Chap 3: Requirements Engineering

REQUIREMENTS

What is requirements?

The establishing the services that the customer requires from a system

The descriptions of:

- the system devices (functional requirements)
- and constrains (non-functional requirements)

Types of Requirements

- Requirements definition

A statement in natural language plus diagram of the services and its operational constraints → for customers

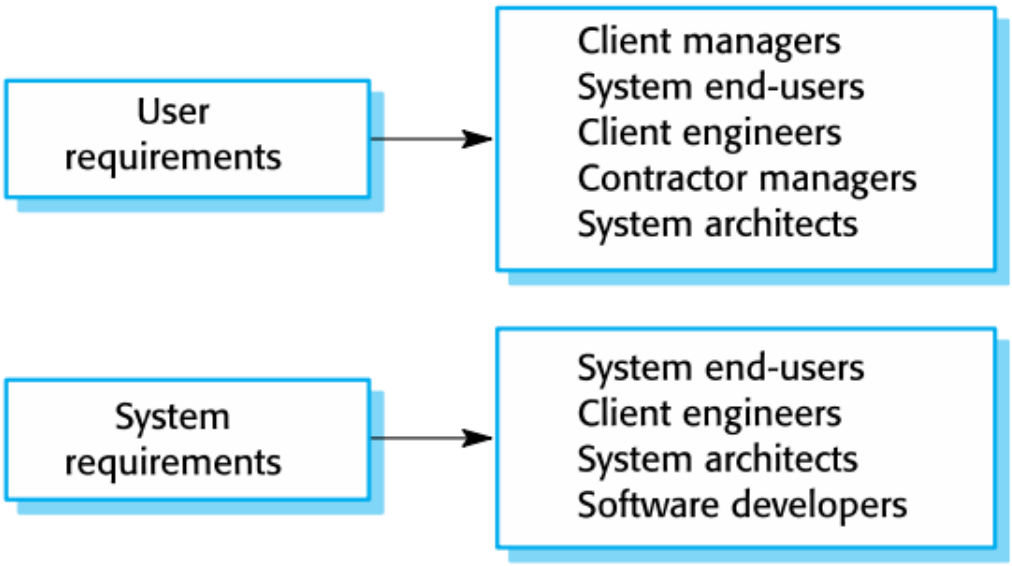
- Requirements specification

A structured document setting out detailed descriptions of the system services → a contract between client and contractor

- Software specification

A detailed software description → can serve a basis for a design or implementation → for developers

Reader of different types of requirements specification



System stakeholders

Any person or organization who is affect by the systemin someway and who has a legitimate interest

- End users
- System managers
- System owners
- External stakeholders

Agile methods and requirements

Agile methods argue: producing detailed system requirements → waste of time because the requirements change quickly → the document out of date.

Usually use increment requirements engineering and express requirement → **user stories** (the wish of users: they want to have this operations to do that thing)

Practical for business systems but problematic for 1 require pre-delivery analysis or developed by several

FUNCTIONAL AND NON-FUNCTIONAL REQUIREMENTS

Functional and Non-Functional requirements

Functional requirements: ask the system to create a function to solve problem

- Statement of services the system should provide, react, behave
- May state what the system should not do

Non-Functional requirements: don't ask the system, exp: work from 8-6, only accept password have more than 8 keywords

- Constraints on the services or functions offered by the system
- Often apply to the system as a whole rather than individual features or services

Domain requirements:

- Constraints on the system from the domain of requirements

Functional Requirements

Describe functionally or system devices

- Maybe high-level statements
- Should describe the system services in detailed

Non-Functional Requirements

Define system properties and constraints

- Properties: reliability, response time and storage requirements
- Constraints: I/O device capability, system presentations

maybe more critical then the FR → system gonna useless if they not meet

NFR Implementation

NFR may affect the overall architecture of a system.

A single NFR:

- generate a number of related functional requirements
- and may also generate requirements that restrict existing requirements

NF CLASSIFICATIONS

Product requirements

Requirements which specify that the delivered product must behave in a particular way e.g. execution speed, reliability, etc.

Organisational requirements

Requirements which are a consequence of organisational policies and procedures e.g. process standards used, implementation requirements, etc.

External requirements

Requirements which arise from factors which are external to the system and its development process e.g. interoperability requirements, legislative requirements, etc.

What is the good REQUIREMENTS?

- Precise/ Unambiguous
- Complete
- Consistent
- Correct
- Testable
- Ranked for importance and/or stability

Goal vs Requirements

Goal:

- A general intention of the user such as ease of use

Requirements:

- Concrete

- Measureable
- Testable