

Software Engineering @ LEIC/LETI

Software Process - Elements of

Software Process

What is software
development?

Software development
is a
formalisation process

From Natural Language
to
Programming Language

There are problems
in language
transformation

Lost in Translation

How we address this formalisation problem?

Define several
intermediate languages

small transformations

or

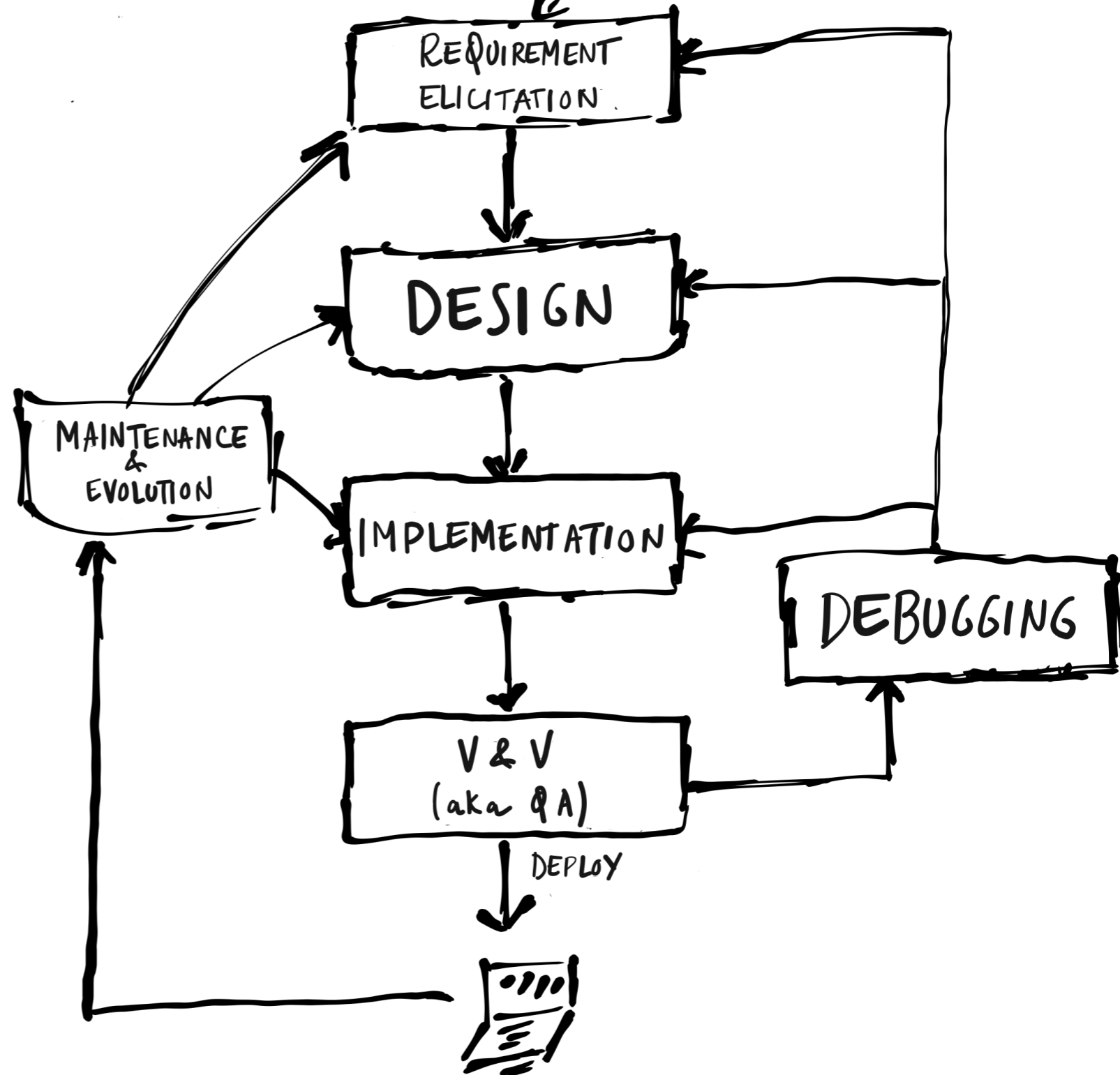
Reduce the
number of languages

less transformations

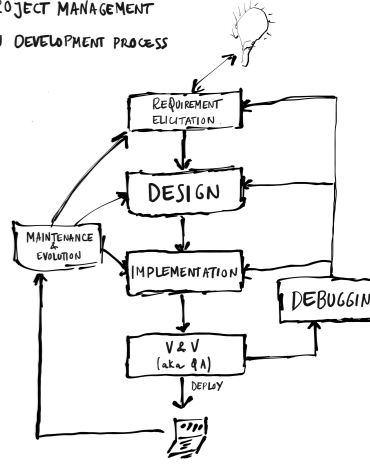
- PROJECT MANAGEMENT
- SW DEVELOPMENT PROCESS



What are the main parts?



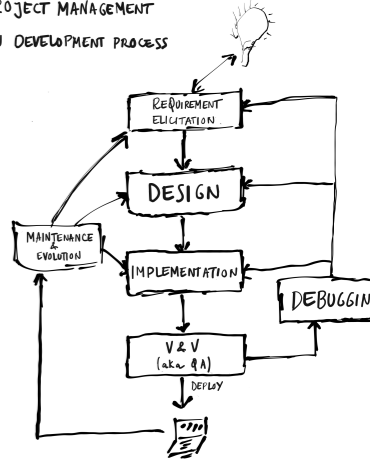
- PROJECT MANAGEMENT
- SW DEVELOPMENT PROCESS



Requirements Engineering

the languages of the problem

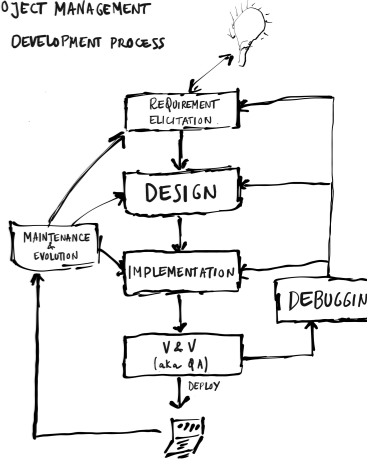
- PROJECT MANAGEMENT
- SW DEVELOPMENT PROCESS



Software Design

the languages of the solution

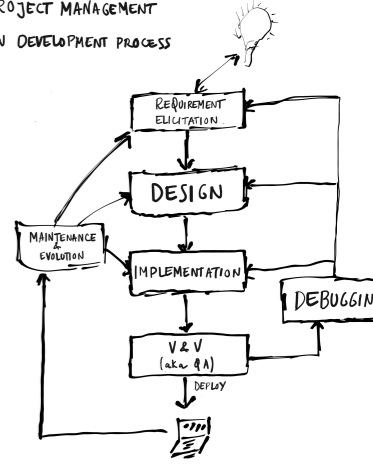
- PROJECT MANAGEMENT
- SW DEVELOPMENT PROCESS



Software Implementation

the execution languages

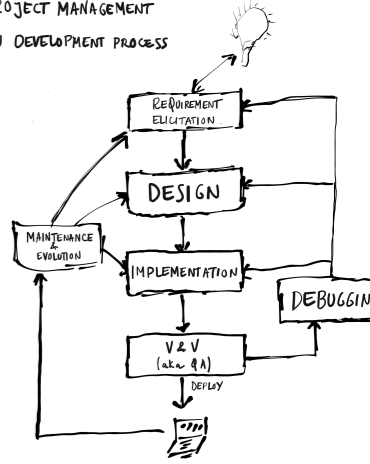
- PROJECT MANAGEMENT
- SW DEVELOPMENT PROCESS



Software Verification and Validation

accurate representations
using the languages
(problem and solution)

- PROJECT MANAGEMENT
- SW DEVELOPMENT PROCESS

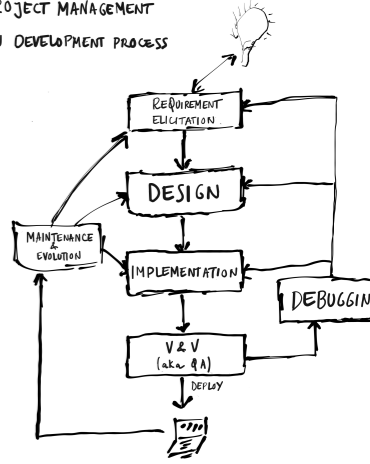


Software Process

systematic and disciplined
approaches to language transformation

and

- PROJECT MANAGEMENT
- SW DEVELOPMENT PROCESS



Project Management

because software development is complex

Software Process

Can be decomposed into stages/phases, and activities.

macro
management

Stages

milestones

Activities

Requirements engineering

Software design and implementation

Software validation

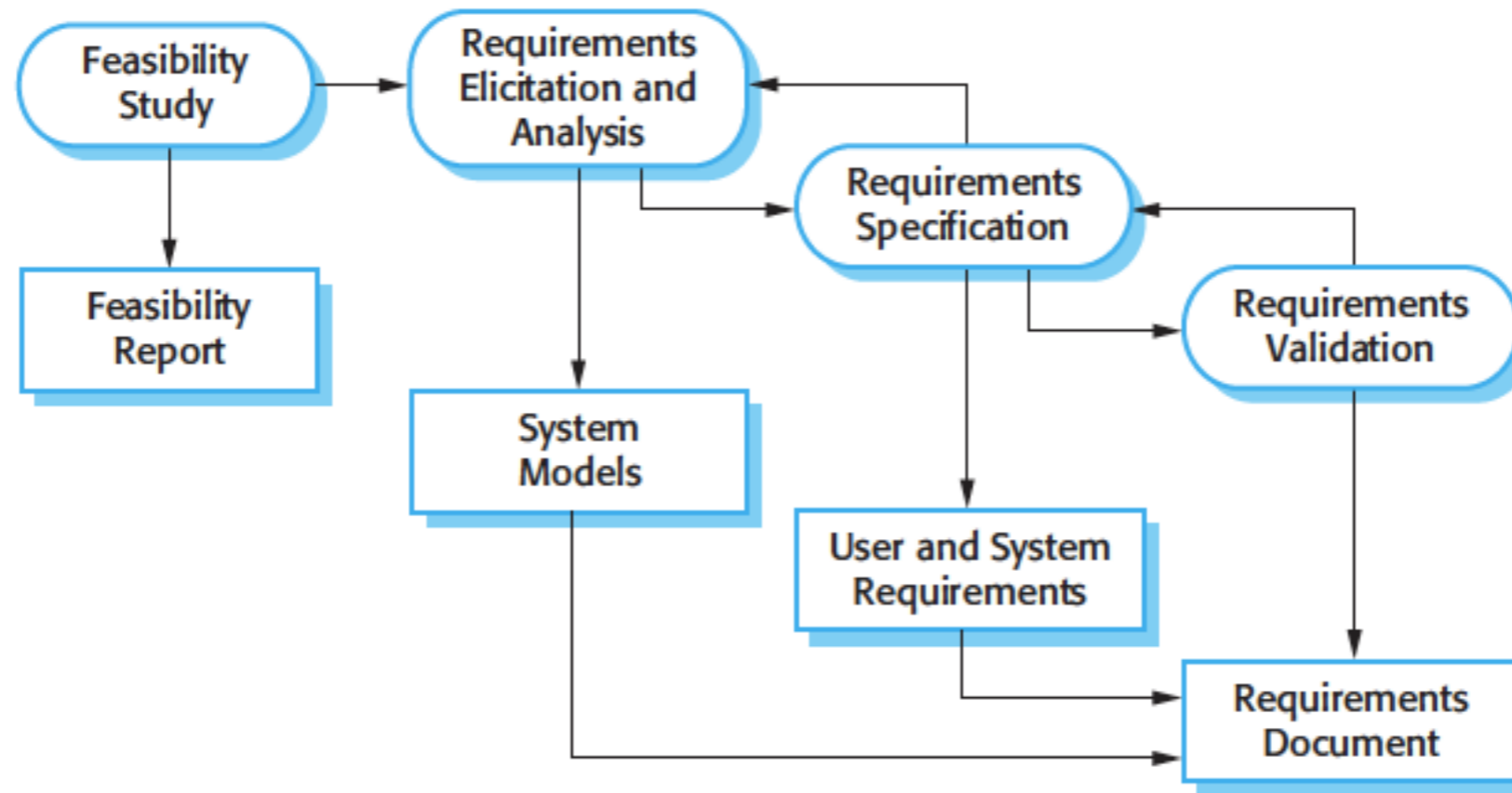
Software evolution

Products

result of activities

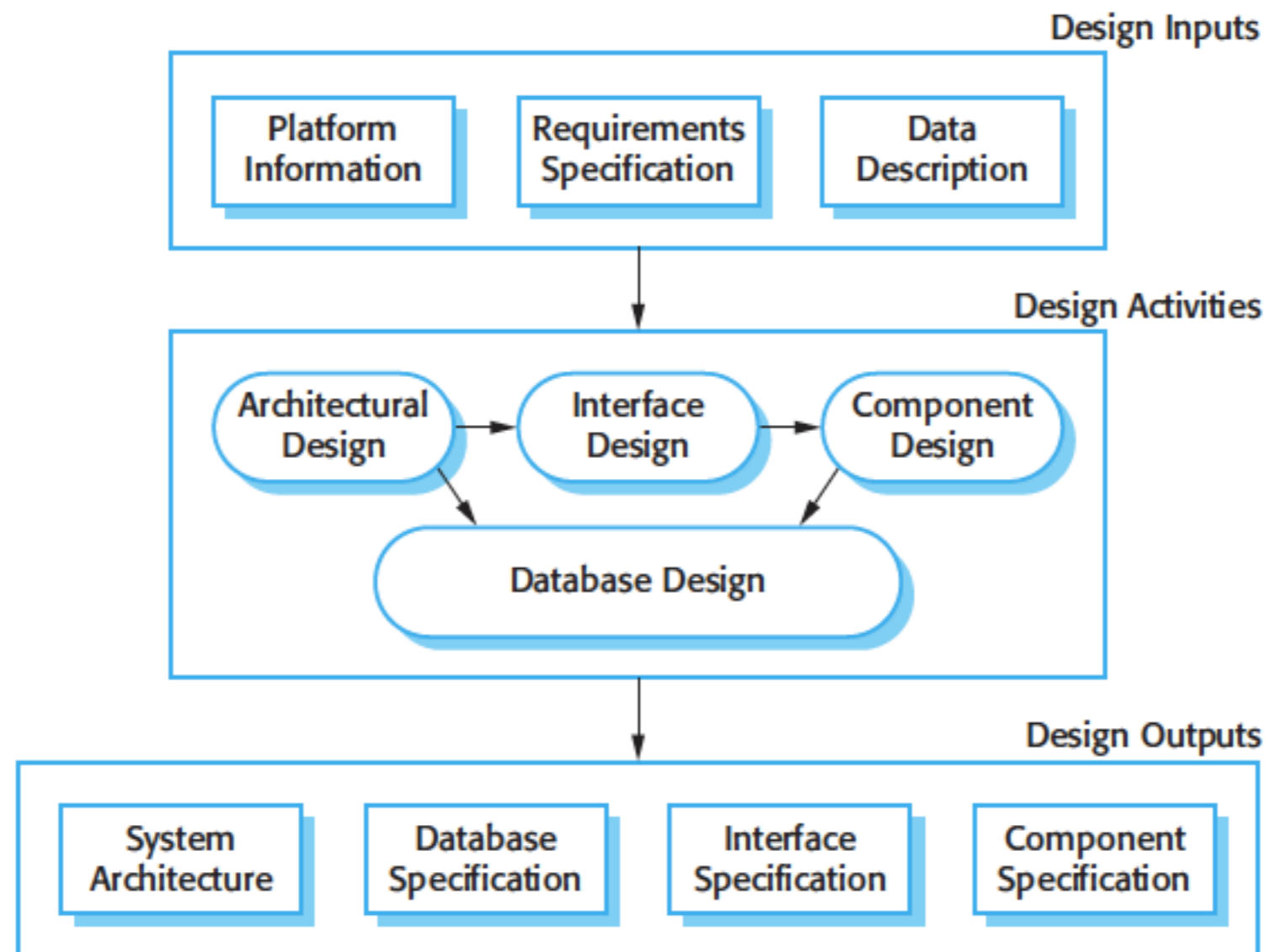
Process Activities

Requirements Engineering



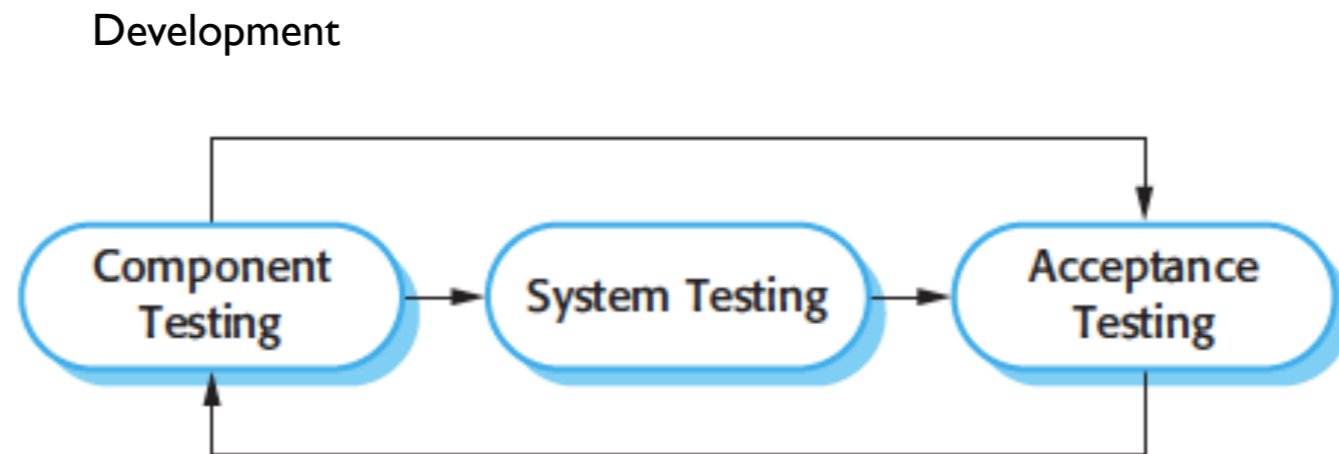
(Fig 2.4, Sommerville)

Software Design and Implementation

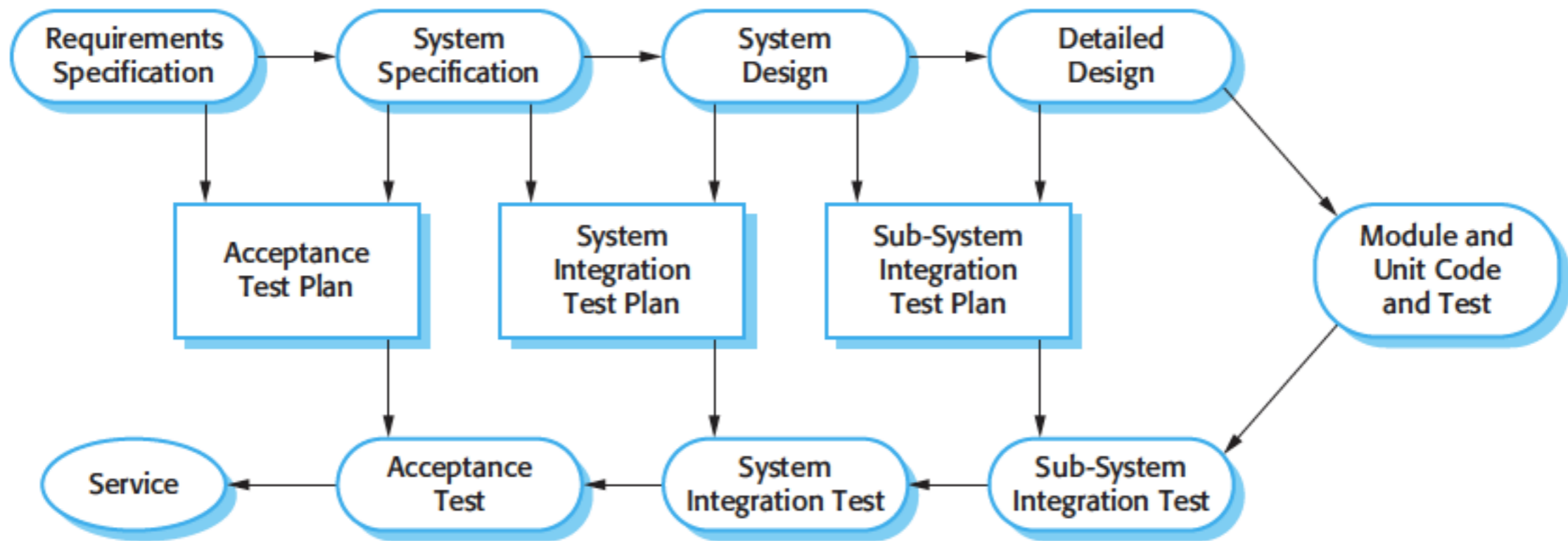


(Fig 2.5, Sommerville)

Software Validation



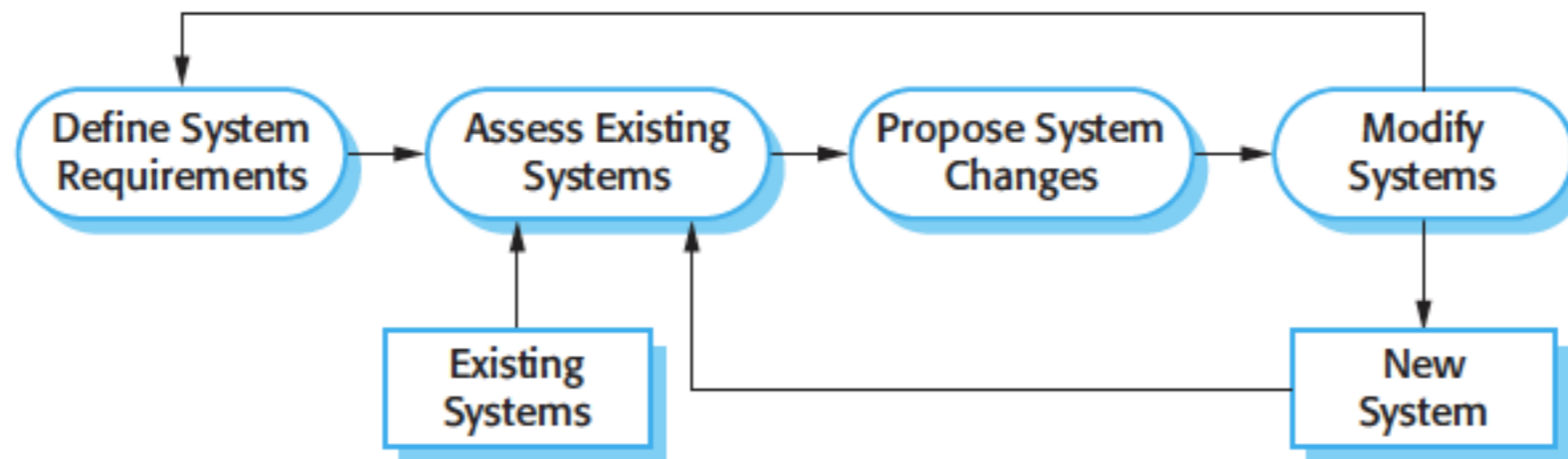
(Fig 2.6, Sommerville)



how was in the project?

(Fig 2.7, Sommerville)

System Evolution



(Fig 2.8, Sommerville)

Requirements Change

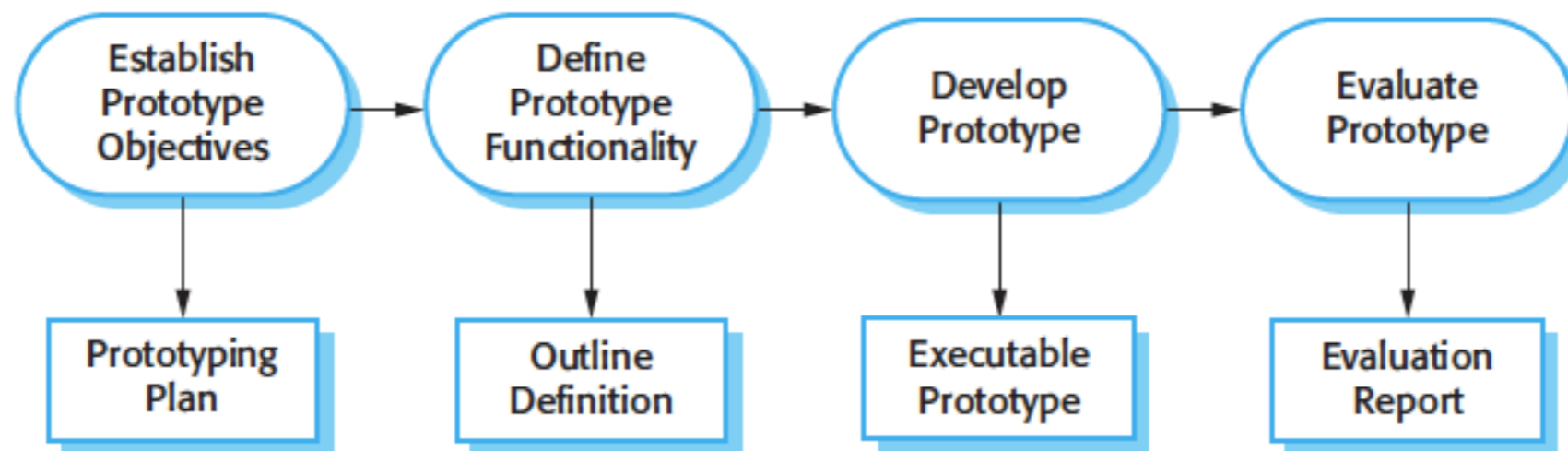
change avoidance

system prototyping

change tolerance

incremental delivery

System Prototyping



(Fig 2.9, Sommerville)

Incremental Delivery

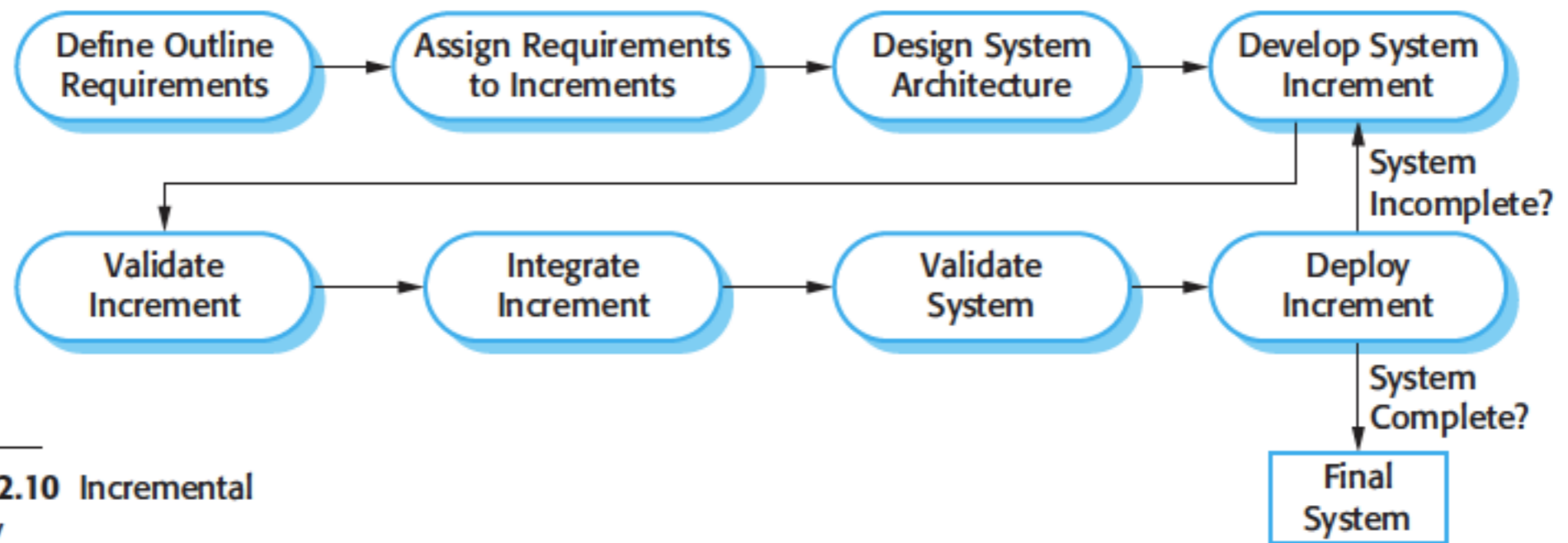


Figure 2.10 Incremental delivery

(Fig 2.10, Sommerville)