

INTRODUCTION TO SOFTWARE PROJECT MANAGEMENT

What is a project?

Some dictionary definitions:

“A specific plan or design”

“A planned undertaking”

“A large undertaking e.g. a public works scheme”

Longmans dictionary

Key points above are **planning** and **size** of task

What's a project?

- ⦿ A project is being a planned activity or a specific plan or design.
- ⦿ Characteristics which distinguish projects are:
 - Non-routine tasks are involved
 - Planning is required.
 - Specific objectives are to be met or specific products is to be created.
 - Project has a pre-determined time span
 - Work is carried out for someone other than yourself
 - Work is carried out in several phases
 - The resources available for use on the project are constrained
 - Project is large or complex.

Examples of Project

- ① Developing a new **Software**
- ① Implementing a new Decision Support System
- ① Developing a new office plan/layout
- ① Introducing a new product to the market
- ① Designing an airplane or a supercomputer
- ① Opening a new restaurant
- ① Constructing a bridge, dam, highway, or building
- ① Relocating an office or a factory
- ① Performing major maintenance or repair
- ① Producing or directing a movie

Jobs versus projects

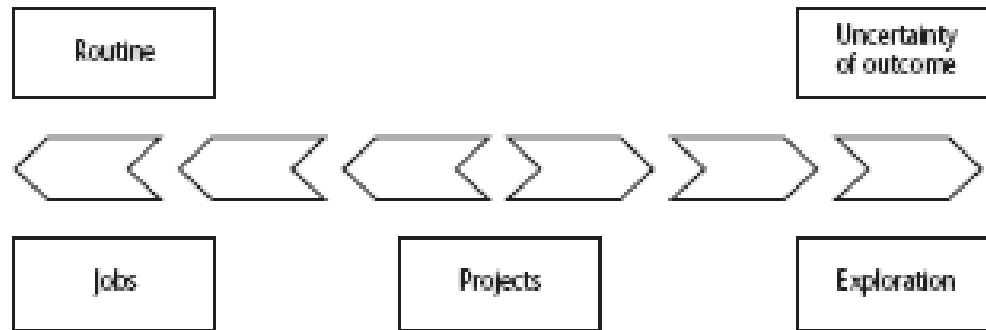


Figure 1.1 Activities most likely to benefit from project management

‘Jobs’ – repetition of very well-defined and well understood tasks with very little uncertainty

‘Exploration’ – e.g. finding a cure for cancer: the outcome is very uncertain

‘Projects’ – in the middle!

Software Project versus other types of Project

- **Invisibility**: When physical artifacts such as a bridge or road is being constructed the progress can be seen. With software, progress is not immediately visible.
- **Complexity**: Software products contain more complexity than other engineered artifacts.
- **Conformity**: other projects usually working with physical systems and materials like cement and steel. These are governed by physical laws that are consistent. Software developers have to conform to the requirements of human clients.
- **Flexibility**: The ease with which the software's can be changed

Activities covered by Software Project Management

- Feasibility Study
- Planning
- Project Execution

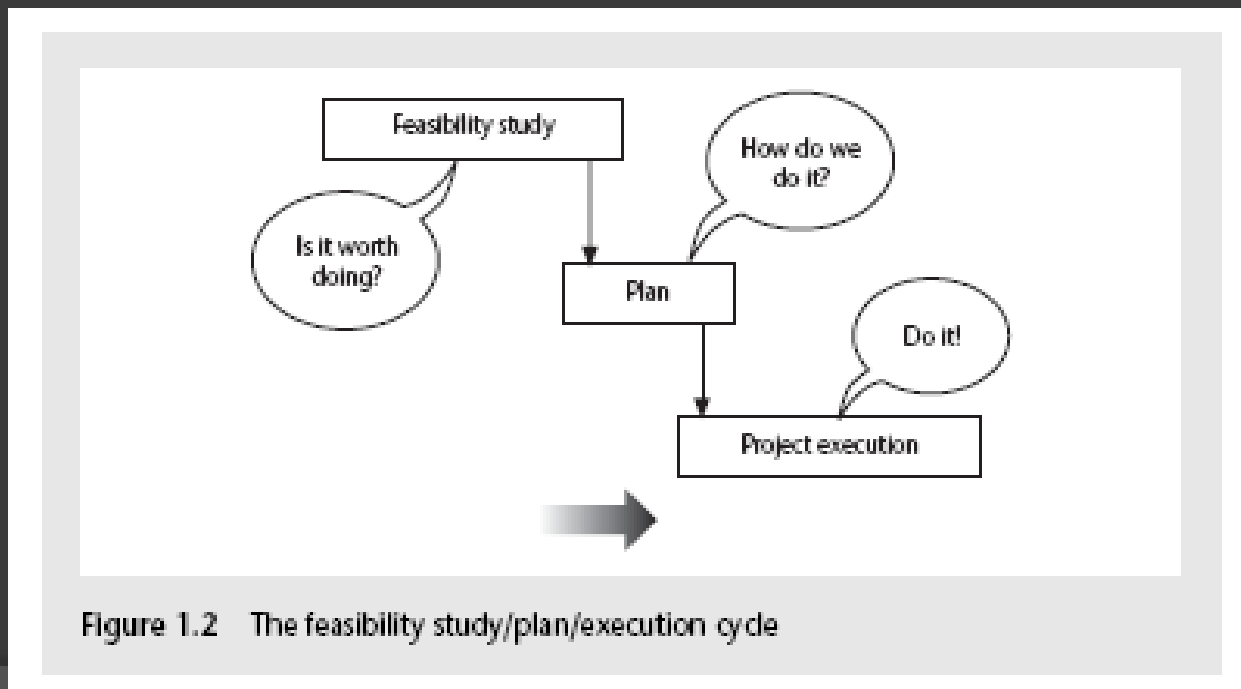


Figure 1.2 The feasibility study/plan/execution cycle

Activities covered by project management

Feasibility study

Is project technically feasible and worthwhile from a business point of view?

Planning

Only done if project is feasible

Execution

Implement plan, but plan may be changed as we go along

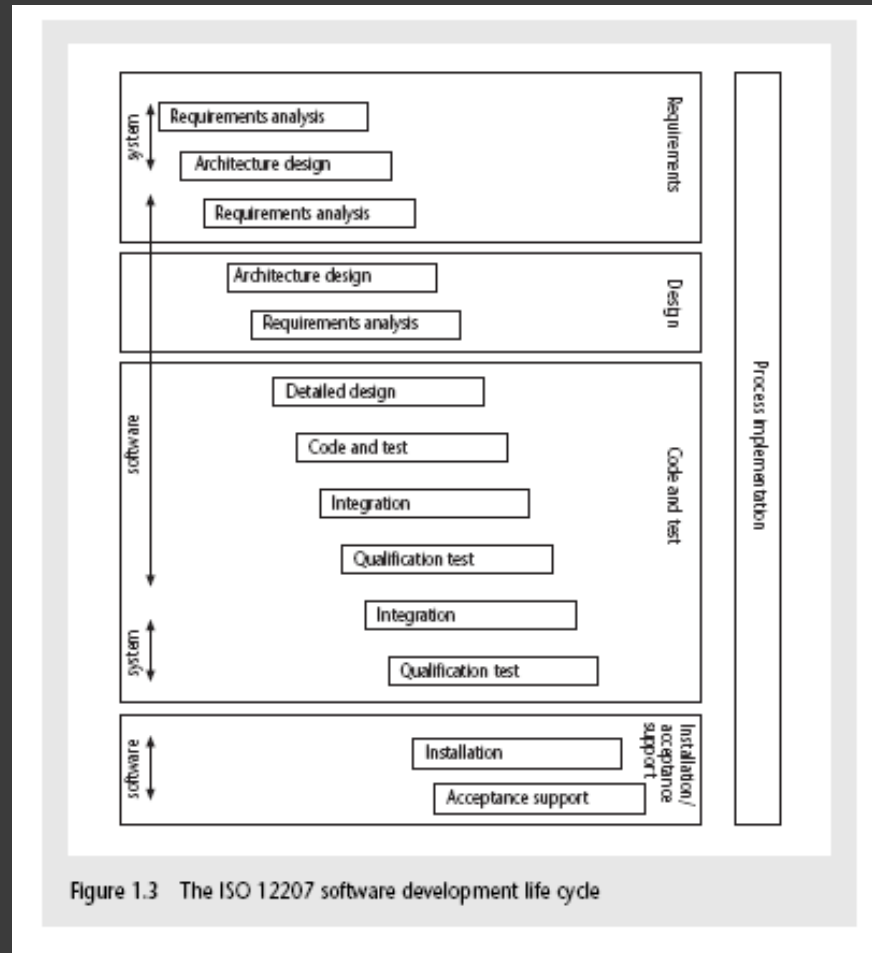
Plan Project

- ⦿ A project plan answers:
 - What we are going to do?
 - Why are we going to do it?
 - How are we going to do it?
 - Who is going to be involved?
 - How long it will take?
 - How much it will cost?
 - What can go wrong and what can we do about it?
 - How did we estimate the schedule and budget?
- ⦿ Initial plan is called – **baseline plan**

Execute project Plan

- ❑ To put the plan into action.
- ❑ As work progresses ensure that the project achieves its goal.
- ❑ Project progress must be documented and compared with the baseline plan.

The software development life-cycle (ISO 12207)



Ways of categorizing projects

◎ Information System Versus Embedded System

- Information System: system interfaces with organizations
- Embedded System: Interfaces with a machine

◎ Objectives versus products

- Projects may be distinguished by whether their aim is to produce a product or to meet certain objectives.
- A project may be to create a product, the details of which have been specified by client.
- Client has the responsibility for justifying the product.

What is management?

- Management involves the following activities:

- **Planning:** deciding what is to be done
- **Organizing:** Making arrangements
- **Staffing:** Selecting the right people for the job
- **Directing:** giving instructions
- **Monitoring:** Checking on progress
- **Controlling:** taking actions to remedy hold-ups
- **Innovating:** coming up with solutions
- **Representing:** liaising with users.

Problems with Software

- ⦿ Poor Estimates and plans
- ⦿ Lack of quality standards and measures
- ⦿ Lack of guidance about making organizational decisions
- ⦿ Lack of techniques to make progress visible
- ⦿ Poor role definition-who does what?
- ⦿ Incorrect success criteria

Problems identified by students

- ⦿ Inadequate specification of work
- ⦿ Lack of knowledge of specification area
- ⦿ Management ignorance of IT
- ⦿ Lack of standards
- ⦿ Lack of communication between users and technicians
- ⦿ Lack of communication leading to duplication of work
- ⦿ Lack of commitment
- ⦿ Changing software environment
- ⦿ Deadline pressure
- ⦿ Lack of quality control
- ⦿ Lack of training.

Setting Objectives

- Projects objectives should be clearly defined.
- Setting objectives can be used to guide and motivate individuals and group of staff.
- In order to achieve the objective we must achieve certain goals first.

Goals/sub-objectives

These are steps along the way to achieving the objective. Informally, these can be defined by completing the sentence...

**Objective X will be achieved
IF the following goals are all achieved**

A.....

B.....

C..... etc

Goals/sub-objectives continued

Often a goal can be allocated to an individual. Individual may have the capability of achieving goal, but not the objective on their own e.g.

Objective – user satisfaction with software product

Analyst goal – accurate requirements

Developer goal – software that is reliable

Objectives should be SMART

- S** – specific, that is, concrete and well-defined
- M** – measurable, that is, satisfaction of the objective can be objectively judged
- A** – achievable, that is, it is within the power of the individual or group concerned to meet the target
- R** – relevant, the objective must be relevant to the true purpose of the project
- T** – time constrained: there is a defined point in time by which the objective should be achieved

Measures of effectiveness

How do we know that the goal or objective has been achieved?

Measure of effectiveness tells us how successful the project has been.

By a practical test, that can be objectively assessed.

e.g. for user satisfaction with software product:

- Repeat business – they buy further products from us
- Number of complaints – if low etc

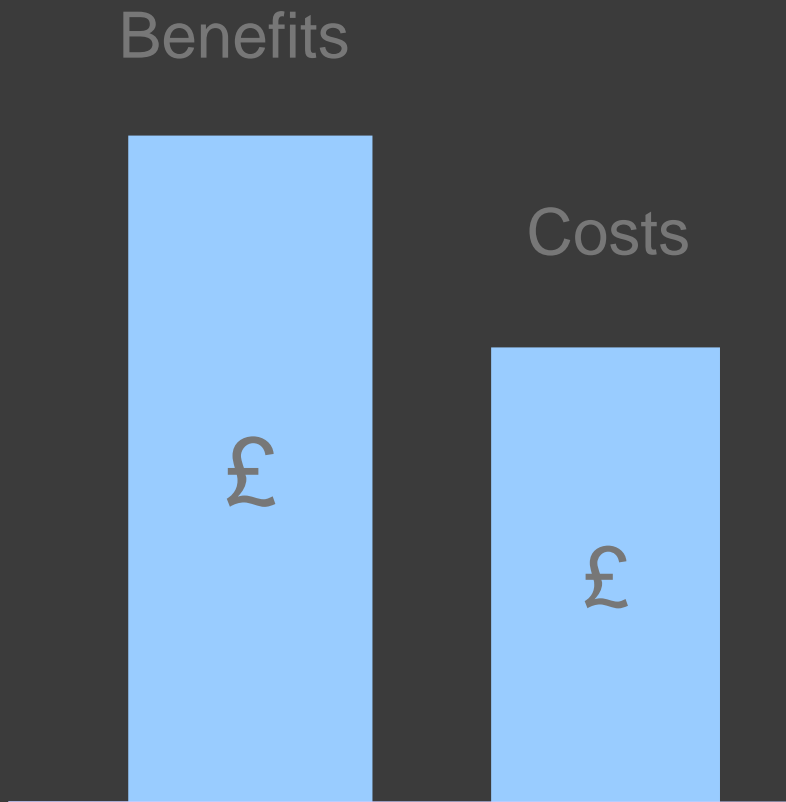
Stakeholders

- ⦿ These are people who have interest in the project.
- ⦿ Stakeholders are to be identified as early as possible as we have to set up adequate communication channels with them right from the start.
- ⦿ Stakeholders might be **internal to the project team, external to the project team but in the same organization, or totally external to the organization.**

Stakeholders (Cont..)

- ◎ Internal to the project team: This means they will be under the direct managerial control of the project leader. *Include:*
 - ❑ Project Sponsor
 - ❑ Project staff
 - ❑ Support staff
 - ❑ Top management
- ◎ External to the project team but within the same organization:
 - ❑ Project leader need assistance of information management group in order to add to database.
- ◎ External to both the project team and the organization: Include
 - Customer\client
 - Suppliers
 - Competitor
 - Regulatory agencies

The business case



Benefits of delivered project must outweigh costs

Costs include:

- Development
- Operation

Benefits

- Quantifiable
- Non-quantifiable

Business Case

- ◉ Purpose is to provide the top management with all the information needed to decide, whether the project should be funded.
- E.g. A new web-based application might allow customers from all over the world to order a firm's products via the internet, increasing sales, revenue and profits.
- Project plan must ensure that the business case is intact. For e.g.
 - Development cost should not exceed.
 - The features of the system should not be reduced
 - Delivery of the project is not delayed.