2.2 Functional, non-functional and domain requirements

Functional requirements

- Statements of services that the system should provide, how the system should react to particular inputs and how the system should behave in particular situations

Non-functional requirements

- Constraints on the services or functions offered by the system such as timing constraints, constraints on the development process, standards, etc.

Domain requirements

- Requirements that come from the application domain of the system that reflect the characteristics of that domain
- May be functional or non-functional

2.2.1 Functional requirements

- Describe functionality or system services
- Depend on the type of software, expected users and the type of system where the software is used
- Functional user requirements may be high-level statements of what the system should do; functional system requirements should describe the system services in detail

Examples

- The user shall be able to search either all of the initial set of databases or select a subset from it
- The system shall provide appropriate viewers for the user to read documents in the document store
- Every order shall be allocated a unique identifier (ORDER_ID) which the user shall be able to copy to the account's permanent storage area

2.2.2 Non-functional requirements

- 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.*

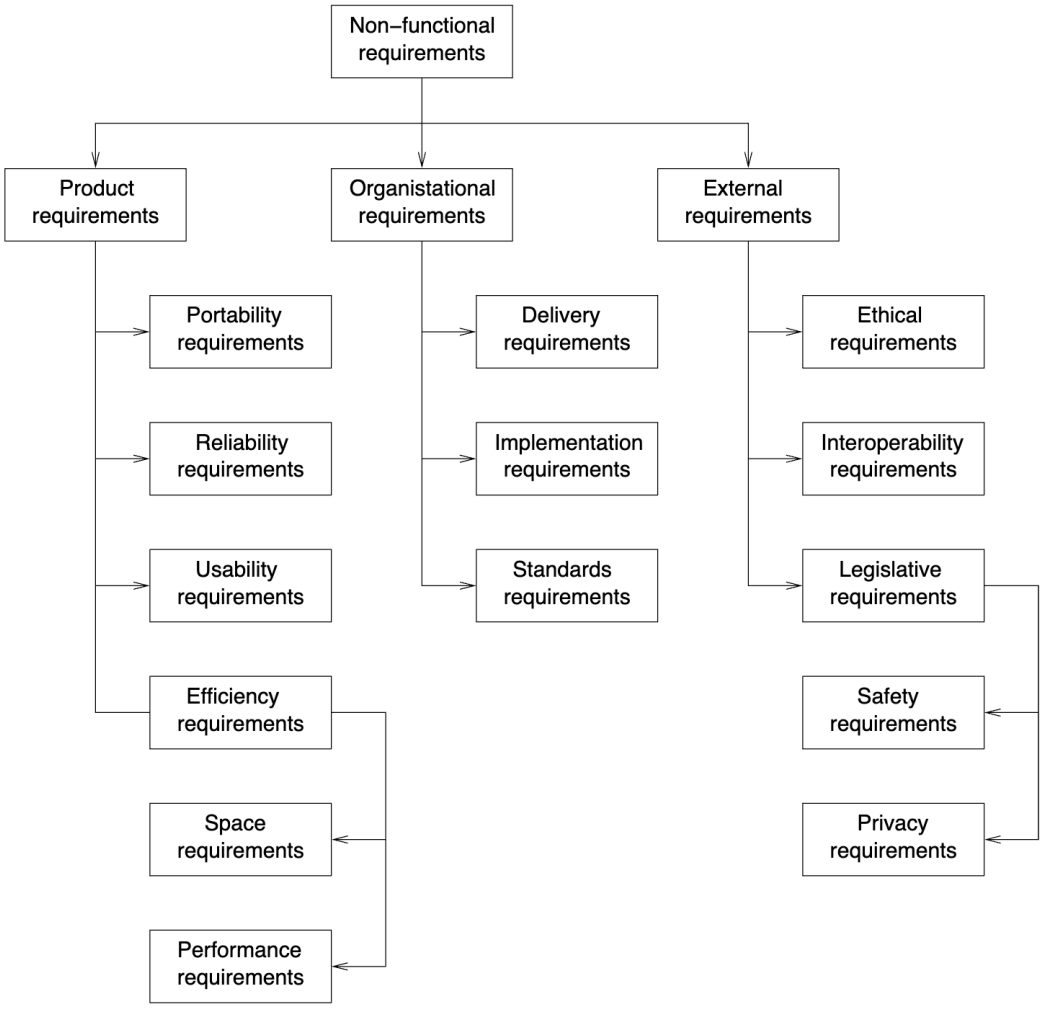

Figure 2.1: Non-functional Requirements

2.2.3 Domain requirements

- Describe system characteristics and features that reflect the domain
- May be new functional requirements, constraints on existing requirements or may define specific computations
- If domain requirements are not satisfied, the system may be unworkble

Example: Library system

Property	**Measure**
Speed	Processed transactions/s User/Event response time Screen refresh time
Size	Kbytes Number of RAM chips
Ease of Use	Training time Number of help frames
Reliability	Mean time to failure Probability of unavailability Rate of failure occurrence Availability
Robustness	% events causing failure Time to restart after failure Probability of data corruption on failure
Portability	% target system dependent statements Number of target systems

Figure 2.2: Metrics for non-functional requirements

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