

# Chapter 5

## Project Management and Planning

# Objectives

- To explain the main tasks undertaken by project managers
- To introduce software project management and to describe its distinctive characteristics
- To discuss project planning and the planning process

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# Topics covered

- 5.1 Management activities
- 5.2 Project planning

# Software project management

- Concerned with activities involved in ensuring that software is delivered **on time** and **on schedule** and in accordance with the **requirements** of the organisations developing and procuring the software.
- Project management is needed because software development is always subject to **budget and schedule constraints** that are set by the organisation developing the software.

# Software management distinctions

- The product is **intangible**.
- The product is uniquely **flexible**.
- Software engineering is **not recognized as an engineering discipline** with the same status as mechanical, electrical engineering, etc.
- The software development process is **not standardised**.
- Many software projects are '**one-off**' projects.

# Management activities

- Proposal writing.
  - Project planning and scheduling.
  - Project costing.
  - Project monitoring and reviews.
  - Personnel selection and evaluation.
  - Report writing and presentations.
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# Management commonalities

- These activities are **not peculiar** to software management.
- Many techniques of engineering project management are **equally applicable** to software project management.
- Technically complex engineering systems tend to suffer from the **same problems** as software systems.

# Project staffing

- May **not** be possible to appoint the **ideal people** to work on a project
  - Project **budget may not allow** for the use of highly-paid staff;
  - Staff with the **appropriate experience may not be available**;
  - An organisation may wish to **develop employee skills** on a software project.
- Managers have to work within these constraints especially when there are **shortages of trained staff**.



# Project planning

- Probably the most **time-consuming** project management activity.
- **Continuous activity** from initial concept through to system delivery. Plans must be regularly **revised** as new information becomes available.
- Various **different types of plan** may be developed to support the main software project plan that is concerned with schedule and budget.

# Types of project plan

| Plan                          | Description   |
|-------------------------------|---|
| Quality plan                  | Describes the quality procedures and standards that will be used in a project. See Chapter 27.              |
| Validation plan               | Describes the approach, resources and schedule used for system validation. See Chapter 22.                  |
| Configuration management plan | Describes the configuration management procedures and structures to be used. See Chapter 29.                |
| Maintenance plan              | Predicts the maintenance requirements of the system, maintenance costs and effort required. See Chapter 21. |
| Staff development plan.       | Describes how the skills and experience of the project team members will be developed. See Chapter 25.      |

# Project planning process

Establish the project **constraints**

Make initial assessments of the project **parameters**

Define project **milestones** and **deliverables**

while project has not been completed or cancelled **loop**

    Draw up project **schedule**

    Initiate **activities** according to schedule

**Wait** ( for a while )

**Review** project progress

**Revise** estimates of project parameters

**Update** the project schedule

**Re-negotiate** project constraints and deliverables

**if** ( problems arise ) then

        Initiate technical **review** and possible **revision**

**end if**

**end loop**

# The project plan

- The project plan sets out:
    - The **resources** available to the project;
    - The work **breakdown**;
    - A **schedule** for the work.
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# Project plan structure

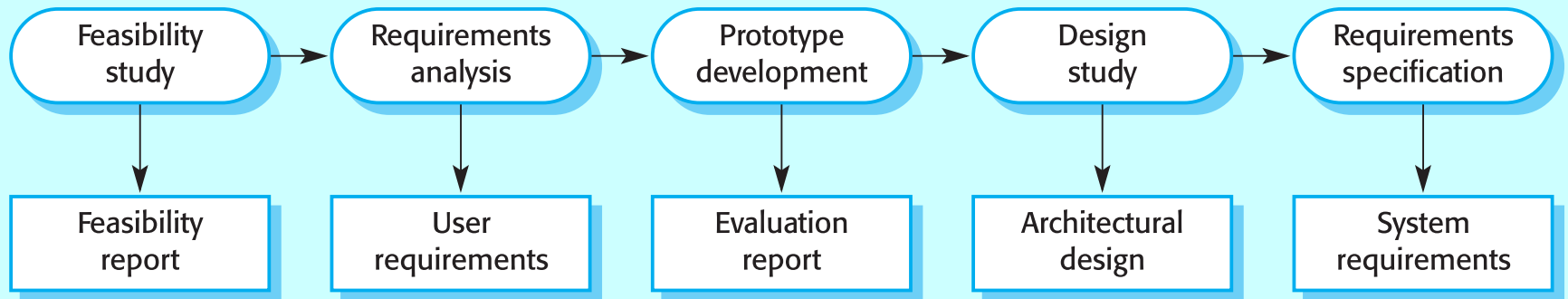
- Introduction.
  - Project organisation.
  - Risk analysis.
  - Hardware and software resource requirements.
  - Work breakdown.
  - Project schedule.
  - Monitoring and reporting mechanisms.
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# Activity organization

- Activities in a project should be organised to produce **tangible outputs** for management to **judge progress**.
- **Milestones** are the end-point of a process activity.
- **Deliverables** are project results delivered to customers.
- The **waterfall** process allows for the straightforward definition of progress milestones.

# Milestones in the RE process

## ACTIVITIES



## MILESTONES