Software Project Management

Week 18

Today's Lecture

- What is PMBOK Guide / What is PRINCE2

- Characteristics of PRINCE2

- Quick Comparison, PMBOK – PRINCE2

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What is PRINCE2

- PRINCE2 is a project management method.
  Developed to make sure a organization uses resources controlled and efficient and to handle risk in a effective way.
- PRINCE2 has several aspect that are common with other methods, but also distinguish elements such as:
  - The business case
  - A defined organization structure for the whole Project. Tasks and responsibilities are defined.
  - The principal of management by exception
  - A product based planning
  - No predefined phases
  - Components and processes are defined.

What is PRINCE2 ?

- A generic method (PRINCE1 specific for IT-project management).
- It's an international used, best-practice approach.
- Examining is possible (foundation en practitioner).
- Important: PRINCE2 does no recommendation about content of specialized activities to create products.
  So if the product is software you can use software engineering tools that you like, to create it.
- Important: PRINCE2 can be used for small and big projects, use only those aspects that are useful, but stick to the principles

A project according to PRINCE2

- A managed (controlled) environment
- Created to deliver business products
- According a specified business case

- Predefined temporary organization
- Predefined result
- Predefined specified amount of time

Characteristics of a PRINCE2 project

- A defined lifecycle that is ending
- Defined and measurable products
- Corresponding activities to create products
- Defined number of Human Resources and money and tools
- Organization structure with defined responsibilities.

The elements of PRINCE2

- 8 Processes
- 8 Components
- 3 Techniques

PRINCE2 Processes

- SU (starting up a Project)

  Research whether it's useful to start the project and to create a management environment

- IP (Initiating a Project)

  Setup the project environment and planning and get commitment

- DP (Directing a Project)

  Activities of the board in relation to making decisions

PRINCE2 Processes

- CS (Controlling a Stage)
  Daily management of a phase (project manager).
- MP (Managing Product Delivery)
  Coordination by Team managers of operational activities
- SB (Managing Stage Boundaries)
  Preparation of decisions of the board by the project manager
- CP (Closing a Project)
  Controlled finishing of the project
- Pl (Planning)
  Creation of several plans during the lifecycle of the project.

The processes are strictly related to management products that are necessary for process and quality assurance.
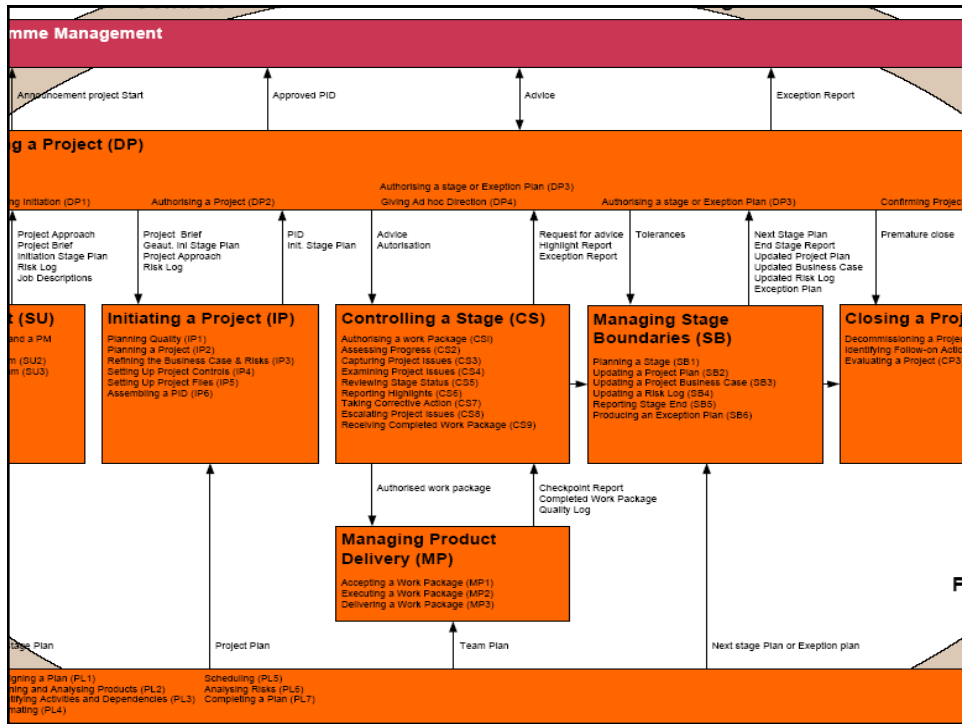
PRINCE2 Components

- Business case
  Justification of the project
- Organization
  Roles, tasks, responsibilities, mandates
- Plans
  Different kinds of plans that are necessary
- Controls
  Mechanisms to measure, drive, and splitting up in phases

PRINCE2 Components

- Management of Risk
  Analyzing and controlling of risks
- Quality in a Project Environment
  Making sure that the products have the Wright quality measures
- Configuration Management
  Registration and managing the products of the project
- Change Control
- Managing changes and disruptions

...mme Management

| Announcement project Start | Approved PID | Advice | Exception Report |

...g a Project (DP)

Authorising a stage or Exeption Plan (DP3)

...ng Initiation (DP1)　　Authorising a Project (DP2)　　Giving Ad hoc Direction (DP4)　　Authorising a stage or Exeption Plan (DP3)　　Confirming Project

| Project Approach
Project Brief
Initiation Stage Plan
Risk Log
Job Descriptions | Project Brief
Geaut. Ini Stage Plan
Project Approach
Risk Log | PID
Init. Stage Plan | Advice
Autorisation | Request for advice
Highlight Report
Exception Report | Tolerances | Next Stage Plan
End Stage Report
Updated Project Plan
Updated Business Case
Updated Risk Log
Exception Plan | Premature close |

...t (SU)

...and a PM

...m (SU2)
...m (SU3)

Initiating a Project (IP)

Planning Quality (IP1)
Planning a Project (IP2)
Refining the Business Case & Risks (IP3)
Setting Up Project Controls (IP4)
Setting Up Project Files (IP5)
Assembling a PID (IP6)

Controlling a Stage (CS)

Authorising a work Package (CSI)
Assessing Progress (CS2)
Capturing Project Issues (CS3)
Examining Project Issues (CS4)
Reviewing Stage Status (CS5)
Reporting Highlights (CS6)
Taking Corrective Action (CS7)
Escalating Project Issues (CS8)
Receiving Completed Work Package (CS9)

Managing Stage Boundaries (SB)

Planning a Stage (SB1)
Updating a Project Plan (SB2)
Updating a Project Business Case (SB3)
Updating a Risk Log (SB4)
Reporting Stage End (SB5)
Producing an Exception Plan (SB6)

Closing a Proj...

Decommissioning a Project
Identifying Follow-on Action
Evaluating a Project (CP3)

| Authorised work package | Checkpoint Report
Completed Work Package
Quality Log |

Managing Product Delivery (MP)

Accepting a Work Package (MP1)
Executing a Work Package (MP2)
Delivering a Work Package (MP3)

| ...se Plan | Project Plan | Team Plan | Next stage Plan or Exception plan |

...gning a Plan (PL1)　　Scheduling (PL5)
...nning and Analysing Products (PL2)　　Analysing Risks (PL6)
...tifying Activities and Dependencies (PL3)　　Completing a Plan (PL7)
...ating (PL4)

PRINCE2 Techniques

- Product based Planning
- Change Control Technique
- Quality Review Technique

Just Product based planning is obliged (fundamental in PRINCE2)

Business case

- Is the base of all decisions
- Justification of the Project (reason and background)
- Contains all of the expected costs, benefits, and risks
- Contains all of the expected changes in business
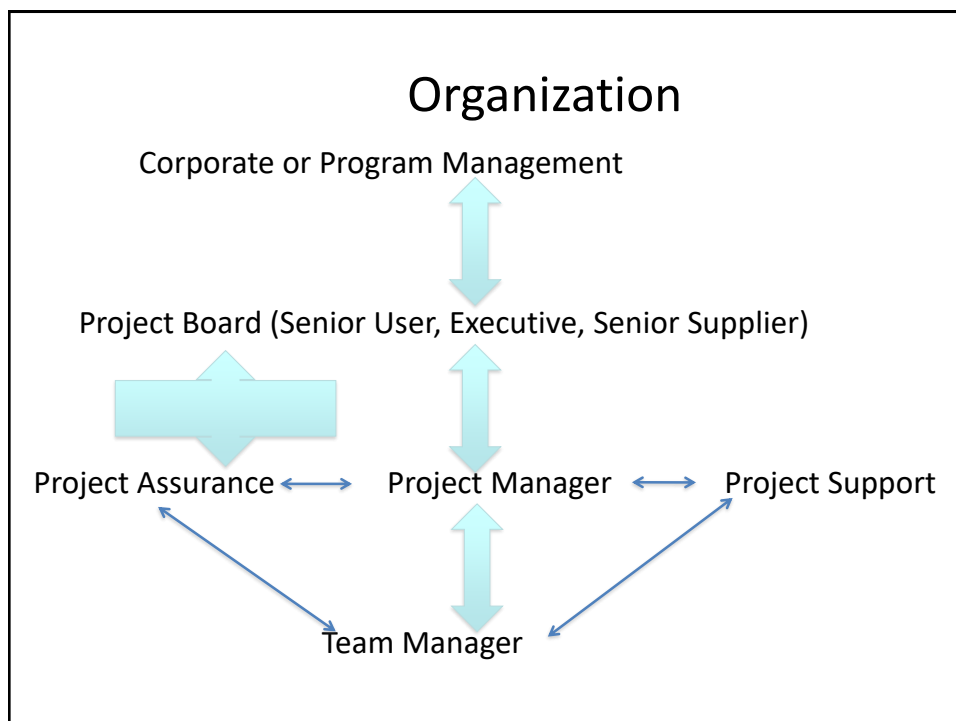
NO Business case **NO** Project

Business case

Contains:

- Reasons to start the Project
- Chosen option (incl. possible options and "doing nothing")
- Expected benefits (measurable)
- Risks
- Costs
- Timeline
- Judgment on Investment
- Evaluation

When to maintain the Business case?

- During SU (Outline Business case)
- During IP (Detailed en specified Business case, enough for the project board to make it possible to decide for go/no go)
- During CS (actualize Business case, for instance the costs can be higher than expected, still profitable to go on?)

Organization

Corporate or Program Management

Project Board (Senior User, Executive, Senior Supplier)

Project Assurance ⟷ Project Manager ⟷ Project Support

Team Manager

Responsibilities

Corporate or Program Management
- Strategic management of all projects

Project Board
- Managing the project

Project Manager
- Managing the Project on daily bases

Team Manager
- Managing the Team on daily bases

Responsibilities

From above to below in hierarchy:
- Decisions and budgets

From below to above in hierarchy:
- Products and reports

Responsibilities

- Three roles in the Board (can be combined) but 1 person has the Role of Executive
- The Board has to manage the Project Manager (Management by Exception)

1. Senior User (Interests of End users, defining Results, fit for purpose)

2. Executive (Interests of Business, value for money)

3. Senior Supplier (Interests of Supplier or Developer, make sure persons with the right skills)

Responsibilities

Executive
- Is the person who is responsible for the project in relation to Corporate Management
- Is the person who is responsible for the Business Case
- Relation between costs and benefits
- Monitoring and controlling progress
- Helping in resolving problems
- Formal closing of the project
- Project review afterwards

Responsibilities

Senior User

- Make sure that the interests of end users are met in relation to products.
- Make sure the demands are clear
- Supply the project with end-users who can define and accept results

Responsibilities

Senior supplier

- Make sure that Senior User demands are met including

  defined quality on time and within budget
- Supply the project with resources with the right skills

Responsibilities

Project manager
- Managing the Project on daily bases
- Just one person! (one captain on the ship)
- No combination with role in board
- Delivery of needed products
- Managing Team manager's and Project Support
- Communication with the Board and Project Assurance

Project Assurance: Independently supervision on all aspects of the project
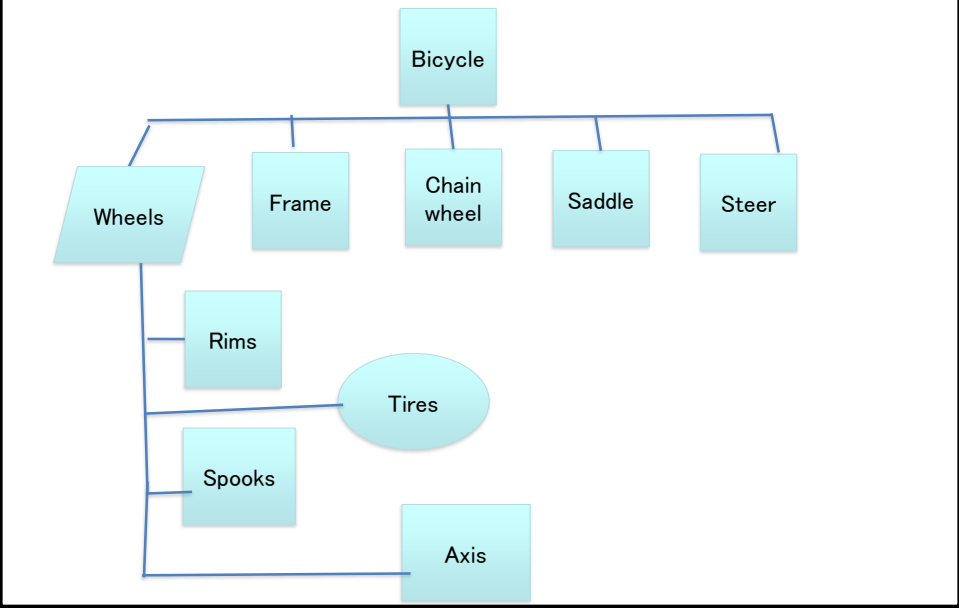Project Support: Administration, Logistics, etc

Responsibilities

Team manager (optional role)
- Delegated responsibility for delivery of products
- Managing a team of specialists

Product breakdown structure

Product (integrated)

Grouping

External products

Product breakdown structure
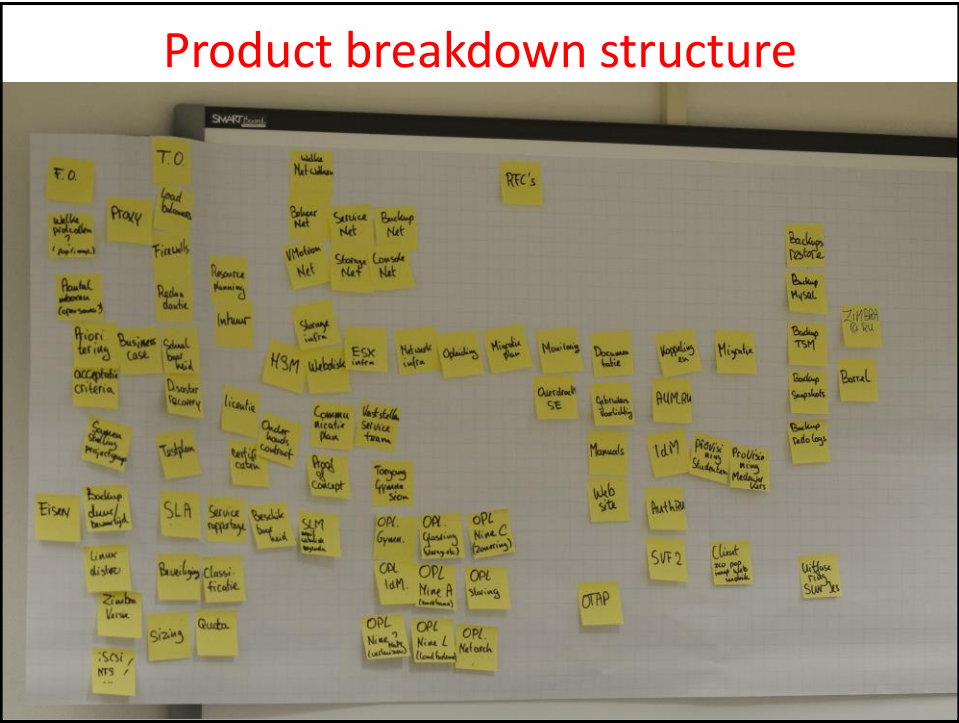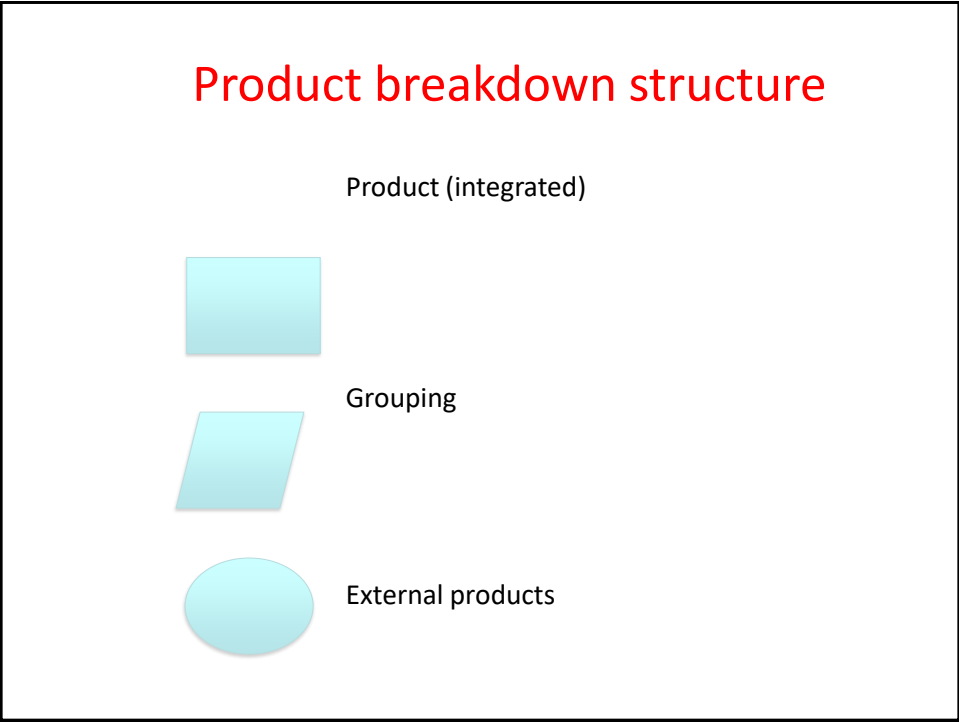
Product breakdown structure (example)

```
                        ┌──────────┐
                        │ Bicycle  │
                        └──────────┘
        ┌──────────┬────────┴────────┬──────────┐
   ┌─────────┐ ┌────────┐      ┌────────┐  ┌────────┐  ┌────────┐
   │ Wheels  │ │ Frame  │      │ Chain  │  │ Saddle │  │ Steer  │
   └─────────┘ └────────┘      │ wheel  │  └────────┘  └────────┘
        │                      └────────┘
        ├──── ┌────────┐
        │     │  Rims  │
        │     └────────┘
        │                ┌────────┐
        ├────────────────│ Tires  │
        │                └────────┘
        ├──── ┌────────┐
        │     │ Spooks │
        │     └────────┘
        │                ┌────────┐
        └────────────────│  Axis  │
                         └────────┘
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Product breakdown structure

product breakdown structure

⬇

product based planning

What is necessary to run successful projects?

- The use of a method, but …..most of all the quality and motivation of the people involved (the Wright man and/or women on the Wright place at the Wright time).
- Soft skills of the project manager are very important (perhaps most important)
- I've seen successful projects (without method) run by excellent project managers and a good team.
- I've seen dramatically poor projects with a method, because of lack of interest and not the right skills.
-

The new project manager

Suppose your chief, asks you to come to his office.

He says:

- You're a smart and hard working guy.
- You've never managed a project, but I've no doubt you can do that as well.
- You're the only one around here who's capable.
- So I what you to do that, the company needs you.
- Start tomorrow.
- Oh and eh, I have to go now. Go for it, project manager!!

Very likely that you're very pleased with the compliments and the faith your chief has in you. But after your first excitement…

Which soft skills must a project manager have?

Communication skills

Team building

Flexibility

Creativity

Leadership

Which soft skills must a project manager have? (examples)

- Make sure that everybody knows what to do, make expectations clear.
- Organize frequently meetings with the complete team to discus the progress, successes and problems.
- Be critical about the results (quality, time and money) - By good results; show you're appreciation
- By negative results: show your disappointment, discuss solutions (technically, organizational. Who can do what to make the change

Which soft skills must a project manager have? (examples)

- Organize (unexpected) informal meetings (lunch, dines, or a drink)
- When some people are not enough motivated or skilled to perform proper, make sure to replace them if possible. When not possible, report to the board what the consequences are.
- Make sure that the scope of the project is and stays clear.
- Communicate to the board on time (don't surprise them with out of scope aspects)

Which soft skills must a project team member have?

Communication skills

Flexibility

Creativity

Team player

Which soft skills must a project team member have? (examples)

- Make sure that you know what you should do.
- Make sure that you can to what you must do.
  Are you hard skilled and experienced enough? If not, escalate to your Human Resource Manager (chief).
- Make sure that you got enough time to fulfill your tasks.
- Make sure that you escalate when you can't do what you've promised
- Help your colleagues if possible and wanted

High Performance Teams

Team members identify with the team i.e.:

- They have a clear team vision

- They know what the team finds important

- They feel that they supported by each other

- They work together on a common result in a flow

- They are highly flexible, cooperative, take initiative
  and are result driven.

High Performance Teams

Ideal situation for a project manager

- Create your own team
- Make sure that you choose actors, dreamers, specialists, generalists, etc, depending on the results you have to achieve
- Important quality: communication skills

Final advice

If you want to be a project manager:
- Make sure to learn a project management method
  (PRINCE2 Foundations takes a course of to days examination including certificate).
- Make sure that you get experienced, start with small projects (even though they perhaps ask you to do a large project)

But most of all:

Find out about your soft skills by experience,
or get tested and if necessary find yourself a professional coach.

PMBOK vs. PRINCE2

What is PMBOK® Guide ?

- *PMBOK® Guide* identifies that subset of the project management body of knowledge generally recognized as good practices
- *PMBOK® Guide* provides and promotes a common vocabulary within the project management profession for discussing, writing, and applying project management concepts
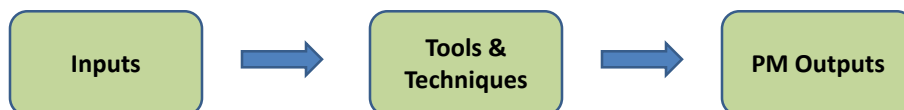- *PMBOK® Guide* establishes guidelines for project management processes, tools, and techniques

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What Is PRINCE2® ?

- **Projects in a Controlled Environment (PRINCE)**
- **PRINCE2**® is a book that describes a method for approaching managing and closing down a project of any type or size
- **PRINCE2**® tells *what* should be done and *why* it should be done but does not say *how* it should be done
- **PRINCE2**® is not prescriptive, rather it is *descriptive*
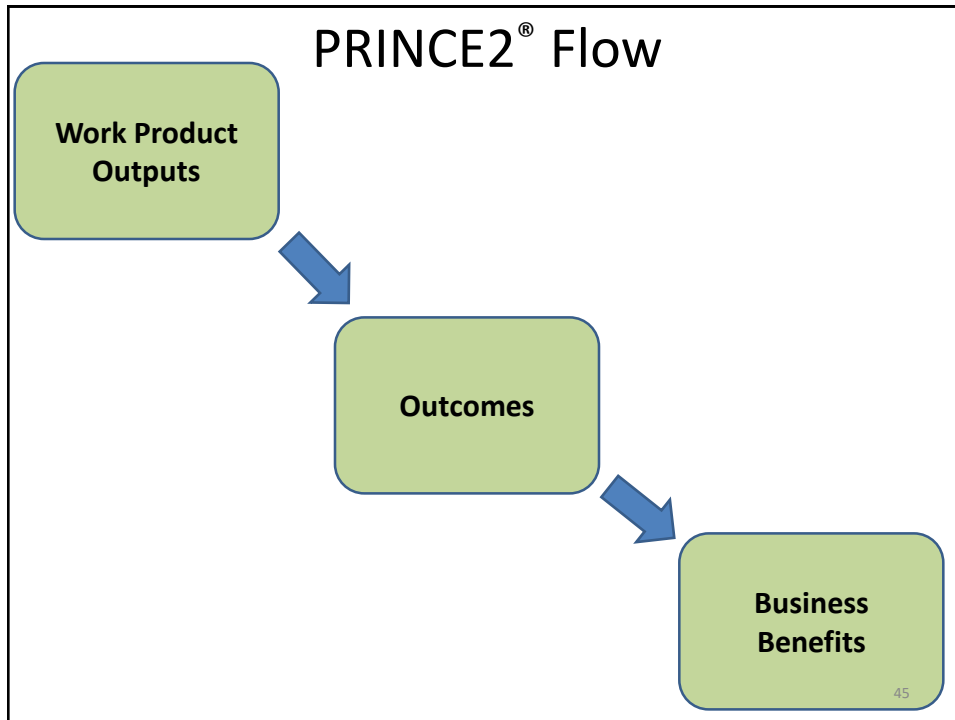- **PRINCE2**® is a structured management method
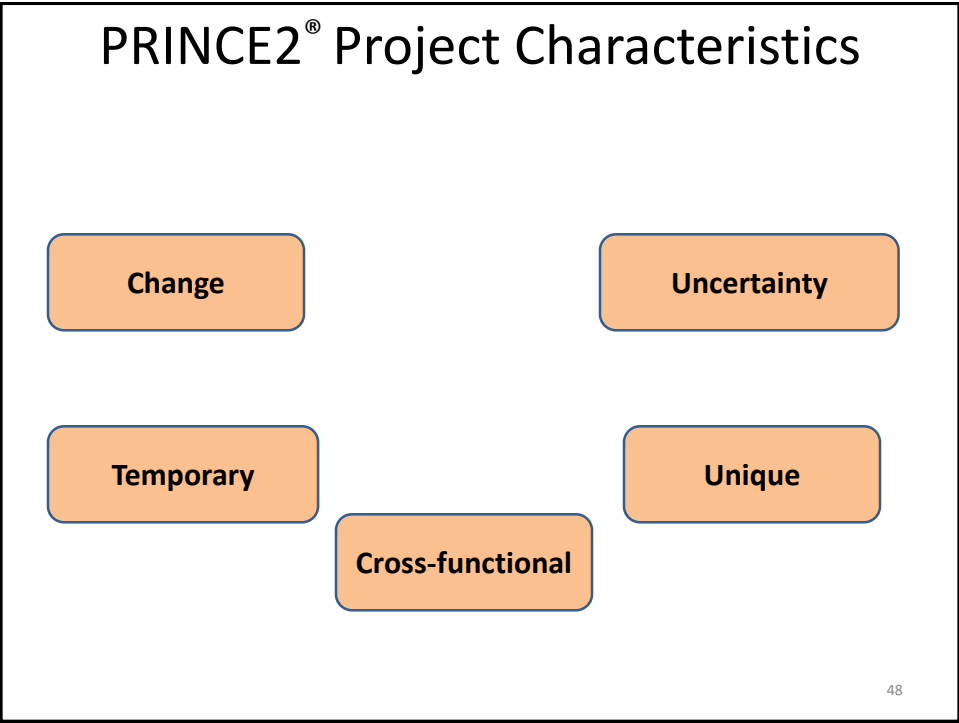
®U.K.'s Office of Government Commerce (OGC)   43

PMBOK® Flow

| Inputs | → | Tools & Techniques | → | PM Outputs |

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PRINCE2® Flow

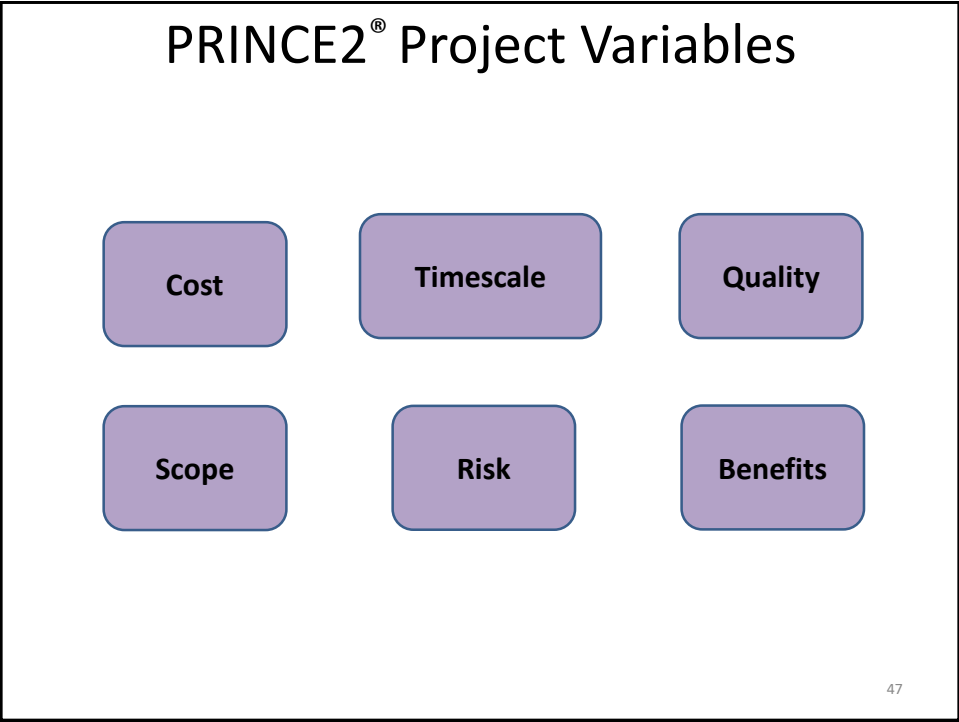**Work Product Outputs**

Outcomes

Business Benefits

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Five Main Aspects to PRINCE2®

- **In order to successfully complete any significant job of work there are five main aspects that need to be considered, namely:**
  - The method to be used, in other words how will you approach the job
  - How will the work be organized
  - What are the main factors that need to be taken into account
  - Who will have responsibility for what
  - And how will progress be monitored and communicated

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PRINCE2® Project Variables

Cost	Timescale	Quality
Scope	Risk	Benefits

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PRINCE2® Project Characteristics

Change   Uncertainty

Temporary   Unique

Cross-functional

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PRINCE2® – 7X7X7

- **Seven Principles**
  - The seven Principles provide a best-practice framework for the project. Ultimately they define a PRINCE2® project
- **Seven Themes**
  - The seven Themes provide guidance on aspects of project work which should be addressed at various points during the undertaking. They relate to each other and are integrated into the Processes
- **Seven Processes**
  - The seven Processes offer a 'journey' through the project so that critical aspects of project work are neither forgotten nor treated in a trivial manner

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PRINCE2® Principles

- Continued business justification (Benefits)
- Learn from experience
- Defined roles and responsibilities
- Managed by stages
- Managed by exception (appropriate delegation of authority)
- Focus on products
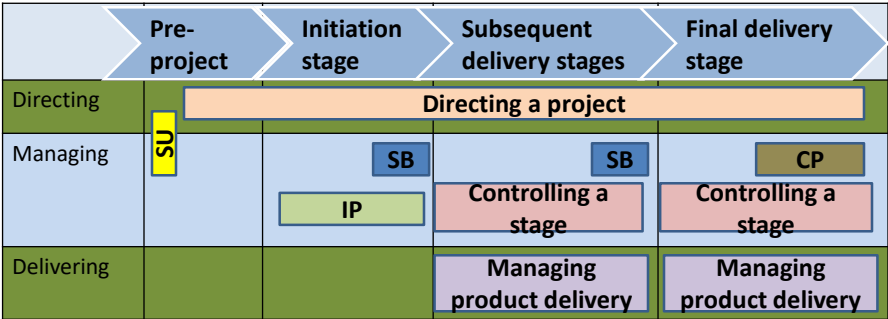- Tailor to suit the project environment

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PRINCE2® Processes

- Starting up a project
- Directing a project
- Initiating a project
- Controlling a stage
- Managing product delivery
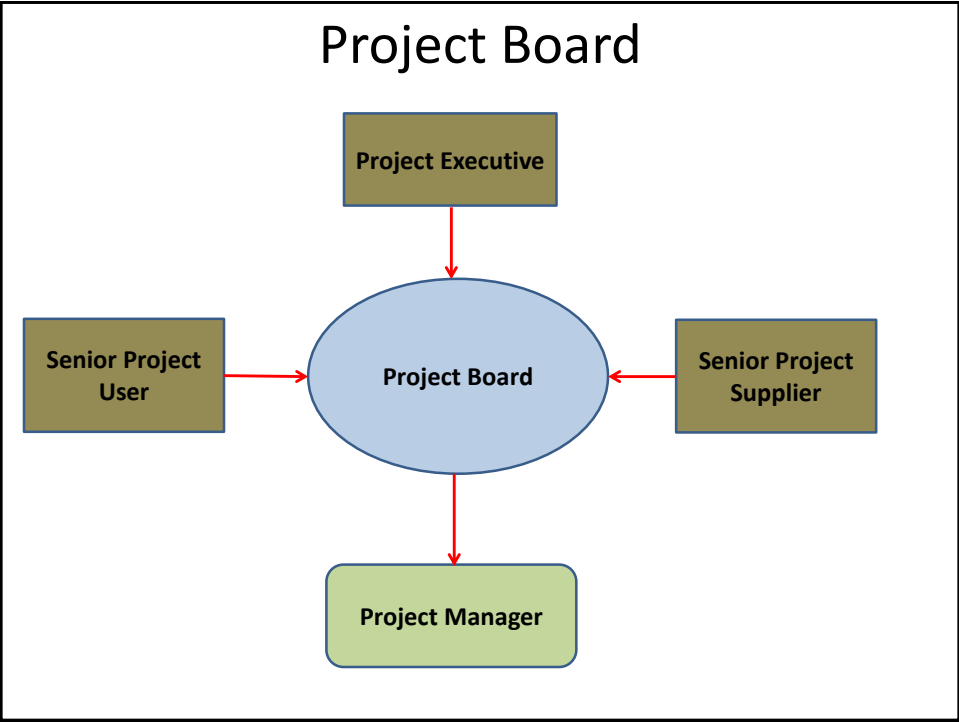- Managing a stage boundary
- Closing a project

    PRINCE2® processes are management processes

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PRINCE2® Structure

	Pre-project	Initiation stage	Subsequent delivery stages	Final delivery stage
Directing		Directing a project		
Managing	SU	SB	SB	CP
		IP	Controlling a stage	Controlling a stage
Delivering			Managing product delivery	Managing product delivery

Key	
SU =	Starting up a project
IP =	Initiating a project
SB =	Managing a stage boundary
CP =	Closing a project

Project Board

```
            ┌──────────────────┐
            │ Project Executive │
            └──────────────────┘
                     │
                     ▼
┌──────────────┐  ╭──────────────╮  ┌──────────────────┐
│ Senior Project│ →│ Project Board │← │ Senior Project   │
│ User          │  ╰──────────────╯  │ Supplier         │
└──────────────┘        │           └──────────────────┘
                        ▼
              ┌──────────────────┐
              │ Project Manager   │
              └──────────────────┘
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PRINCE2® Authority

- Corporate or Program
- Project Board – Project Executive
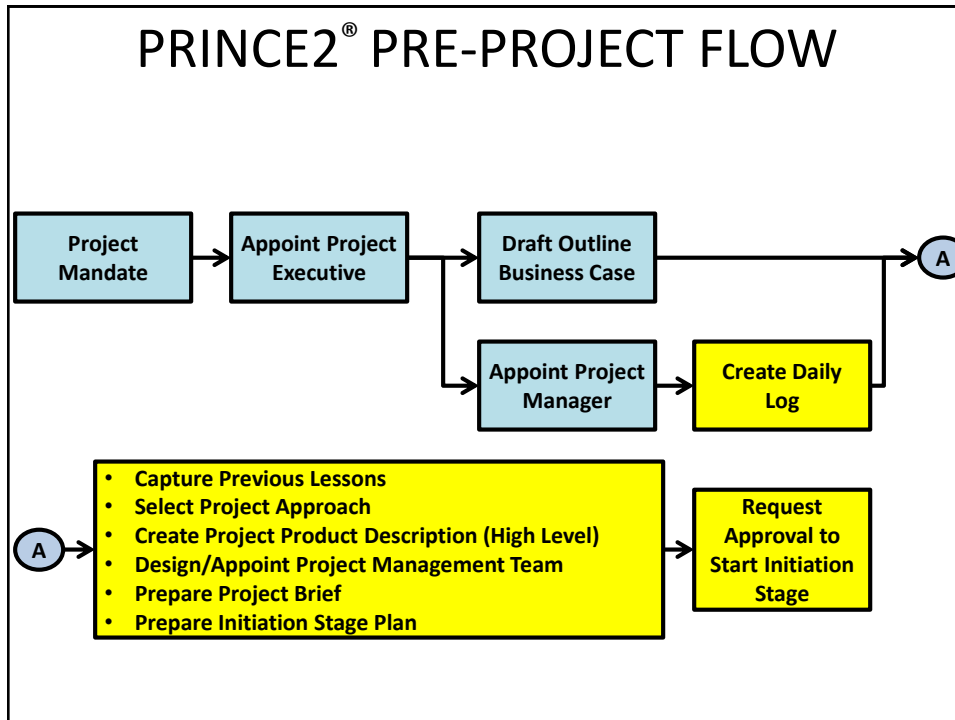- Project Manager
- Team Manager(s)

Tolerances	Set By
Project	Corporate/Program
Management Stage	Project Board
Work Package	Project Manager

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PRINCE2® PRE-PROJECT FLOW

Project Mandate	→	Appoint Project Executive	→	Draft Outline Business Case	→	**A**

Appoint Project Manager	→	Create Daily Log

A

- Capture Previous Lessons
- Select Project Approach
- Create Project Product Description (High Level)
- Design/Appoint Project Management Team
- Prepare Project Brief
- Prepare Initiation Stage Plan

→ Request Approval to Start Initiation Stage

PRINCE2® Stages

- Must be at least two management stages:
  - Initiation + Execution
- Do not necessarily align to technical phases

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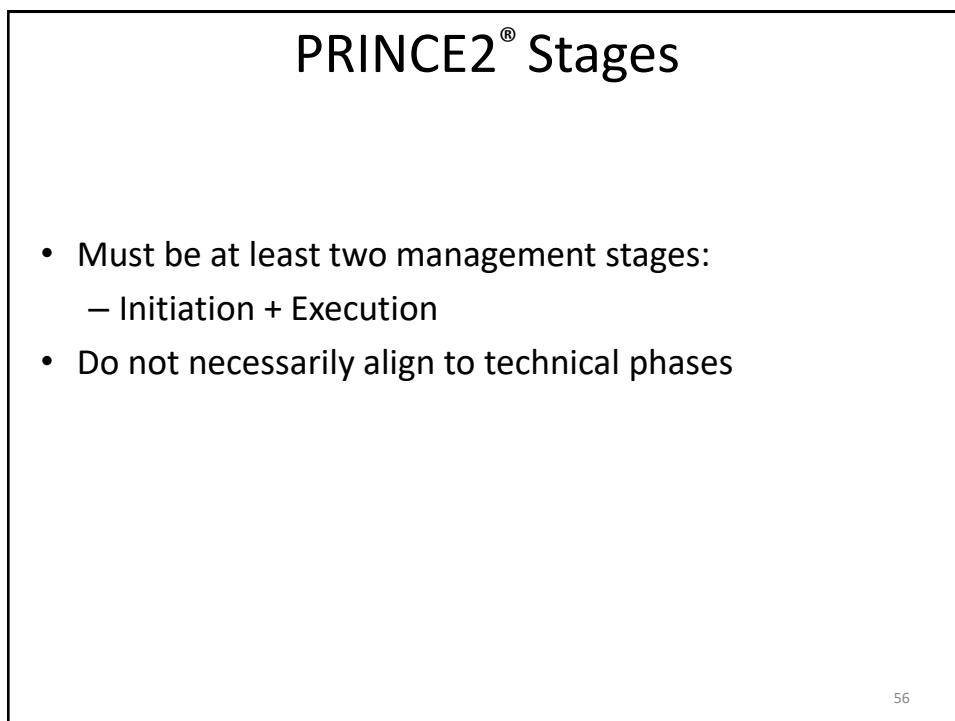
PRINCE2® BENEFITS

- Mandate – Very High Level
- Outline Business Case– High Level
- User Defined - Specific
- Business Case - Detailed
- Benefits Review – Verify (usually post-project)

Any time it is recognized that benefits will not be achieved the Project Board looses authority to continue.

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PRINCE2® Themes

- Business Case
- Organization
- Quality
- Plan
- Risk
- Change
- Progress

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PRINCE2® Themes

- Business Case
- Organization
- Quality
- Plan
- Risk
- Change
- Progress

The Business Case for a project forms part of its very foundation. It is the most important set of information for a project and drives the decision-making process. It is used continually to ensure that the project's progress is aligned with the business objectives.

Answers the questions; Is the project:
- Desirable (cost/benefit/risk balance)
- Viable (project can deliver the products)
- Achievable (can products provide the benefits)

Is the responsibility of the Project Executive
Some aspects may be assigned to the Project Manager

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PRINCE2® Themes

- Business Case
- Organization
- Quality
- Plan
- Risk
- Change
- Progress

Defining all the roles, responsibilities and relationships for the people involved in managing and executing the project.
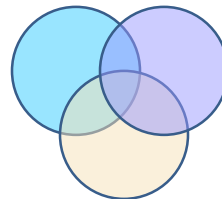
| User | Customer (Business Interest) | Supplier |

PRINCE2® Themes

- Business Case
- Organization
- Quality
- Plan
- Risk
- Change
- Progress

The emphasis which PRINCE2® places on products, or deliverables, means that it is easy to see the relevance of traditional quality management principles to the management of projects.

Four elements of Quality:
- Quality System
- Quality Planning
- Quality Assurance
- Quality Control

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PRINCE2® Themes

Quality
- Responsibility of the Project Board
- Three views: Executive – User – Supplier
- Project Manager has <u>NO</u> Quality Execution Responsibilities
  - (except for the Quality Plan)

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PRINCE2® Themes

- **Business Case**
- **Organization**
- **Quality**
- Plans
- **Risk**
- **Change**
- **Progress**

Product-based Planning
These are the backbone of the management information system that is required for any project. PRINCE2® is very concerned with the different levels of plan which need to be produced and the approvals which are required before plans are put into action.

Three levels of plans:
- Project
- Stage
- Team (optional)
- *Exception*

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PRINCE2® Themes

- **Business Case**
- **Organization**
- **Quality**
- **Plan**
- Risk
- **Change**
- **Progress**

Since risk is such a fundamental consideration within the Business Case, PRINCE2® identifies Risk as a Theme in its own right to assess and take relevant action in respect of uncertainties.

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PRINCE2® Themes

- **Risk Responses**

Threat Response	Opportunity Response
Share	Share
Avoid	Exploit
Reduce	Enhance
Fallback	Reject
Transfer	
Accept	

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PRINCE2® Themes

- Business Case
- Organization
- Quality
- Plan
- Risk
- Change
- Progress

A common approach to Issue and Change Control

Change in projects is inevitable so PRINCE2® defines procedures for managing changes as they occur or become necessary. This can be a particularly crucial element in a project since the rest of the project or other projects or perhaps a program can be affected by changes made within a project. This Theme also provides for Configuration Management which may be thought of as asset control.

- Request for change
- Off-specification (non-conformance)
- Problem/concern (issue)

PRINCE2® Themes

- Business Case
- Organization
- Quality
- Plan
- Risk
- Change
- Progress

As important as it is to plan the project it is equally important to know how the project is progressing. When the 'actual state' is known and compared to the planned state, then control is possible.

PRINCE2® vs PMBOK® Guide

- A method
- Descriptive
- What and Why
- Principals & Processes
- Does not address tools & techniques
- Defined roles
- Managed by exception

- Not a methodology
- Prescriptive
- How and Why
- Processes
- Guidelines for tools & techniques

PRINCE2® ᵥ PMBOK® Guide

- PRINCE2 ® requires an organization change

- PRINCE2 ® is based on shared responsibilities

- PMBOK ® can be applied in virtually any organization

- PMBOK ® places the responsibilities on the project manager

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Some Definitions

PRINCE2

- **Project**: A project is a temporary organization that is created for the purpose of delivering one or more business products according to an agreed Business Case.

PMBOK

- **Project**: A temporary endeavor undertaken to create a unique product, service, or result.

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Some Definitions

PRINCE2

- **Project Management**: The planning, delegating, monitoring and control of all aspects of the project, and the motivation of those involved, to achieve the project objectives within the expected performance targets of time, cost, quality, scope, benefits and risks.

PMBOK

- **Project Management**: The application of knowledge, skills, tools, and techniques to project activities to meet the project requirements.

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Conflict or Complementary

- Bottom Line –

    PRINCE2 and PMBOK Edition 5 are Complementary

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