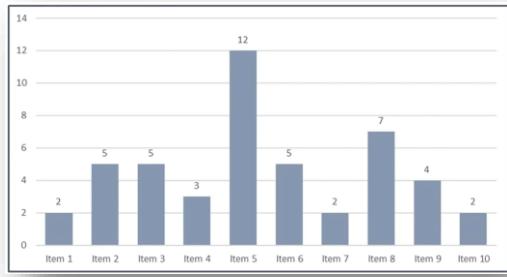
- Affinity diagram
- Burnup/Burndown chart
- Cause and Effect Diagram
- Cumulative Flow Diagram (CFD)
- Cycle time chart
- Dashboards
- Flowchart
- Gantt Chart
- Histogram
- Information radiator
- Lead time chart
- Prioritisation matrix
- Schedule network diagram



3.6 Commonly Used Artifacts

Visual Data and Information

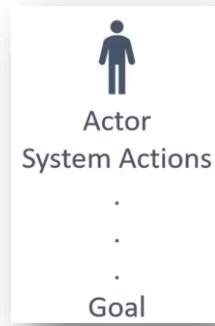
- Affinity diagram
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- Information radiator
- Lead time chart
- Prioritisation matrix
- Schedule network diagram



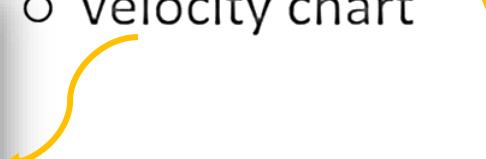
Requirements	Must have	Should Have	Could Have	Won't Have
[Enter requirement here]	X			
[Enter requirement here]		X		
[Enter requirement here]			X	
[Enter requirement here]				X

3.6 Commonly Used Artifacts

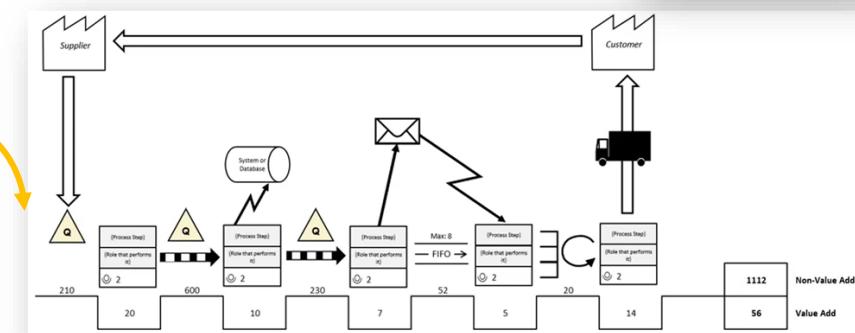
Visual Data and Information



- Requirements Traceability Matrix
- Resource Assignment Matrix
- Scatter diagram
- S-curve
- Stakeholder Engagement Assessment Matrix
- Story map
- **Throughput chart**
- Use case
- Value stream map
- Velocity chart



Stakeholder Engagement Assessment						
Stakeholders	Current state		Desired state			
	Unaware	Resistant	Neutral	Supportive	Leading	
Team or Area 1	Billy	C		D		
	Michael		C	D		
	Henry	C				D
	Anne				C, D	
	Jenny	C	D			



3.6 Commonly Used Artifacts

Reports

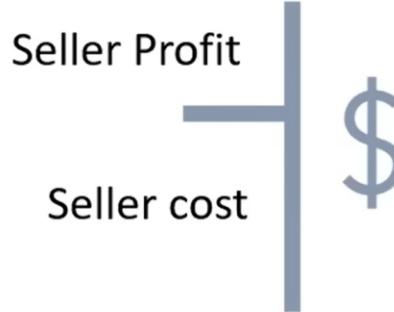


- Quality Report
- Risk Report
- Status Report

3.6 Commonly Used Artifacts

Agreements and Contracts

- Fixed price contracts



- Cost reimbursable contracts

CPAF - Cost Plus Award Fee

CPFF - Cost Plus Fixed Fee

CPIF - Cost Plus Incentive Fee

- Time & Materials contracts

- Indefinite delivery indefinite quantity (IDIQ)

- Other agreements



Indefinite quantity of goods
Within upper and lower limits
Within a fixed timeframe

MOU – Memorandum of Understanding

MOA – Memorandum of Agreement

SLA – Service Level Agreement

BOA – Basic Ordering Agreement

3.6 Commonly Used Artifacts

Other

- Activity list
- Bid documents
- Metrics
- Project (resource) calendar
- Requirements documentation
- Project team calendar
- User story



RFI – Request for Information
RFQ – Request for Quote
RFP – Request for Proposal