Software Project Management
4th Edition

Chapter 4

Selection of an appropriate project approach

Introduction

- Selection of Project Approaches
- Water fall model
- V Process Model

Selection of project approaches

- In-house development: most of these issues resolved by IS planning and standards

- Software houses: more applicable as different customers have different needs

- Selection of approach governed by:
  - uncertainties of the project
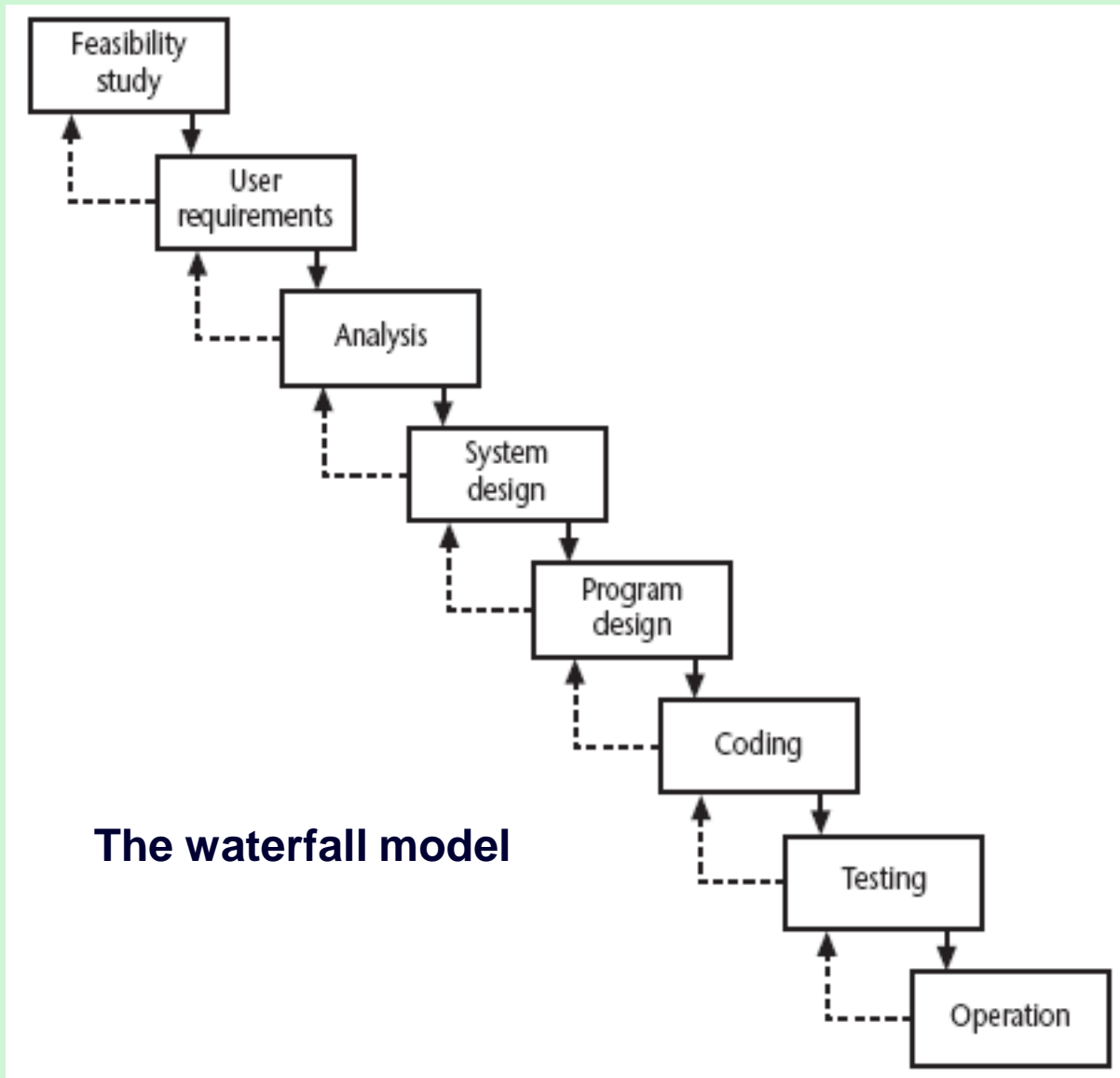 - properties of application to be built

General approach

- Look at risks and uncertainties e.g.
  - are requirement well understood?
  - are technologies to be used well understood?

- Look at the type of application being built e.g.
  - information system? embedded system?
  - criticality? differences between target and development environments?

- Clients' own requirements
  - need to use a particular method

Choice of process models

- 'waterfall' also known as 'one-shot', 'once-through'

- incremental delivery

- evolutionary development

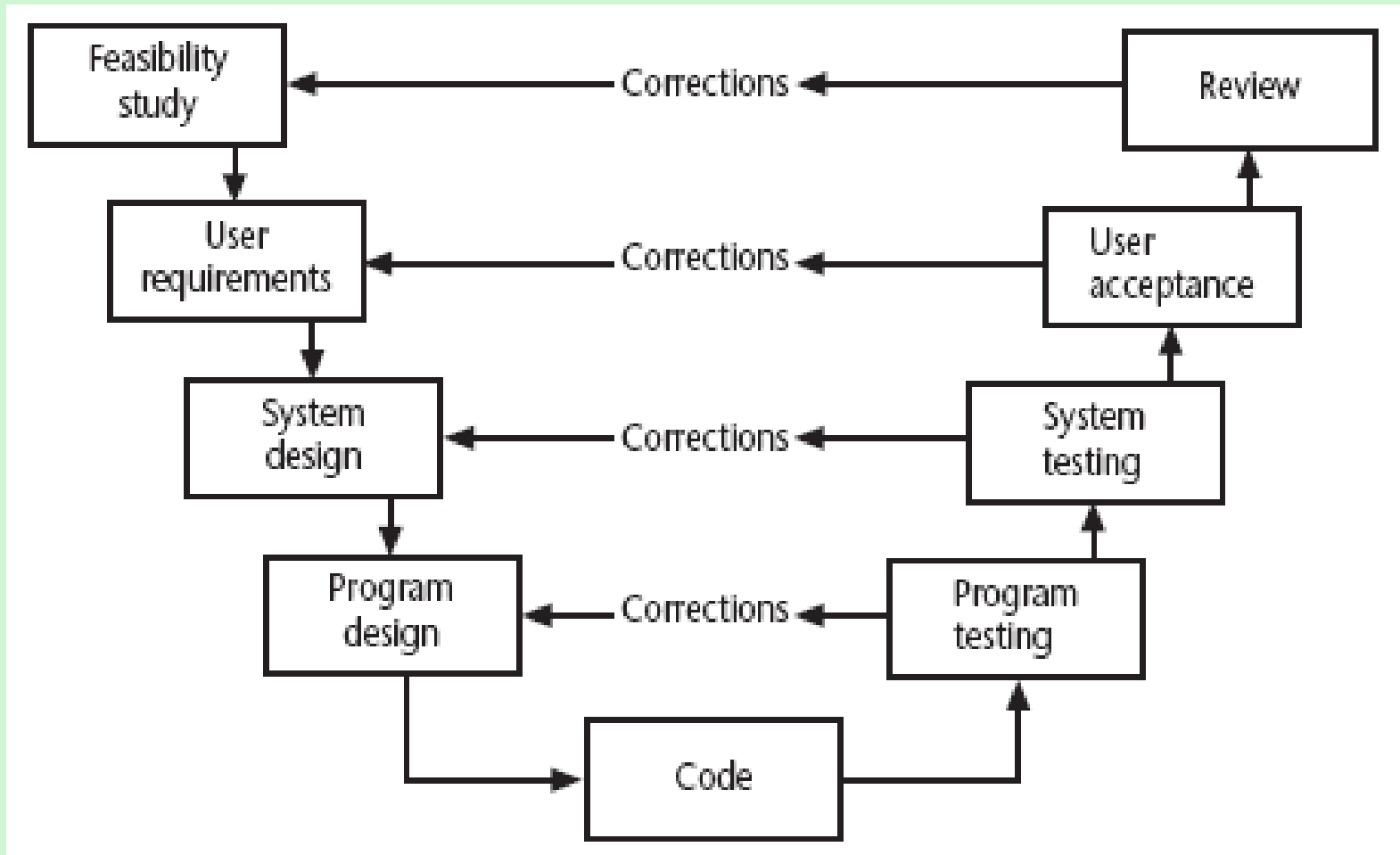Also use of 'agile methods' e.g. extreme programming

Waterfall

Feasibility study

User requirements

Analysis

System design

Program design

Coding

Testing

Operation

The waterfall model

Waterfall

- the 'classical' model
- imposes structure on the project
- every stage needs to be checked and signed off
- BUT
  - limited scope for iteration

V-process model

Another way of looking at the waterfall model

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Evolutionary delivery: prototyping

' *An iterative process of creating quickly and inexpensively live and working models to test out requirements and assumptions'*

Sprague and McNurlin main types

- 'throw away' prototypes
- evolutionary prototypes

what is being prototyped?

- human-computer interface
- functionality

Reasons for prototyping

- learning by doing

- improved communication

- improved user involvement

- a feedback loop is established

- reduces the need for documentation

- reduces maintenance costs i.e. changes after the application goes live

- prototype can be used for producing expected results

Prototyping: some dangers

- users may misunderstand the role of the prototype
- lack of project control and standards possible
- additional expense of building prototype
- focus on user-friendly interface could be at expense of machine efficiency

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Other ways of categorizing prototyping

- what is being learnt?
  - organizational prototype
  - hardware/software prototype ('experimental')
  - application prototype ('exploratory')
- to what extent
  - mock-ups
  - simulated interaction
  - partial working models: *vertical* versus *horizontal*

Application

- In real development environment this approach leads to great degree of inflexibility especially when complex proects are under development. Also the nature of this model makes it more difficult to change or modify passed tasks or modules once they are completed. You can imagine that let's say once requirements are writen this aproach doesn't allow changes during execution of the project.

- Reference Link : **http://www.solovatsoft.com/waterfall-model-software-development.html**

Research

e-Science and the Life Cycle of Research

- Life cycle models are shaping the way we study digital information processes. These models represent the life course of a larger system, such as the research process, through a series of sequentially related stages or phases in which information is produced or manipulated. In the United Kingdom, for example, the Life Cycle Information for E-Literature (LIFE) and the Digital Curation Centre both have been influenced by this approach. Similarly, data archivists are advancing life cycle models to improve practices in preserving research data. I have applied a life cycle framework with two projects employing standardised metadata to bridge various stages of the research life cycle and two other projects exploring the application of digital repositories in a life cycle context.

- See the homepages for the LIFE project at http://www.ucl.ac.uk/ls/lifeproject/ and the Digital Curation Centre at http://www.dcc.ac.uk/index

- See the presentations made at the 2005 IASSIST Conference in two sessions: C1: The Life Course of Survey Data: Evidence from New Tools and D2: Enriching Metadata: the Lifecycle Perspective. Powerpoint files of the presentations in these sessions are available at http://www.iassistdata.org/conferences/2005/presentations/

- Reference Link : **www.*datalib.library.ualberta.ca/~humphrey/lifecycle-science060308.doc***