Unit 17: IT Project

Project Management Tools - PERT & CPA (Network Diagrams)

Learning Outcomes

- What are the different Project Management Tools – PERT and CPA

- Be able to build a CPA diagram in order to:
  - Plan a project
  - Identify the Critical Paths
  - Identify the Slack Time
  - Identify the Earliest Start Time & Latest Finish Time

Project Management Tools

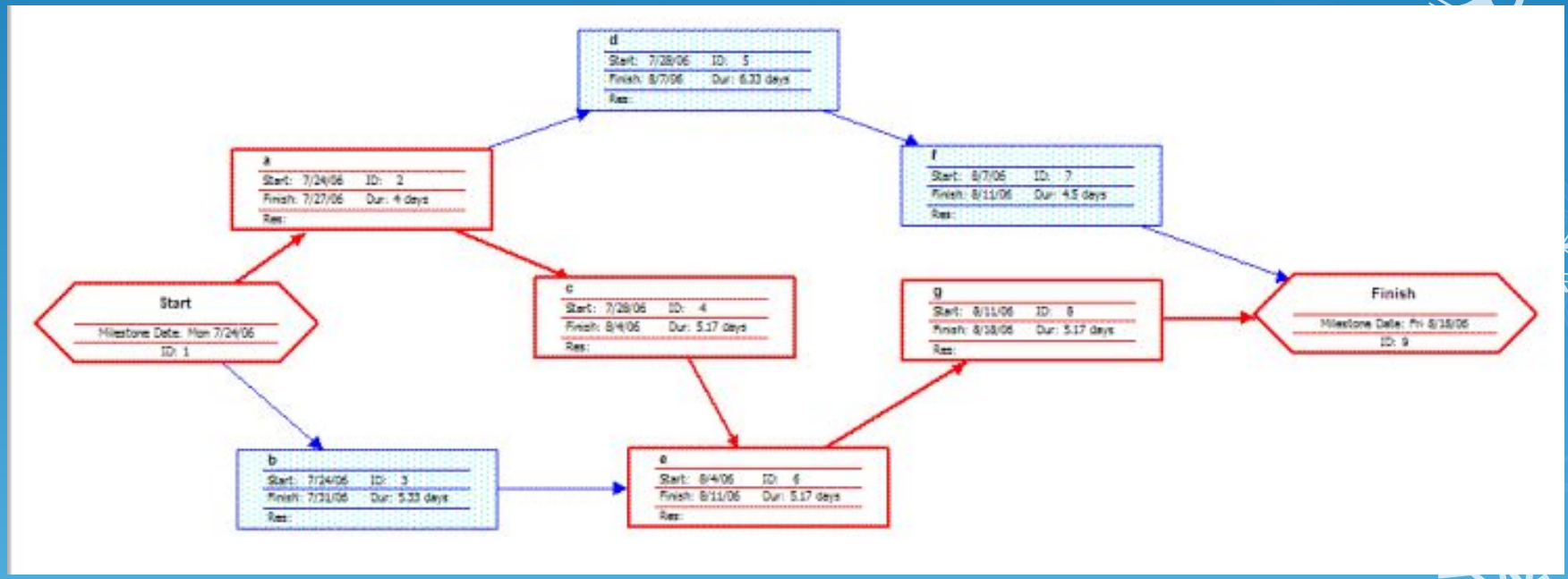
- Techniques and tools used during the planning process
- Enabling managers to control the development of projects by providing a framework against which projects can be measured

- Common project management tools include:
  - Gantt charts
  - PERT charts (Programme Evaluation & Review Technique
  - Critical Path Analysis (CPA)
  - Project management software i.e. Microsoft Project

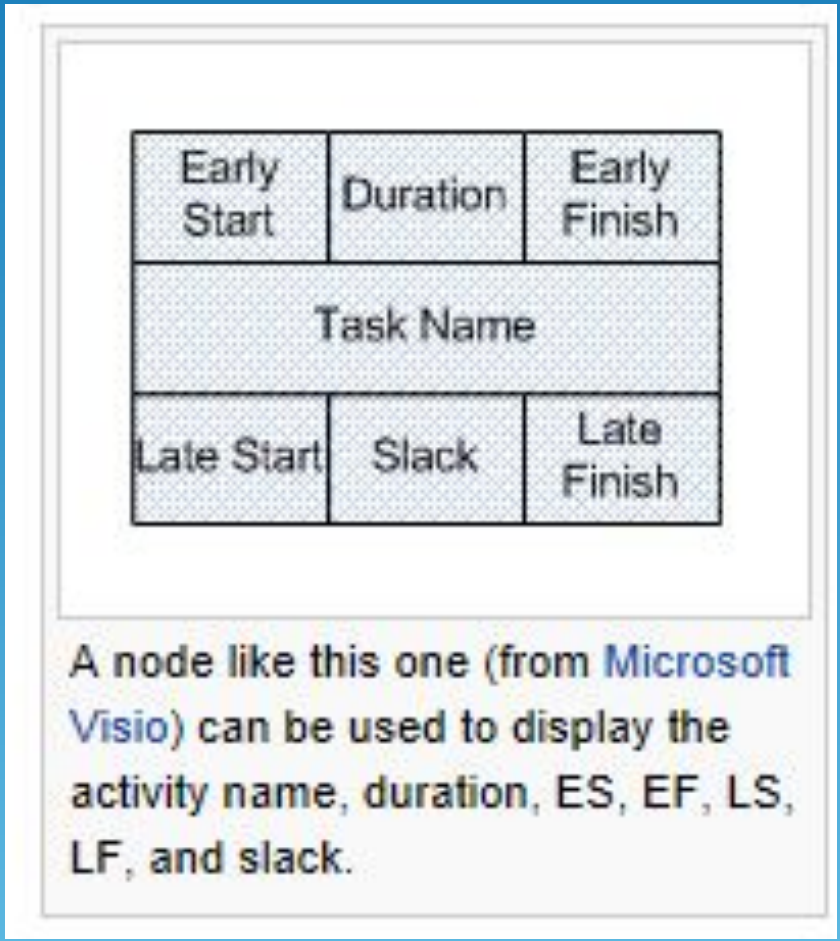
PERT Charts

- **P**rogramme **E**valuation and **R**eview **T**echnique
- Also based on the identification and definition of task-oriented concepts
- Recognises that there is an element of probability, when some tasks may not take the amount of time or resources first estimated
- PERT charts are created incorporating probability theory
- Planning shown visually is often easier to understand and more obvious than a simple list of tasks
- See http://en.wikipedia.org/wiki/Program_Evaluation_and_Review_Technique

PERT Chart Example - Network Diagram



PERT Chart Example - Node



A node like this one (from Microsoft Visio) can be used to display the activity name, duration, ES, EF, LS, LF, and slack.

Critical Path Analysis (CPA)

- Is a visual technique that uses diagrams
- This method looks for the route through the activities where there is the least flexibility
- It is centred on the concept of logic & efficiency
- As with Gantt Charts:-
  - There will be some activities that must be carried out sequentially
  - Other can be carried out simultaneously

Critical Path Analysis (CPA)

- The basis for the method is attempting to answer a set of questions:-
  1. How long will it take to fully complete the project?
  2. Which activities are inflexible and thus help to fix the project time?
  3. Which activities can be shortened or should we give more resources to?

Critical Path Analysis (CPA)

- These questions are answered by addressing the following:-
  1. Identify the tasks that need to be undertaken
  2. Identify the resources needed to achieve the project
  3. Establish the priority of the individual tasks
  4. Establish the sequence of activities and how long each should take
  5. Decide where there is a possibility for activities to be carried out in parallel
  6. Calculate the shortest time in which the project can be completed allowing for all the necessary activities to have been undertaken

Critical Path Analysis (CPA)

- See "Project Management Tools – CPA" PowerPoint