22 Network analysis – introduction and terminology

Objectives

1. After studying this chapter you will
   - have been introduced to the control and planning technique called Network Analysis
   - know what is meant by; Activity, Event and Dummy Activity
   - understand the key rules for drawing Networks
   - know the various ways Activities are identified
   - be able to use Dummy Activities correctly.

Definition

2. Network analysis is a generic term for a family of related techniques developed to aid management to plan and control projects. These techniques show the inter-relationship of the various jobs or tasks which make up the overall project and clearly identify the critical parts of the project. They can provide planning and control information on the time, cost and resource aspects of a project. Network analysis is likely to be of most value where projects are:
   a) Complex, i.e. they contain many related and interdependent activities, and/or
   b) Large, i.e. where many types of facilities, high capital investments, many personnel are involved; and/or
   c) Where restrictions exists, i.e. where projects have to be completed within stipulated time or cost limits, or where some or all of the resources (material, labour) are limited.

Background

3. A basic form of network analysis was being used in the UK and USA in the mid-1950's in an attempt to reduce project times.

   In 1958 the US Naval Special Projects Office set up a team to devise a technique to control the planning of complex projects. The outcome of the team's efforts was the development of the network technique known as PERT (Programme Evaluation and Review Technique). Pert was used to plan and control the development of the Polaris missile and was credited with saving two years in the missile's development.

   Since 1958 the technique has been developed and nowadays many variants exist which handle, in addition to basic time factors, costs, resources, probabilities and combinations of all these factors. A variety of names exist and some of the more commonly used are:

Critical Path Planning	CPP
Critical Path Analysis	CPA
Critical Path Scheduling	CPS
Critical Path Method	CPM
Programme Evaluation and Review Technique etc.	PERT, PERT/COST