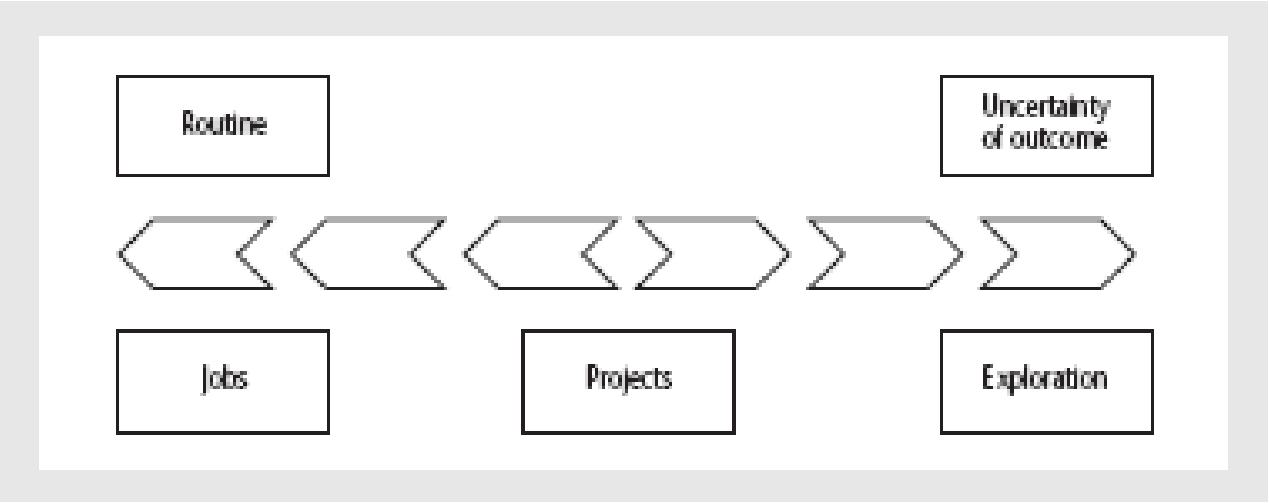
INTRODUCTION TO SOFTWARE PROJECT MANAGEMENT

WHAT IS A PROJECT

- A specific plan or design
- A planned undertaking
- A large undertaking e.g. a public works scheme

JOBS VERSUS PROJECTS



'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!

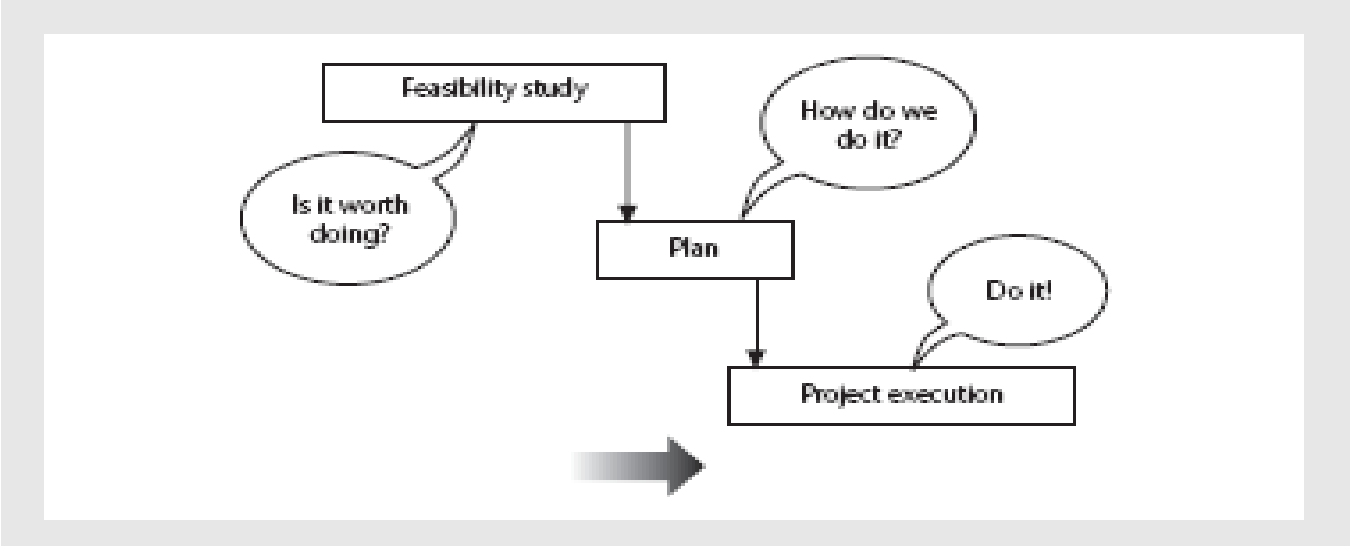
Characteristics of projects

- Non-routine
- Planned
- Aiming at a specific target
- Work carried out for a customer
- Made up of several different phases
- Constrained by time and resources
- Large and/or complex

SP versus Other Projects

- Invisibility
- Complexity
- Conformity
- Flexibility

Activities covered by project management



Feasibility study

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

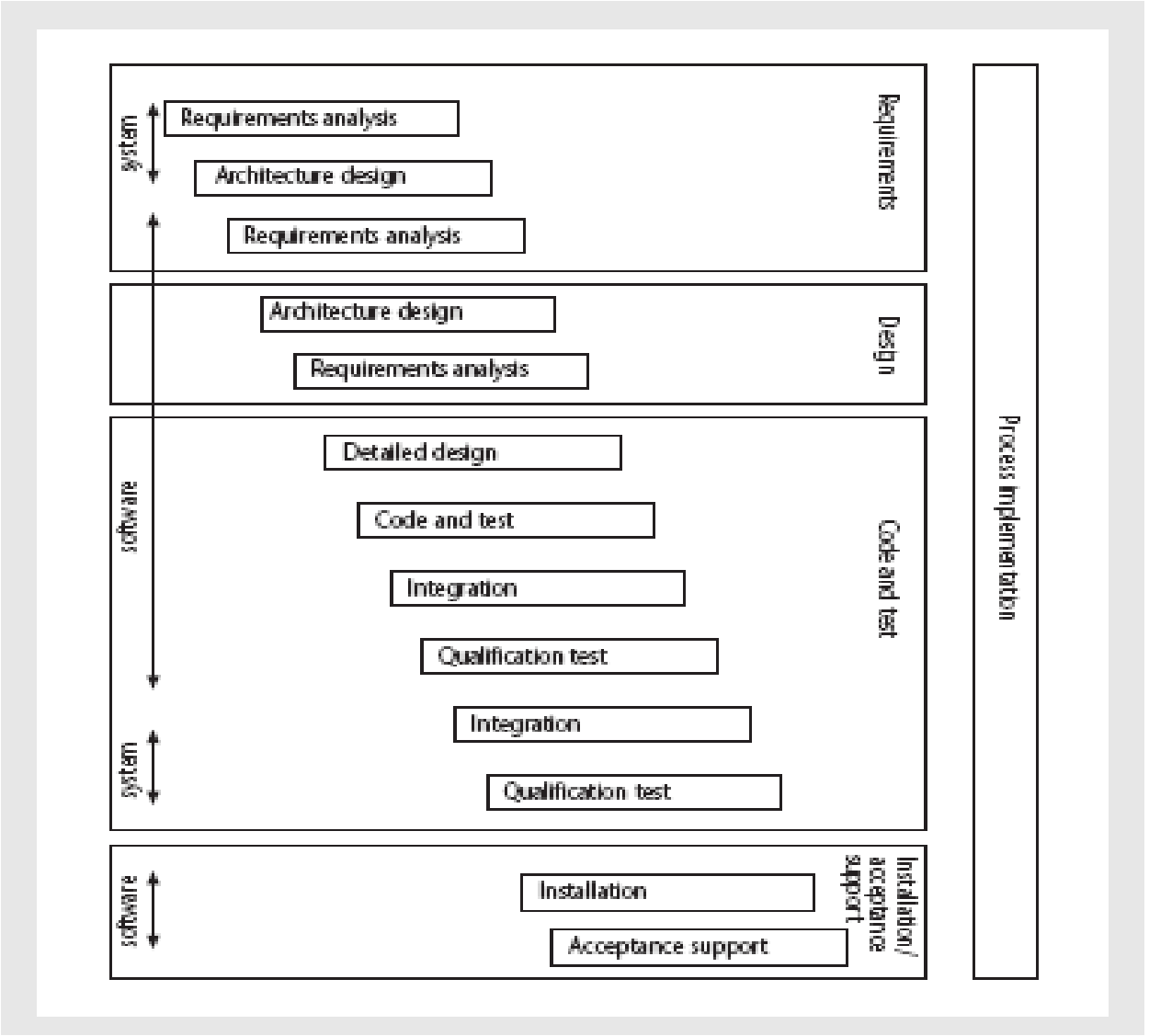
Planning

How to do.

Project Execution

Implementation of Plan

The software development life-cycle (ISO 12207)



ISO 12207 life-cycle

Requirements analysis

- Requirements elicitation: what does the client need?
- Analysis: converting ‘customer-facing’ requirements into technical equivalents that developers can understand
- In Requirements, we have
  - Functions
  - Quality
  - Resource constraints i.e. costs

ISO 12207 life-cycle

- Architecture design
  - Defines components of system: hardware, software, organizational.

- Detailed Design
  - The number of software units can be separately coded and tested.
  - The detailed design of these units is carried out separately.

ISO 12207 life-cycle

- Code and test
  - Writing code for each software unit.
  - Testing each software unit.
- Integration
  - Putting the individual components together.
- Qualification testing
  - Testing the system including software components to ensure that all the requirements have been fullfilled.

ISO 12207 life-cycle

- Installation
  - The process of making the system operational
  - Includes setting up standing data, setting system parameters, installing on operational hardware platforms, user training etc
- Acceptance support
  - Including maintenance and enhancement

Categorizing SPs

Distinguishing different types of project is important as different types of task need different project approaches e.g.

- Information systems versus embedded systems
- Objective-based versus product-based

Requirement Specification

- Functional Requirements

  - what the end-product of the project is to do.

  - systems analysis and design methods are designed to provide functional requirements.

- Quality Requirements

  - How to do it.

- Resource Requirements

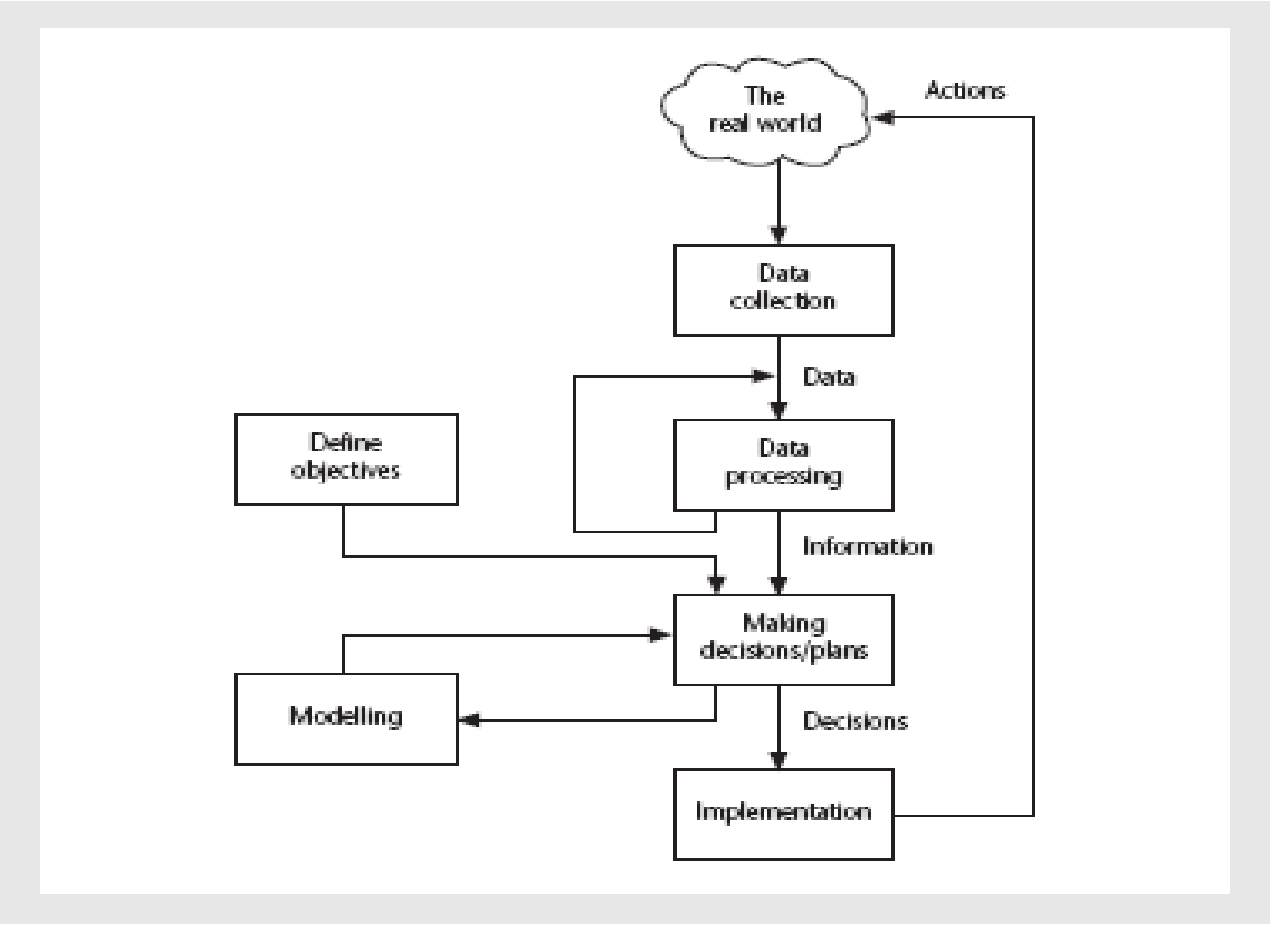
  - How much the organization is willing to spend on the system.

What is management

- 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 action to remedy hold-ups
- Innovating – coming up with solutions when problems emerge
- Representing – liaising with clients, users, developers and other stakeholders

So, Management is the process of setting objective for a system and then monitoring the system to see what its true performance.

Management control



Management control

- Data – the raw details
  - e.g. ‘6,000 documents processed at location X’
- Information – the data is processed to produce something that is meaningful and useful
  - e.g. ‘productivity is 100 documents a day’
- Comparison with objectives/goals
  - e.g. we will not meet target of processing all documents by 31st March
- Modelling – working out the probable outcomes of various decisions
  - e.g. if we employ two more staff at location X how quickly can we get the documents processed?
- Implementation – carrying out the remedial actions that have been decided upon