



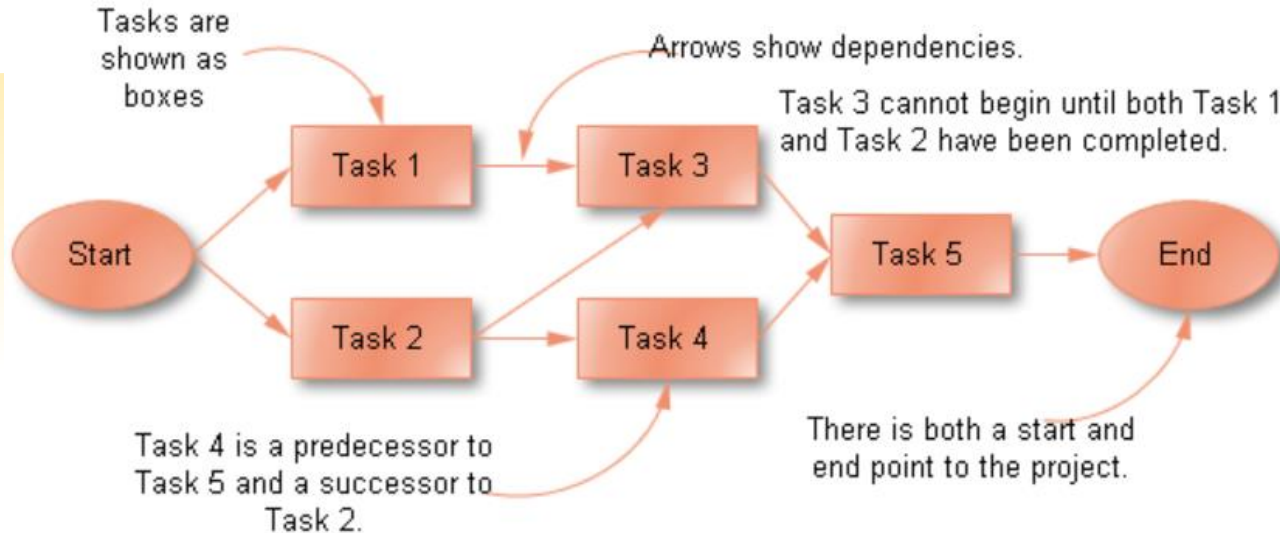
LECTURE 9

Project Planning

Techniques of Project Planning

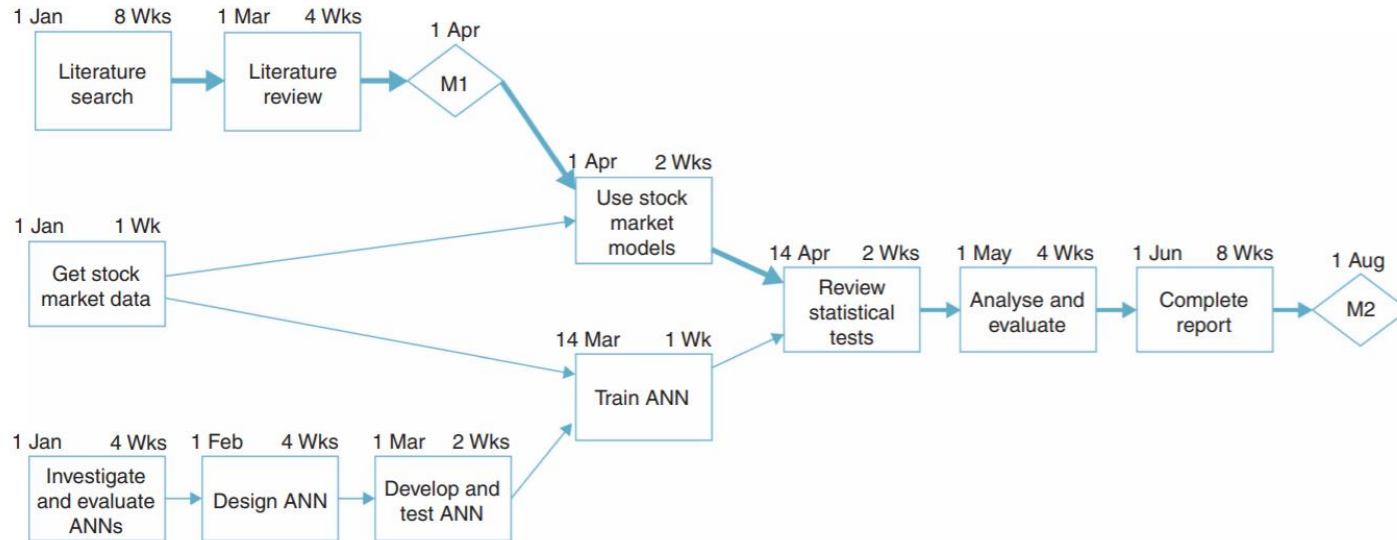
- **Activity sequencing:**

- **Example:**



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- Activity sequencing:



An example of an activity network

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- **Activity sequencing:**

- There are three additional markings to above example.
- The first point to note is that the milestones identified earlier have been included as diamonds called M1 and M2; M1 being the completed literature survey and M2 representing the completed project.
- The second point to note is that dates and durations have been added to each task node. Each activity now has two figures – the start date of the activity, shown at the top left of each node, and the duration of the activity (in weeks) shown on the top right. These durations are taken from the time estimates.

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- **Activity sequencing:**
 - The date, which is noted at the top left-hand corner of each activity, represents the time at which that activity can start.
 - The final additional marking to this network diagram is the ***critical path*** which is represented in example by the bolder arrowed lines.
 - To identify the critical path you work backwards through the network diagram from the project's final milestone.

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- **Activity sequencing:**

- Critical Path Method (CPM):

- ✓ This path is the longest route through the project network.
 - ✓ It identifies the activities in the project that must not be delayed, as to do so will delay the project overall.
 - ✓ There is no reason why you cannot have more than one critical path in your project network.

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- **Activity sequencing:**

- Critical Path Method (CPM):

- ✓ If a project has tasks that are to be executed mostly in a linear fashion, then project planning for that project is easy. Problems start when parallel tasks have to be planned. When there are a large number of parallel tasks, it is certainly very difficult to plan and manage the tasks.
 - ✓ The issues such as which task is dependent on which task, when a task has to start and when it has to finish, how much slack/float is there between two tasks, etc., make the planning and managing of the project a tough call.

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- **Activity sequencing:**

- Critical Path Method (CPM):

- ✓ The CPM allows tackling these issues.
 - ✓ All the tasks are first laid out on a sheet in an order based on their start dates.
 - ✓ Then the order in which tasks must be carried out is identified. Similarly tasks dependent on other tasks are identified and a relation is made between the tasks.
 - ✓ Tasks with no relation among them are put in parallel.

Techniques of Project Planning (II)

- **Activity sequencing:**

- Critical Path Method (CPM):

- ✓ When all the tasks are thus laid out, a path is made, which runs along the longest path of execution.
 - ✓ This is the critical path for the project, and it defines the duration of the project.
 - ✓ The start date of this path is the start date of the project and end date of this path is the end date of the project. The length of this critical path is the duration of the project.

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- **Scheduling:**

- Gantt charts are similar to activity networks in that they attempt to represent a project in diagrammatical form.
- However, unlike activity networks, they do not show the relationships between tasks, but they do explicitly show the durations of activities and identify instances when tasks are performed simultaneously.
- Just like activity-on-the-node networks, Gantt charts represent a project's activities as rectangles or nodes, and milestones by diamonds. In this case, however, the size (length) of an activity's node represents the duration of that activity.

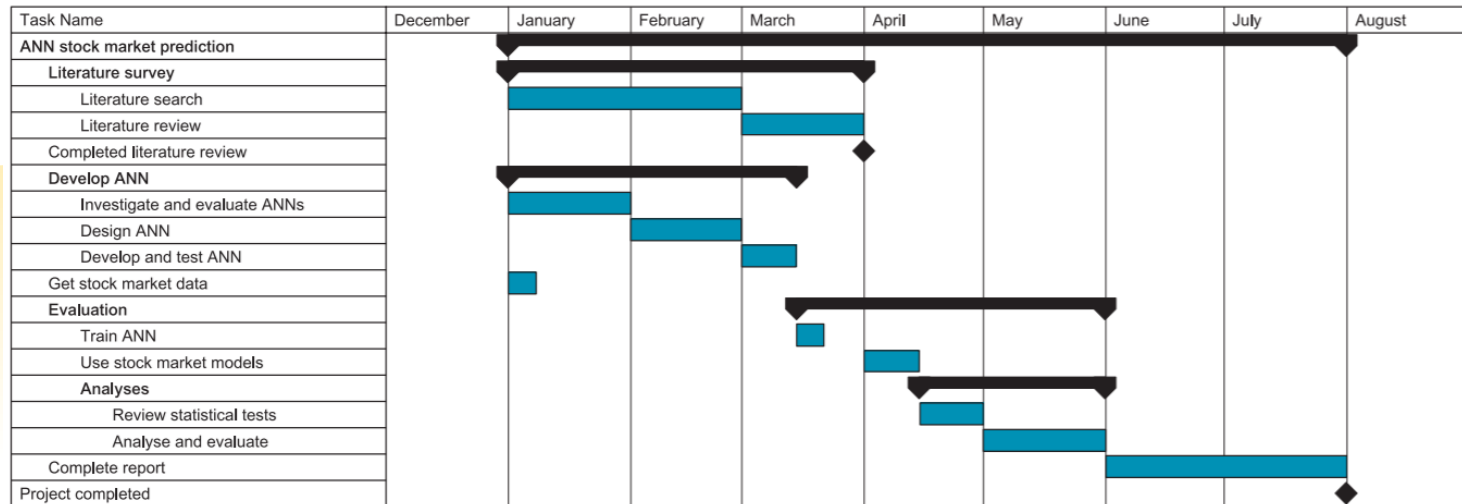
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- **Scheduling:**

- Project management software packages are well suited to these kinds of problems – known as scheduling. They attempt to schedule out people's (resources') time on projects in order to achieve a balanced allocation of work over a project's life span.
- In this case a popular project management package called Microsoft® Project has been used.

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■ Scheduling:



Microsoft® Project Gantt chart of example project

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- **Re-planning:**

- Re-planning simply means that you go back through your plans, adjusting and rescheduling them accordingly.
- Project management software tools are particularly useful for making these changes and assessing the impact of your adjustments.

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- **Rolling wave planning:**

- A technique that can help you when your project is not all that clear is rolling wave planning.
- Rolling wave planning means that, rather than compiling a detailed plan at the project's inception, you construct a skeleton plan, which only identifies the key stages of your project.
- Your project planning is thus performed 'on the fly' as your project progresses. You make decisions as to where you are actually heading and what work you will have to perform in the subsequent stages of your project, as you complete the previous stages.

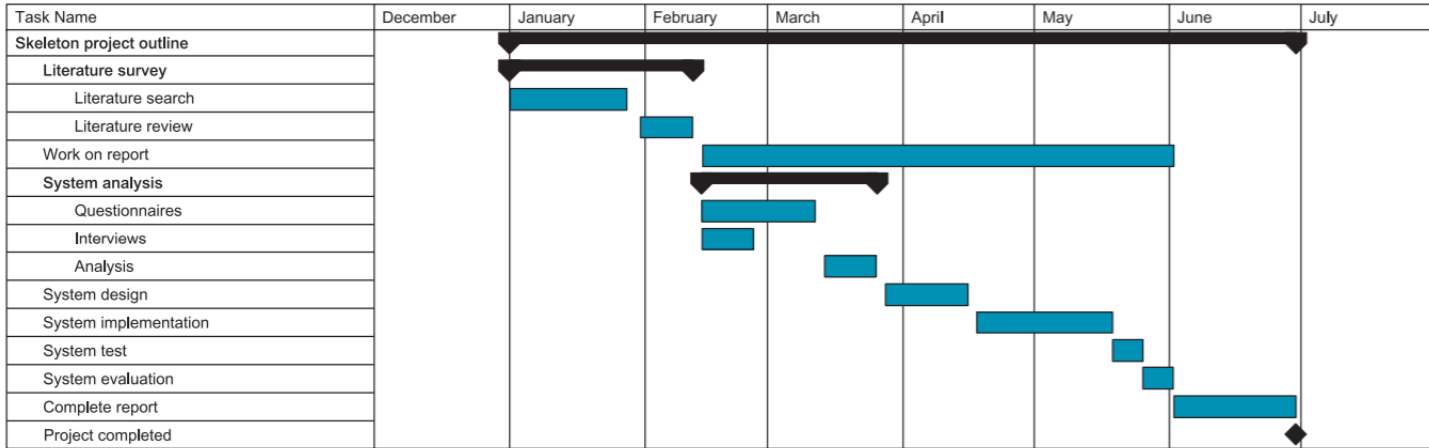
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- **Rolling wave planning:**

- Thus, your planning detail ebbs and flows (like a rolling wave) as your project progresses, and you make decisions on where to go and what to do next.
- As a skeleton plan is relatively broad it can be suitable for many projects.
- Although it is of little use if you don't have any idea of what you want to do, it can help you to identify universal milestones that you must adhere to.

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- Rolling wave planning:



Example rolling wave skeleton plan for a software development project

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- **Rolling wave planning:**

- For above example, provides an example of a typical rolling wave, skeleton plan – in this case a software development type project that lasts for about six months. Although this plan does not provide explicit detail about what this project is really about, it does identify the significant tasks that need to be completed and by when

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- **Project initiation document:**

- A project initiation document (PID) is a term that originates from the PRINCE II project management methodology (OGC, 2009), the content of which aims to answer four fundamental questions about the proposed project:

- ✓ What is the project aiming to achieve ?
 - ✓ Why is it important to achieve it ?
 - ✓ Who will be involved and what are their responsibilities ?
 - ✓ How and when will the project be undertaken ?

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- **Project initiation document:**

- To address these questions the PID draws together a number of sections in one place, representing a definitive overview of the project – its purpose, objectives, outline, plan, risks, etc.
- It can form a contract in terms of defining what the project will achieve.
- PIDs come in various shapes and sizes with different content requirements, and many companies have their own definitions of what should be included. It is always a good idea to put together a PID at the start of your project.

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- **Project initiation document:**

- The components used in the project proposal can form the basis of your PID, namely: title, aim and objectives, expected outcomes/deliverables, introduction/background/overview, project type, related research, research question/hypothesis, methods project type, related research, research question/hypothesis, methods, resource requirements, project plan

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- **Project initiation document:**

Example

Title:

Software migration.

Project type:

Aims and objectives:

- Migrate a series of software applications from a mainframe to a client/server system within a local company.

Outcomes and deliverables:

- Connectivity to the mainframe for approx. 1000 PCs;
- Full integration into a client server environment;
- Education of users;
- Coding and testing completed.

Research methodology:

PRINCE II.

Hardware and software requirements:

All available at local company.

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▪ Project initiation document:

Example

Title

Project management issues of software migration.

Project type:

Evaluation project, industry based.

Aims and objectives:

Aim: To evaluate the use of the PRINCE II method as a means of managing the migration of software from a mainframe to a client server system.

Objectives: An evaluation of tools and methods to assist the technical aspects of the migration and organisational management aspects.

Evaluation of similar companies performing migration for comparative purposes.

The migration of a series of applications at a local company (to which access has been obtained) will be used as a vehicle for critically evaluating the PRINCE II method in particular.

Outcomes and deliverables:

A report detailing the following:

- an explanation of the perceived benefits of such a migration;
- an analysis of the difficulties experienced;
- a critical evaluation of the PRINCE II methodology and its application;
- an outline methodology for future migration projects;
- a discussion and evaluation of alternative tools and methods for software migration.

Research methodology:

Case study, action research.

Hardware and software requirements:

All available at a local company.

THANK YOU !

