

IDP - Project Management

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Please sit in your project groups!!
Thank you! 😊

Aim of today's lecture is to make you aware of basic project management principles and help you improve your IDP team performance

Objectives

- Make you **aware** and remind yourself of some **basic** project management **principles**
- **Consider benefits** of a more **structured approach** to the management of your project
- **Improving** your **IDP** project team **performance**



Component

Description

A	Introductory terms		Basic introductory terms and definitions
	B	Define	Defining project objectives and thus sizing project scope
		Plan	Planning project activities, schedule and resources
		Execute	Execute project, monitor progress and iterate
		Close	Close project; reflect on lessons learned

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A Why Project Management is also important for Engineers in a R&D context

	Description	How PM can help
Cost responsibility	<ul style="list-style-type: none"> In many companies, components developed by Engineers will be associated with a material cost target When designing the components, Engineers need to be aware of the cost limitations 	<ul style="list-style-type: none"> PM can foster the estimation of material and labour cost
Time responsibility	<ul style="list-style-type: none"> The development of a product consists of many stages with a strict planning process behind it, including testing Thus, each component needs to be finished such that all required activities can be carried out in a timely manner 	<ul style="list-style-type: none"> PM helps to lay out the activities and timings required PM discloses critical paths in the development process
Monitoring responsibility	<ul style="list-style-type: none"> It is almost certain, that changes and iterations will occur during the development process, which will affect the cost structure or schedule 	<ul style="list-style-type: none"> PM helps to document any changes, their causes and how they affect the project

Project management is **not** a **complex** phenomenon, it is **rather difficult** to embrace in your **daily work**

A What is a Project and Project Management?

Aspects of a project

- **Aim/Scope:** Has a clearly defined, preferably measurable aim
- **Timing:** Has a clearly identifiable start and finish
- **Resources:** Projects often require resources and costs
- **Responsibility:** Project responsibility lies within a person or body/group
- **Dynamic:** Is an instrument of change

Aspects of Project Management

- Manages **times**, **resources**, **cost** and **quality** associated with achieving the project aim in a predictable manner
- **Manages risks** jeopardising the project
- **Monitors**, **documents** and **communicates** any **changes** to a project with cause and implications
- Some **formal** project management **methods**:
 - PRINCE 2 - PROjects IN Controlled Environments
 - A Guide to the Project Management Body of Knowledge (PMBOK Guide)

A Project Management is balancing which perspective when you know your scope?

A Magic triangle: The most striking components a Project Manager is managing, are quality, cost/resources and time



A Further aspects a Project Manager should be aware of



A Finding the right balance between process / project management and content related work is crucial

Process / PM

Content related work

Potential scenarios

Almost no process / PM

Too rigid process / PM

Just right

Share of "process" work vs. "content" work

Process

Content

Process

Content

Process

Content

Potential implications

- Risk of **not meeting quality, time and/or cost** targets of project due to limited planning resulting in chaos
- **"Overmanaging"** project **distracts** from **actual** content related **work**
- Again, quality, time and/or cost targets not met
- Just right amount of project management **ensuring success project**

In practice, the project lifecycle phases should be adjusted to reflect these requirements. This is because each industry has different needs. This is because each industry has different needs. This is because each industry has different needs.

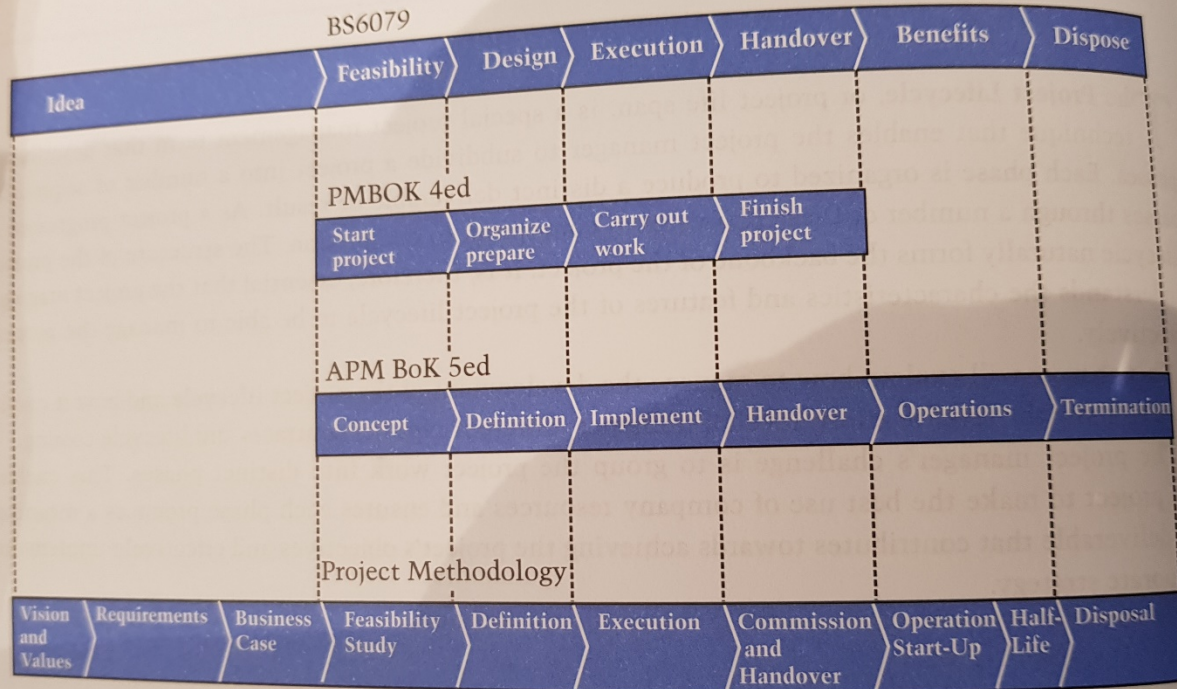


Figure 2.1 Project Lifecycles – shows how the project phases from a number of bodies of knowledge relate to each other

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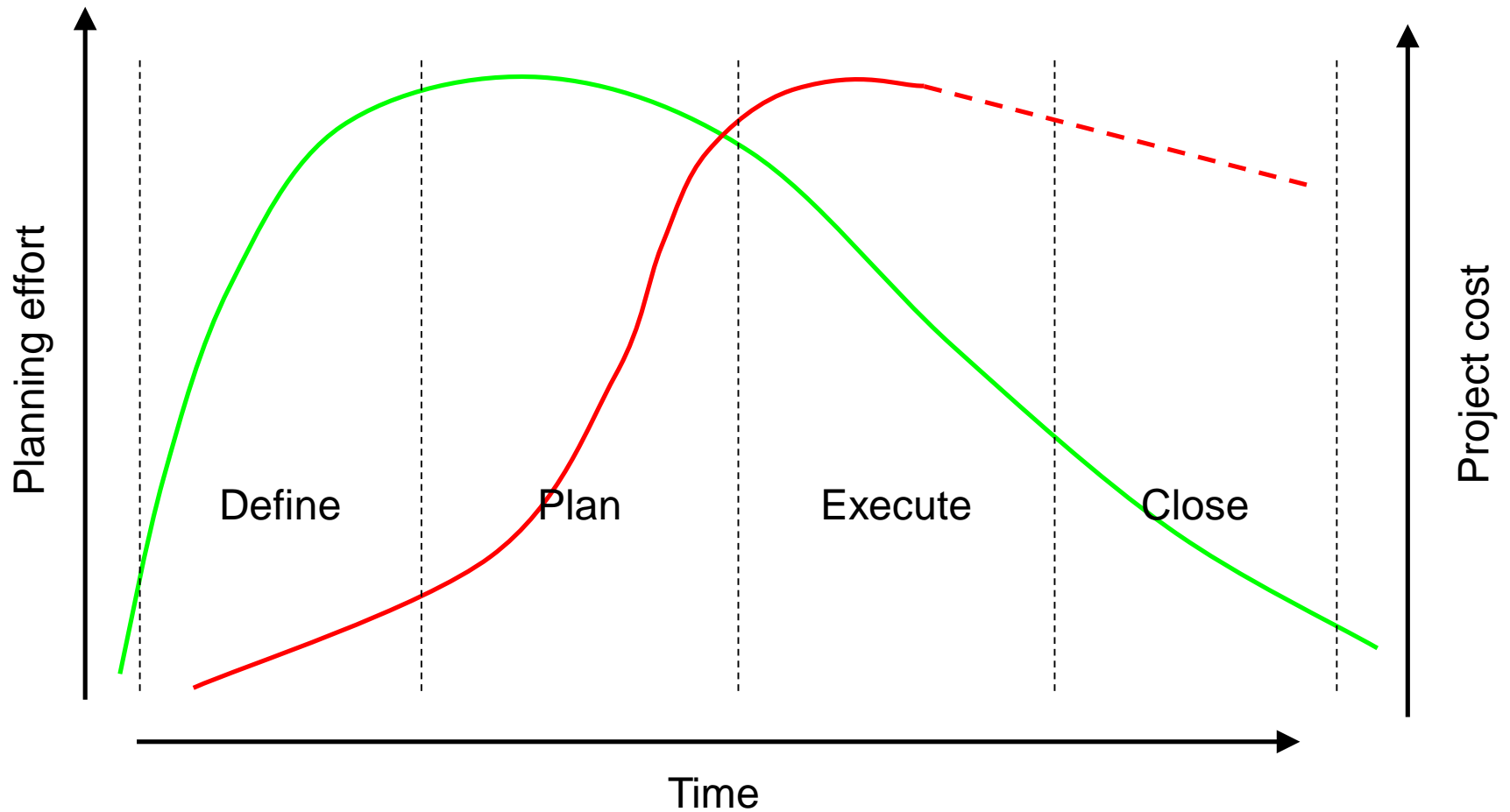
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B Typical project lifecycle - strongly depends on nature of project



B1 The project definition is a crucial step as it significantly affects are subsequent project phases

NOT EXHAUSTIVE

Component	Description
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Objectives	<ul style="list-style-type: none"> What is the overall project objective? What are the end products each stakeholder requires? How can we measure/quantify the end products?
Activities	<ul style="list-style-type: none"> What activities are needed to produce the end products and? Who will be in charge of which activities?
Stakeholders	<ul style="list-style-type: none"> Who are the key stakeholders? Which stakeholder is providing input? Which stakeholder should just be informed?
Quality	<ul style="list-style-type: none"> What quality criteria should be applied to each end product?
Resources	<ul style="list-style-type: none"> What resources are required? (budget, labour, physical resources etc.) What knowledge and other inputs are required?



Component Description

Objectives

- What is the **overall** project **objective**?
- What are the **end products** each stakeholder requires?
- How can **we measure/quantify** the end products?

Activities

- What** activities are needed to produce the end products and?
- Who** will be in charge of **which activities**?

Stakeholders

Quality

Resources

Get together with three/four people around you and **answer the following questions**:

- What** is it that you are **going to achieve**?
- When** are you going to **work on your project**?
 - are there specific **days** you **need** to **all be there**?
 - are there specific **days** some of you may **not be able to be there**?



B1 The project definition is a crucial step as it significantly affects are subsequent project phases

NOT EXHAUSTIVE



Component Description

Objectives

Activities

Stakeholders

Quality

Resources

		Interest	
		High	Low
Power / Influence	High	Key Players	Influential Stakeholders
	Low	Interested Stakeholders	Peripheral Stakeholder

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B2 Project plan: In most cases represents the bulk of the work of a project manager

Component Description

Work Breakdown Structure

- Breakdown main activities into sub activities, which can be allocated to project team members



Times

- Allocate realistic time slots for each sub activity and include buffers



Task dependencies

- Put sub activities into a sequence



Resources

- Allocate the right resources to each sub activity ("the right person for the right job")

Balancing the schedule

- Critically review and adapt the project plan to ensure a bearable resource demand vs. availability ratio



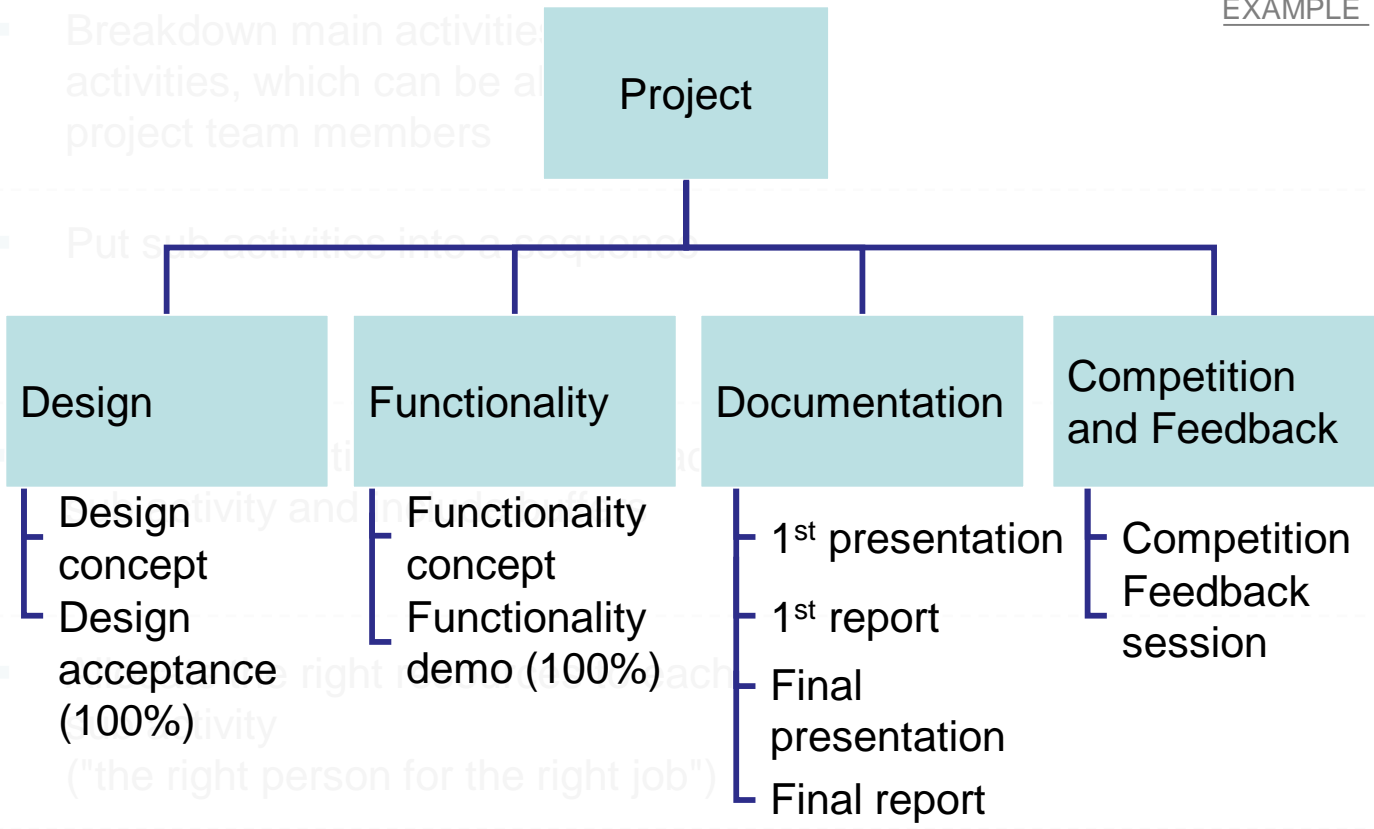
B2 Work Breakdown Structure: Ensure to define work packages with no/little overlap and according to skills within team



Component

Work Breakdown Structure

EXAMPLE



Always try to design the work packages should that there is no/limited overlap!

B2 Time: Asking experienced people is always a good starting point when making estimations on times required

Component

Work
Breakdown
Structure

Times

- How long will each task take?
 - Ask someone who knows
 - Use a rule of thumb
 - Model it against similar tasks
 - Break the task down further until you can estimate
 - Make assumptions

EXAMPLE

Task

**Time / duration
(h)**

Make sense of the project

2

Read some relevant books/ literature

5

Talk to project supervisor

1

Understand the project boundaries

8

Design the analysis / method

3

Gather the data

72

Analyse the data

36

B2 Task dependencies: Crucial plan in every project as it reveals overall timeline and critical path process steps



Component

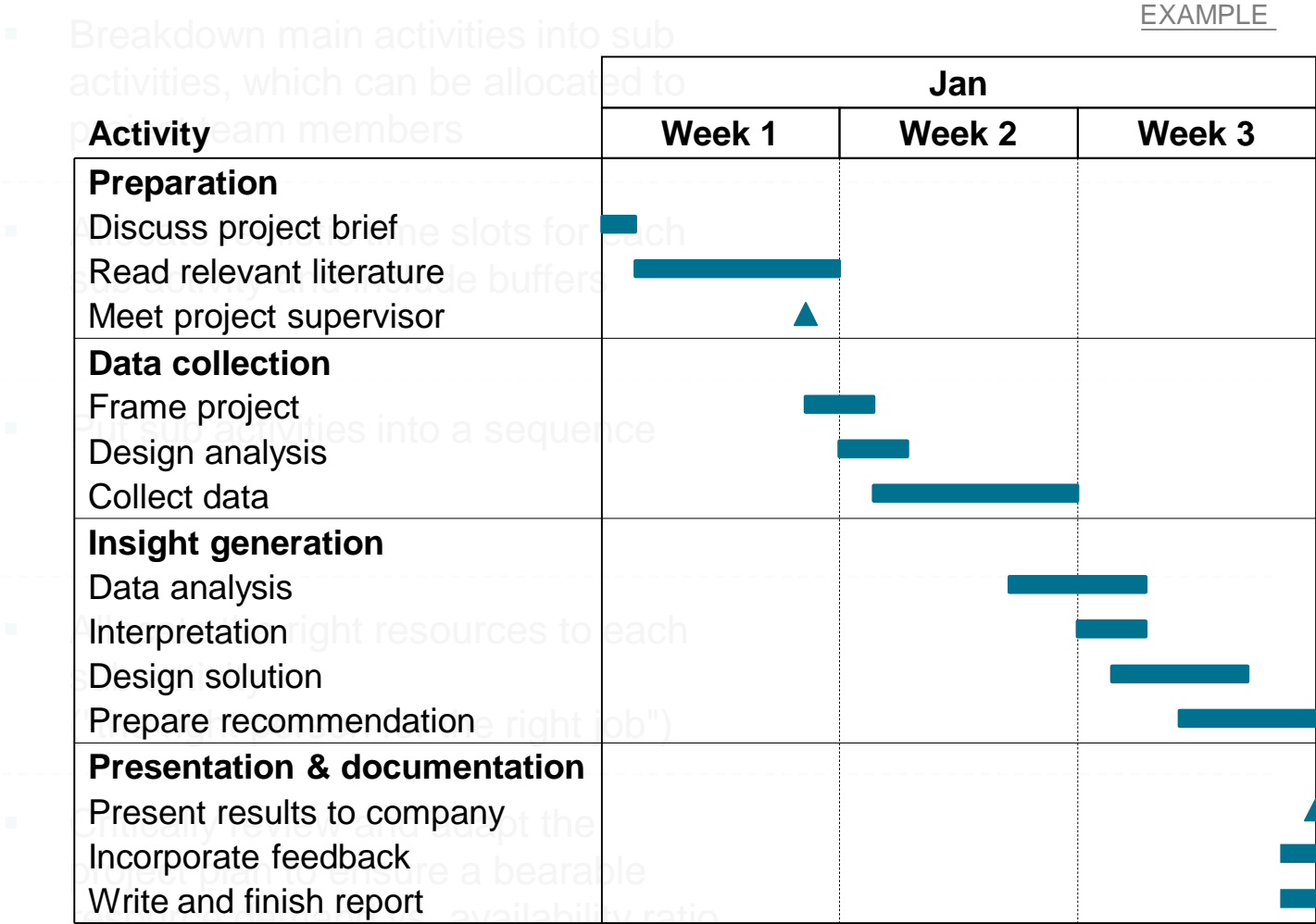
Work Breakdown Structure

Times

Task dependencies

Resources

Balancing the schedule



B2 Task dependencies: Which are the milestones in your project?

Component

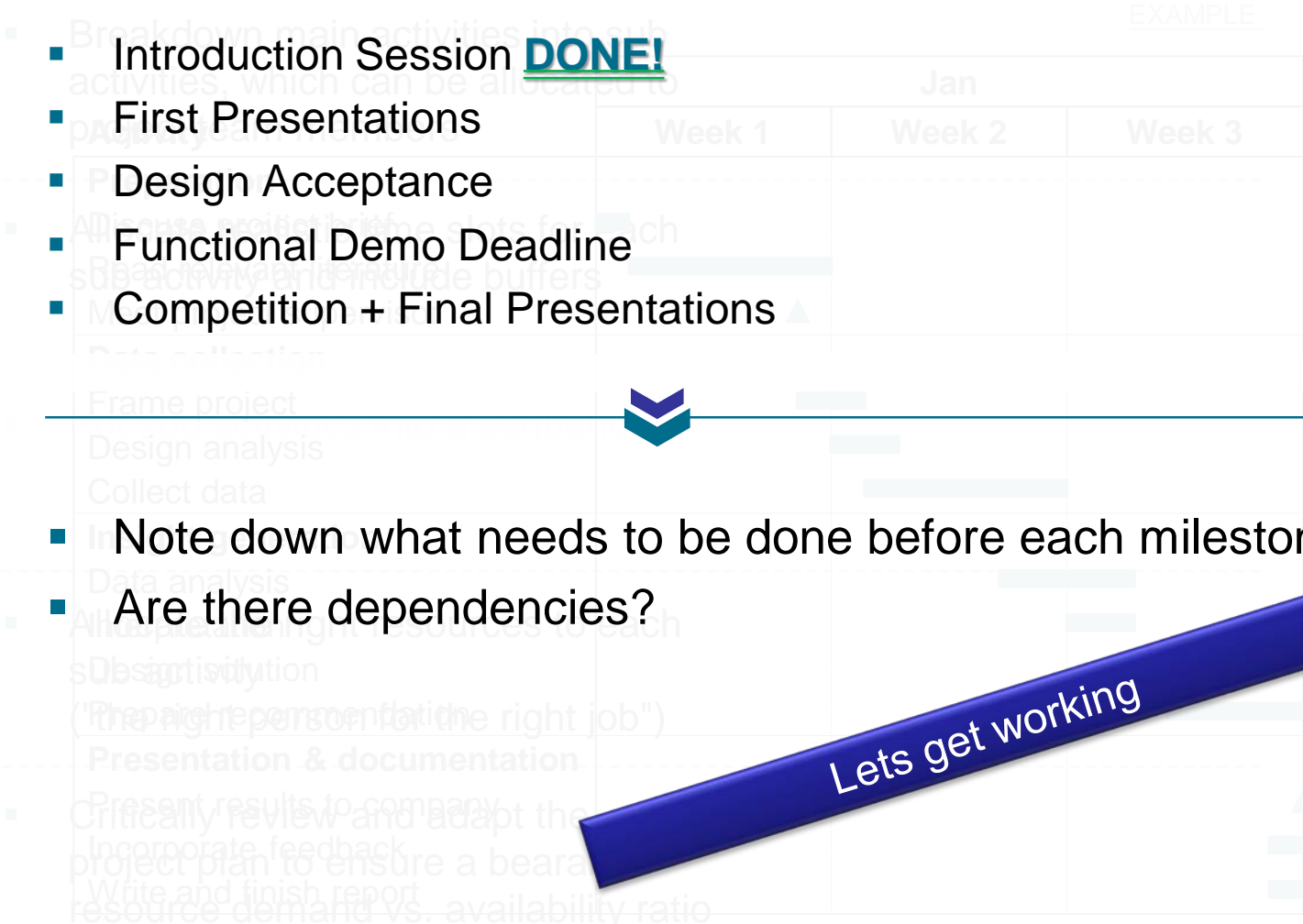


Lets get working

B2 Task dependencies: Which are the milestones in your project?

Component

- Work Breakdown Structure
- Times
- Task dependencies**
- Resources
- Balancing the schedule



- Note down what needs to be done before each milestone
- Are there dependencies?

Lets get working

B2 Balancing the schedule: Plotting a resource demand vs. availability curve over the project lifetime reveals bottlenecks

Component

Work Breakdown Structure

Times

Task dependencies

Resources

Balancing the schedule

Breakdown main activities into sub

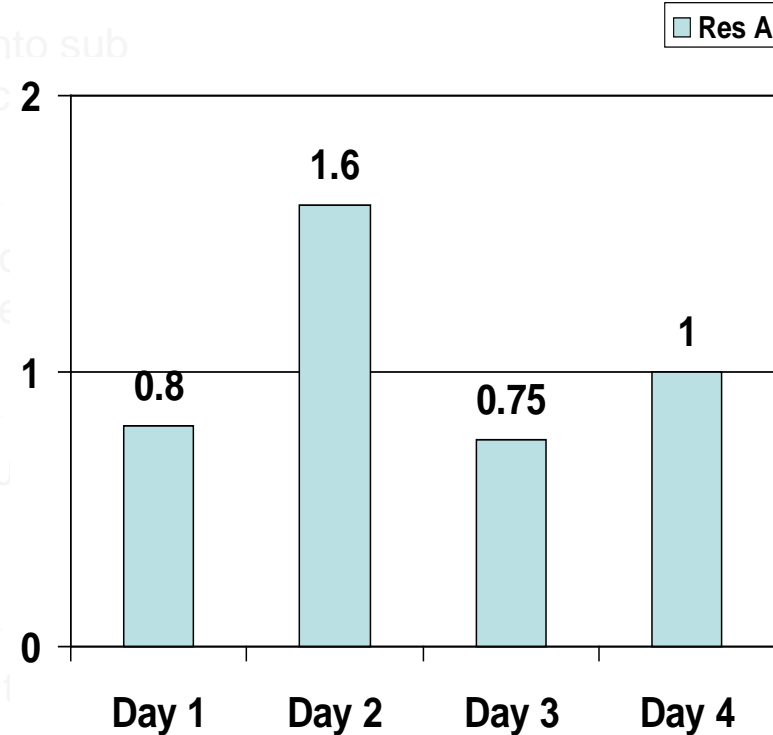
- Allocate resources to the project tasks

- Review the demand on resources against the project timeline

- Move tasks to balance the resource demand / availability

- Allocate the right resources to sub activity ("the right person for the right job")

- Critically review and adapt the project plan to ensure a bearable resource demand vs. availability ratio



B2 Review the plan: If any constraints are becoming visible, which is usually the case, try to amend the plan

Component

Work Breakdown Structure

- Should we do the project? (for you not an option!)
- Can we do the project with the scope?
- Can you do it a better way?

Task dependencies

- Can you remove any of the tasks?
- Are estimates reasonable?
- Can you remove any dependency?

Times

- Can you overlap any tasks?
- Can you use any of your resources more efficiently?
- Can you add more resources?

Resources

Balancing the schedule

- Critically review and adapt the project plan to ensure a bearable resource demand vs. availability ratio

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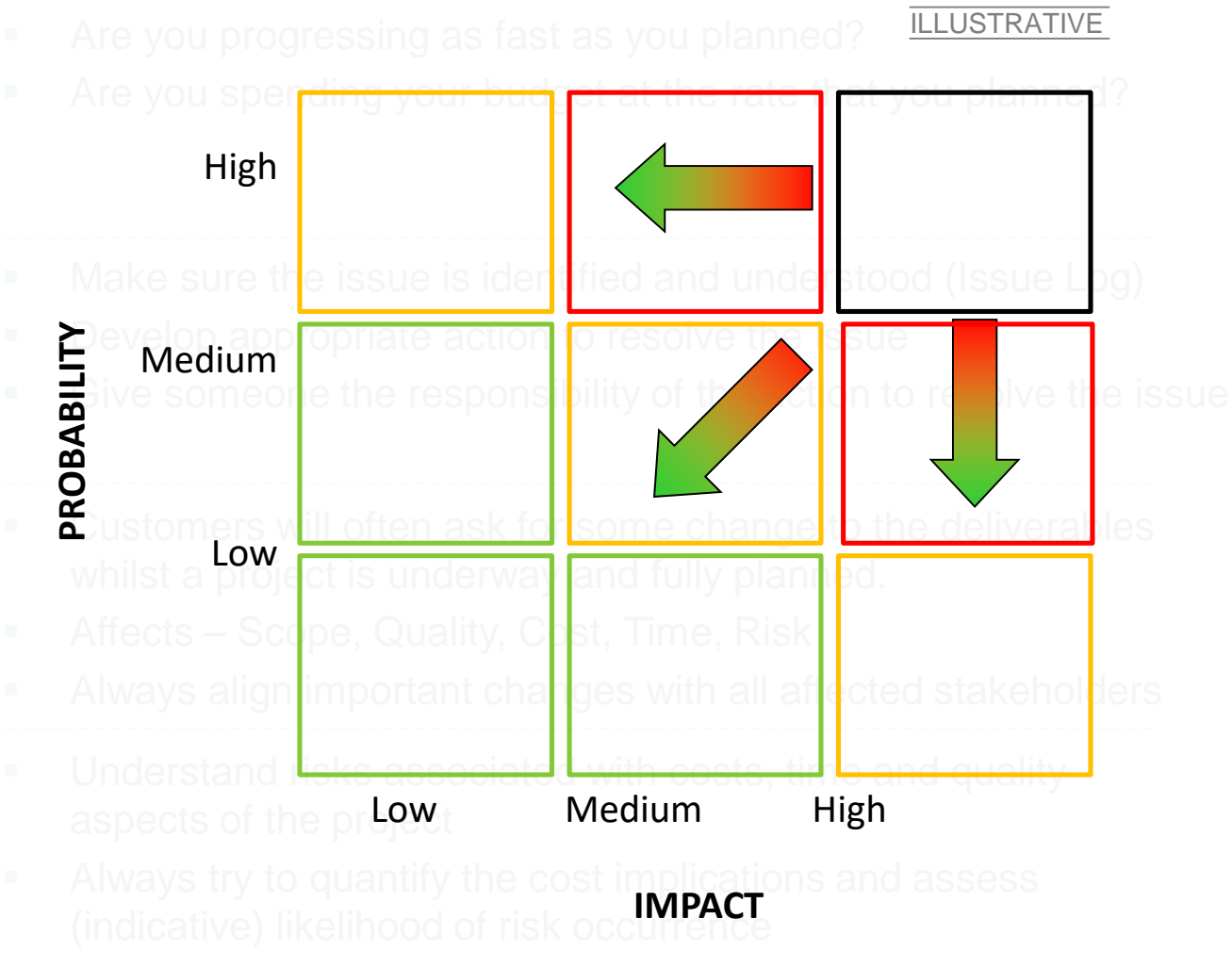
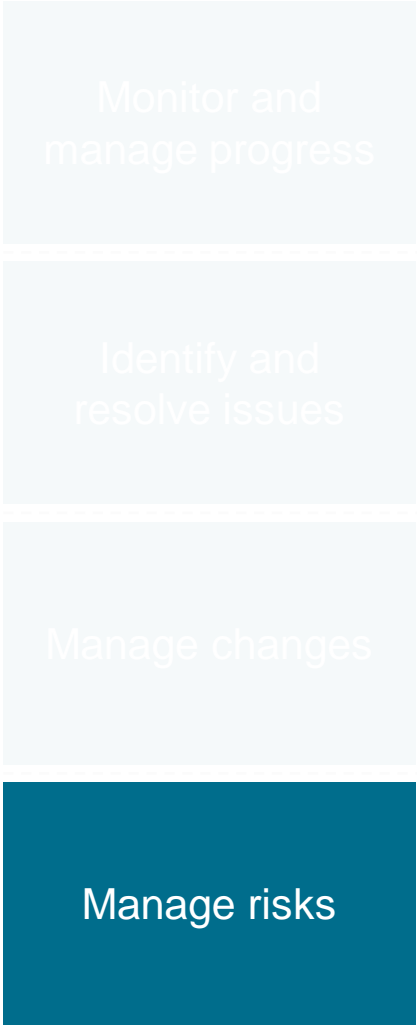


B3 Execution: Projects need to be actively managed to ensure they are successfully delivered

Component	Description
Monitor and manage progress	<ul style="list-style-type: none"> Are you progressing as fast as you planned? Are you spending your budget at the rate that you planned?
Identify and resolve issues	<ul style="list-style-type: none"> Make sure the issue is identified and understood (Issue Log) Develop appropriate action to resolve the issue Give someone the responsibility of the action to resolve the issue
Manage changes	<ul style="list-style-type: none"> Customers will often ask for some change to the deliverables whilst a project is underway and fully planned. Affects – Scope, Quality, Cost, Time, Risk Always align important changes with all affected stakeholders
Manage risks	<ul style="list-style-type: none"> Understand risks associated with costs, time and quality aspects of the project Always try to quantify the cost implications and assess (indicative) likelihood of risk occurrence

B3 3 options for reducing risks: Reducing the likelihood of occurrence, limiting potential impact or combination of both

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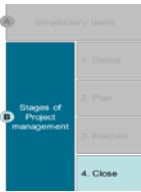
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B4 3 options for reducing risks: Reducing the likelihood of occurrence, limiting potential impact or combination of both



Closing tasks are often essential to a successful project so need to be built into project plans and budgets.

- Test the deliverables
- Implement the deliverables
- Provide support to your customers
- Release resources (what about £)
- Review for next time
- Celebrate!

CLOSE AND GOOD LUCK!

Make your meetings matter!

- Define goals
 - What do you want to have at the end, is it achievable?
- Plan time
 - Work breakdown
 - Gantt chart & logical dependencies
- Execute project
 - Manage risks
 - Manage issues
 - Manage scope
 - Control resources
 - Communicate your progress
- Close your project!

Further Reading

- Project Management Step by Step – Richard Newton; Pearson / Prentice Hall Business; 2006
- Project Management – Dennis Lock
- Project Management In a Week – Chartered Management Institute. Hodder & Stoughton
- The Project Manager's Desk Reference – James P. Lewis. McGraw-Hill; 1999

Backup