

Softgoals and Quality Requirements

Group 2

Presented by

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Agenda

- Introduction
- The NFR framework
- A risk-based, value-oriented approach to quality requirements

Goals

- Knowing the goals of an organization (or for a product) is important when specifying a system to be developed
- Usage:
 - Requirements Acquisition (KAOS)
 - Relating Requirements to Organizational and Business Context
 - Clarifying Requirements
 - Dealing with Conflicts
 - Driving Design

Goal-Oriented RE

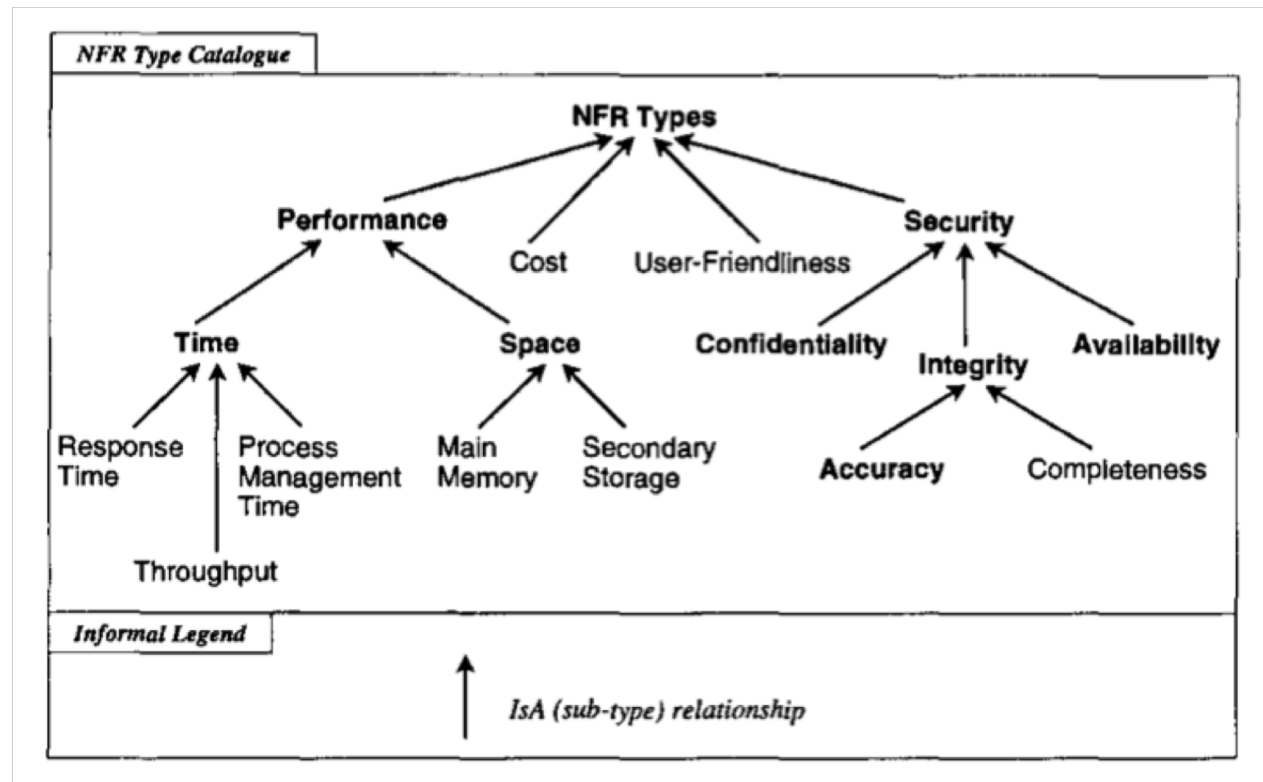
- Main parts:
 - Goals - prescriptive statement that the system should satisfy
 - Agents - active system playing a specific role in goal satisfaction



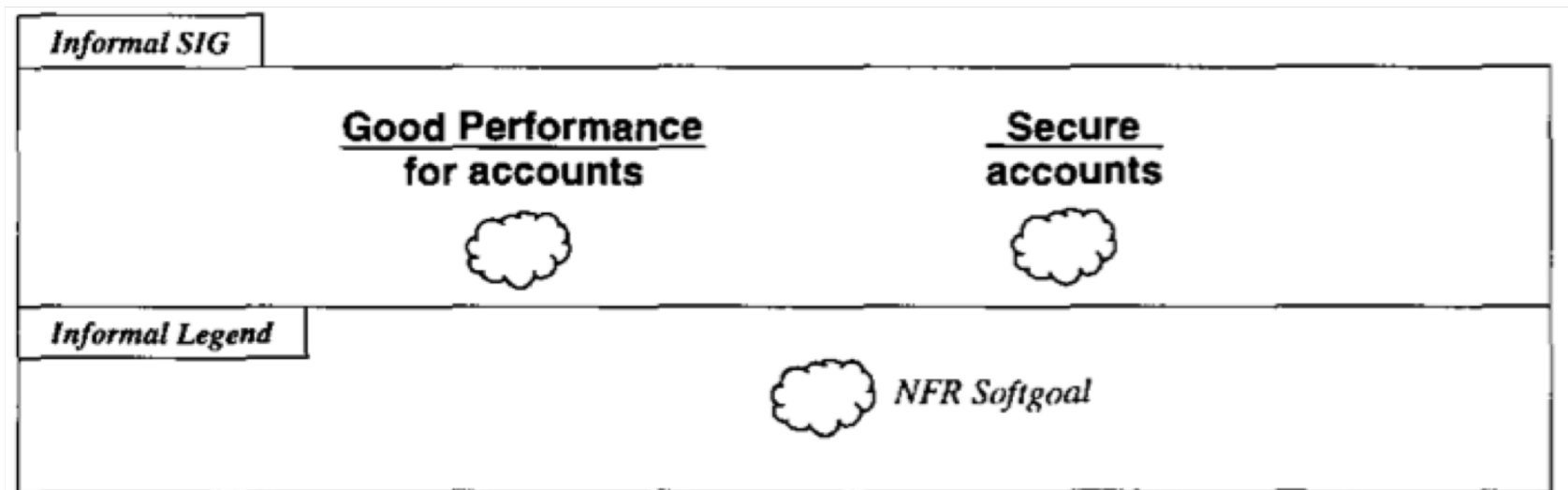
The NFR framework in action

- Uses nonfunctional requirements such as security, accuracy, performance
- Constructs an initial soft-goal interdependency graph by identifying the main non-functional requirements

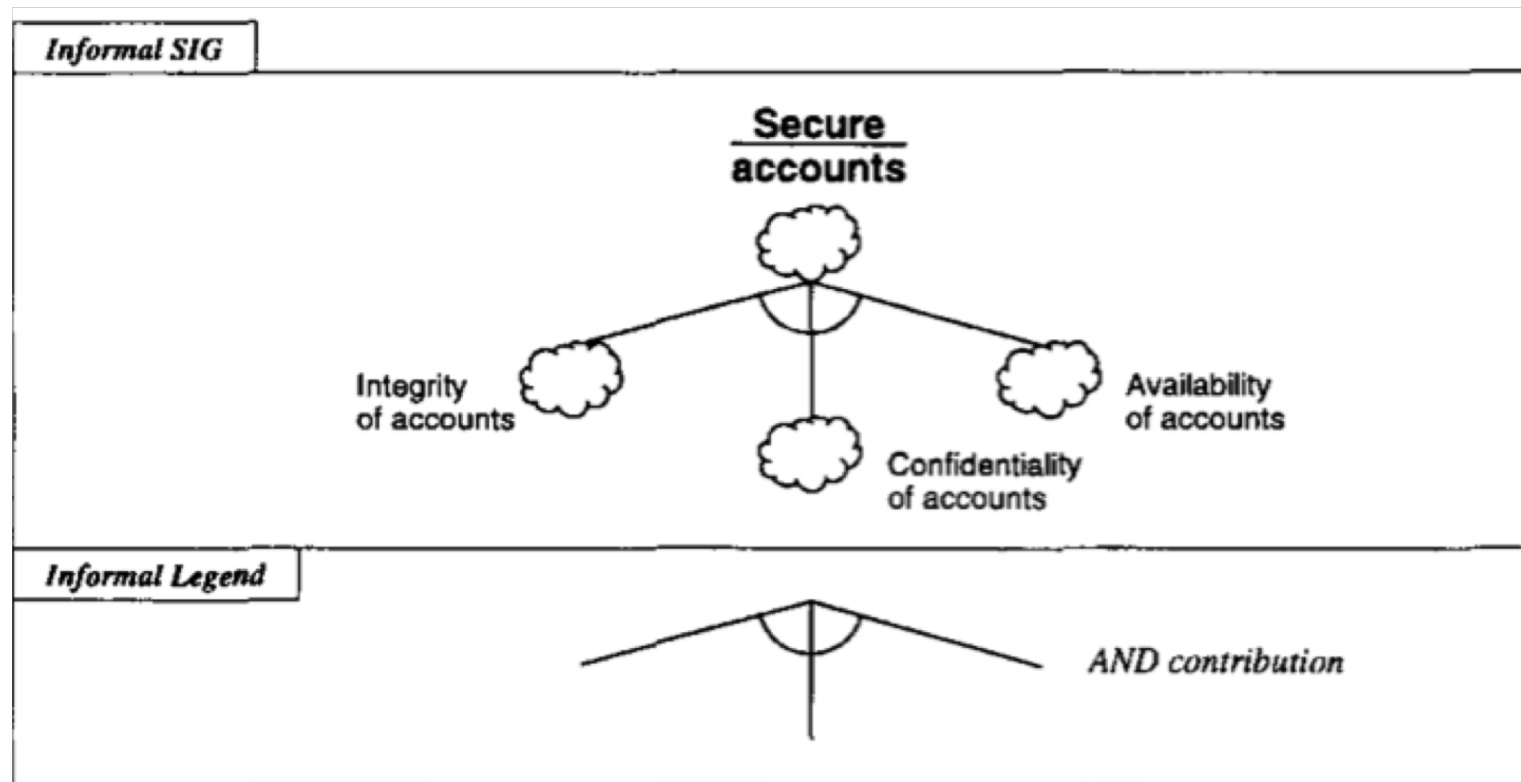
NFR types



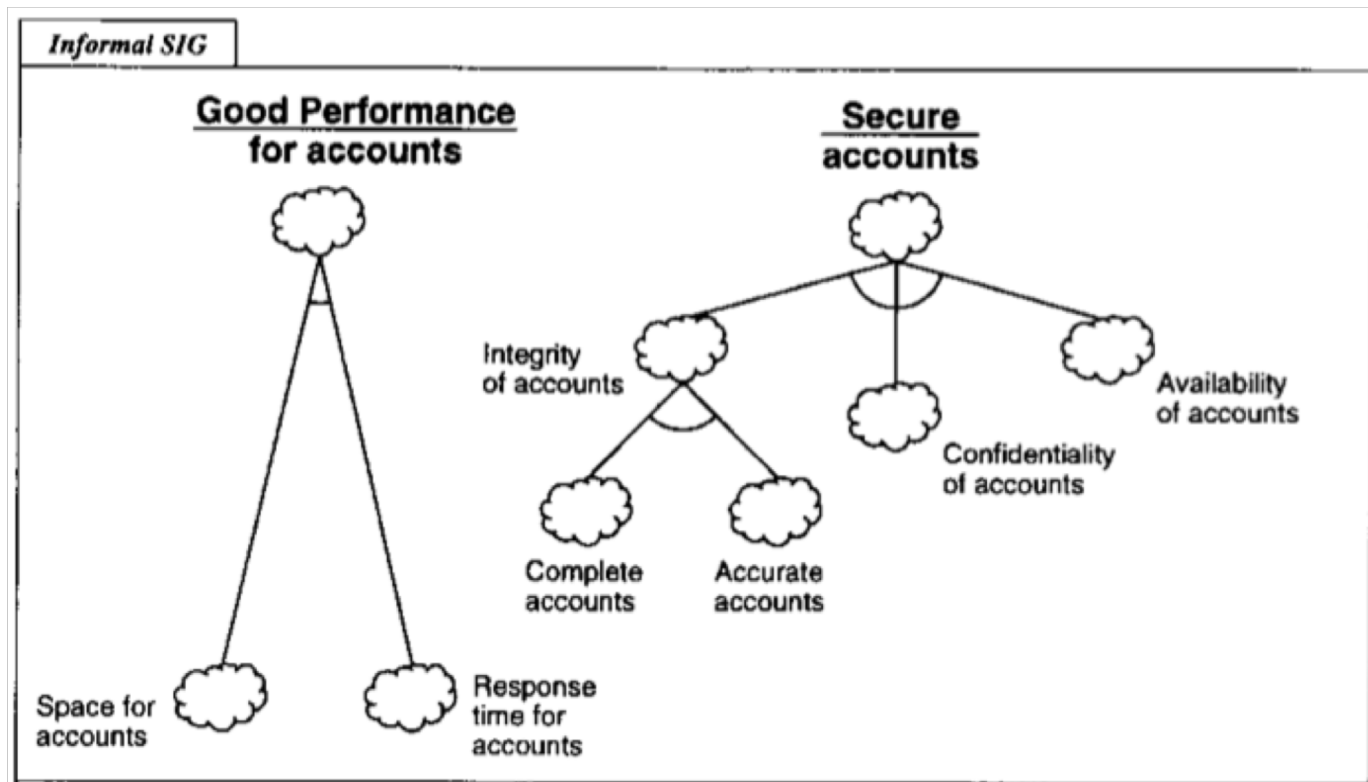
Identifying NFRs



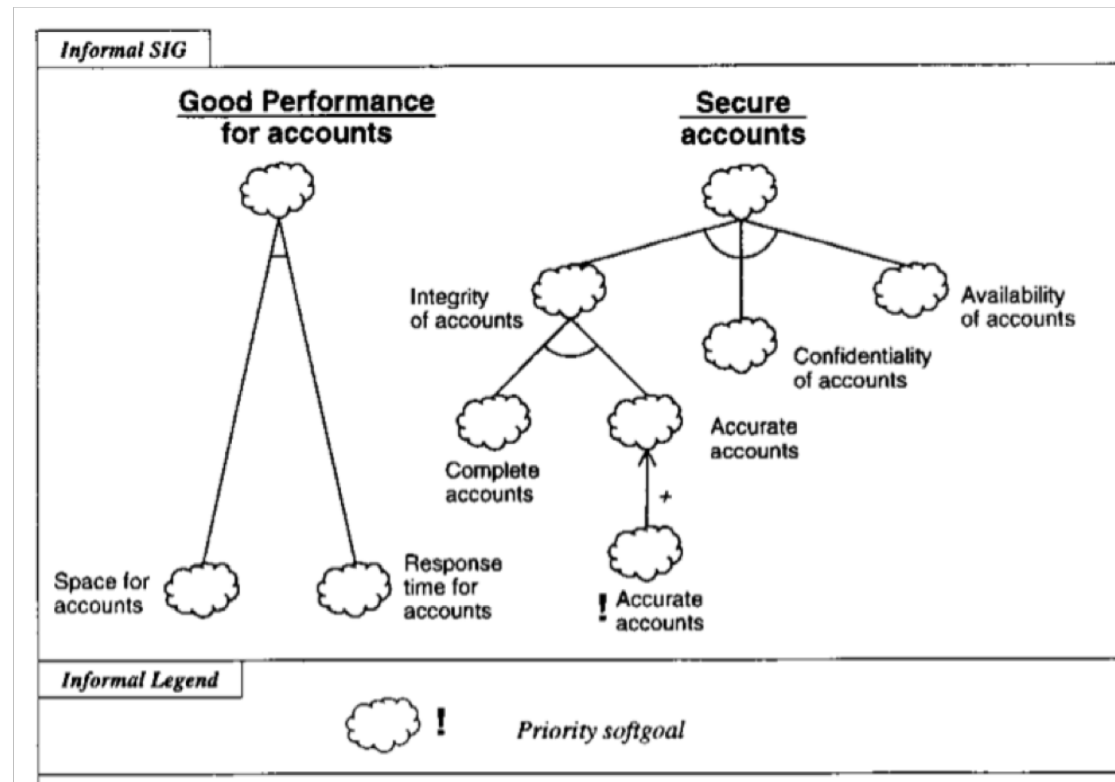
Decomposing NFRs



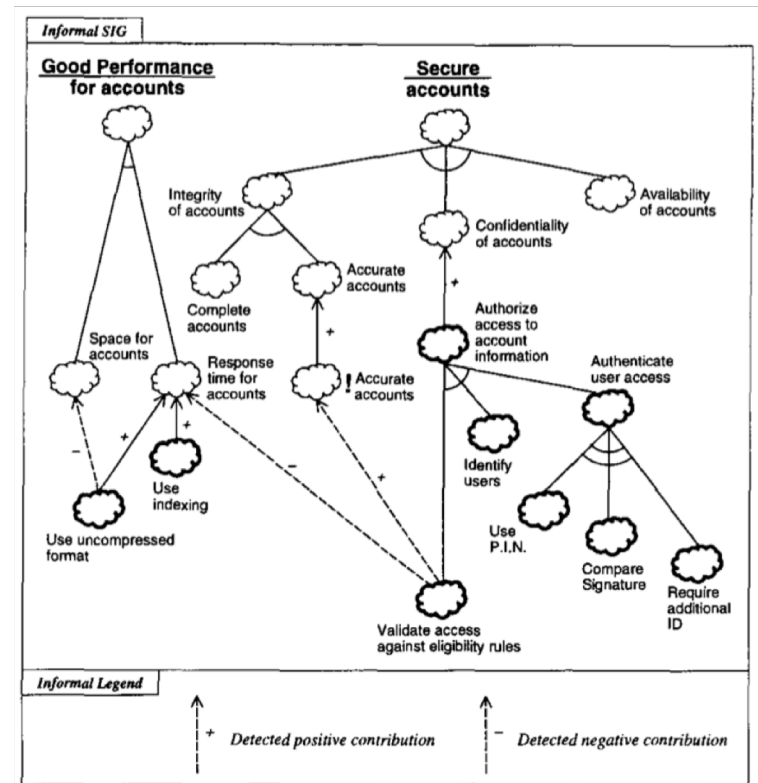
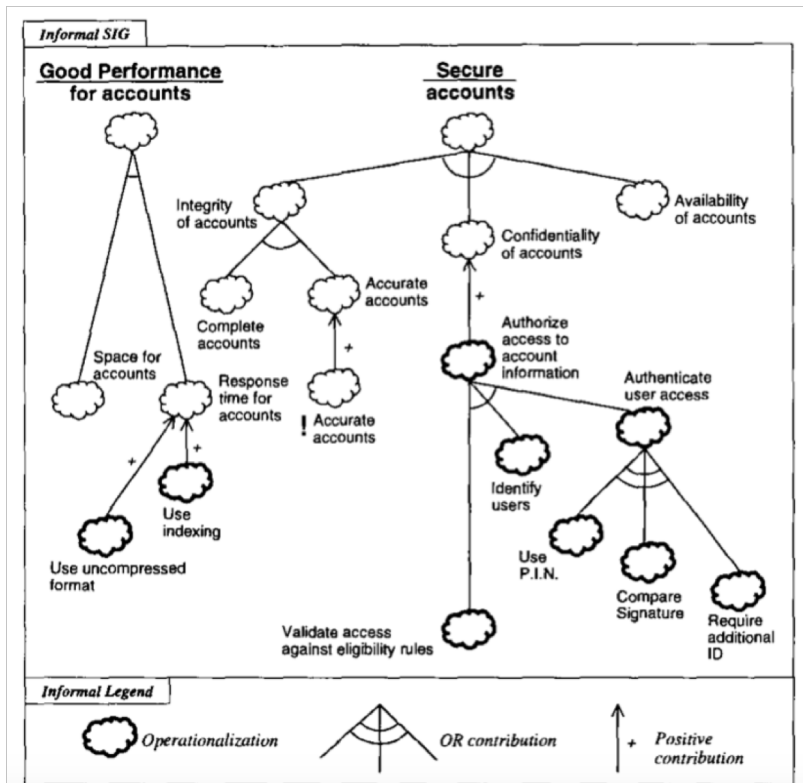
Decomposing NFRs



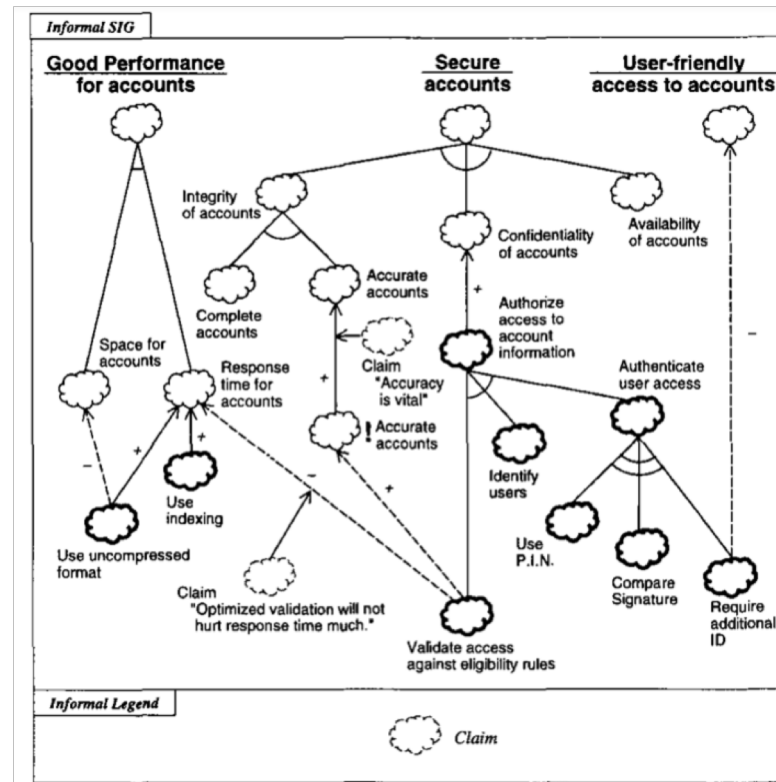
Prioritization



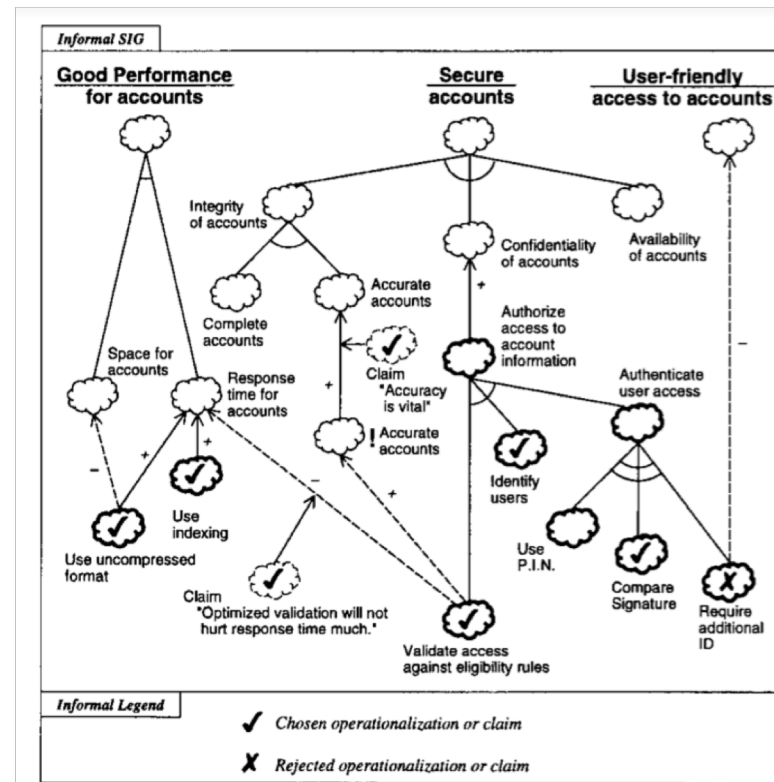
Identifying Operationalization



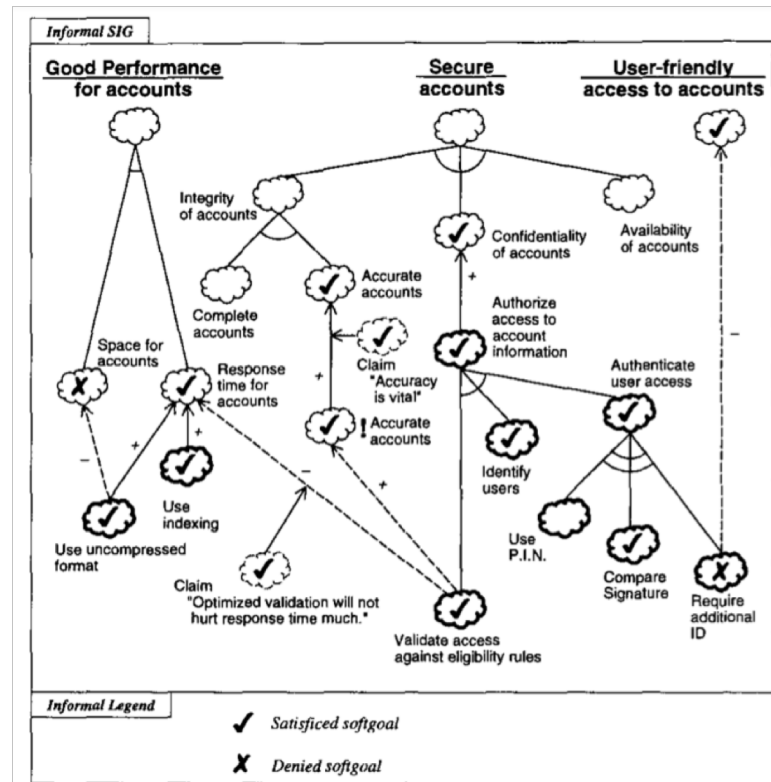
Interdependency



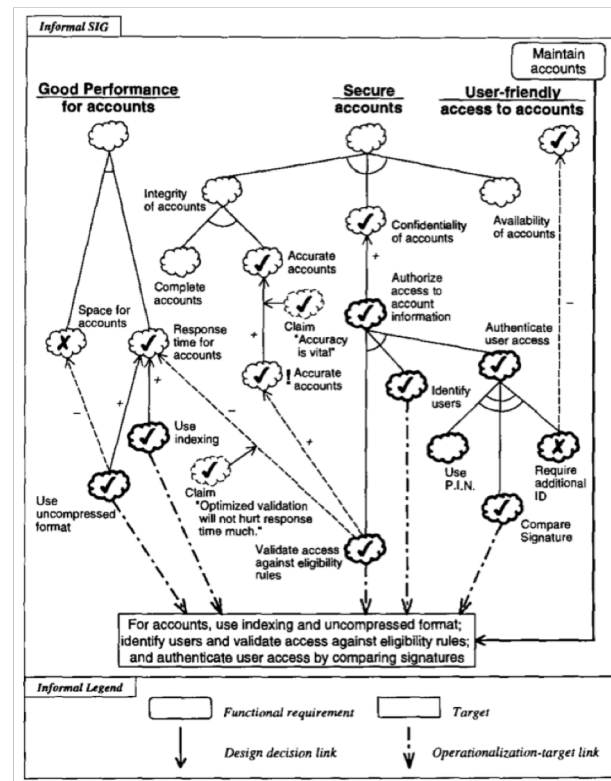
Selecting among alternatives



Evaluation of decision impact



Relating functional requirements to NFRs



Quality requirements

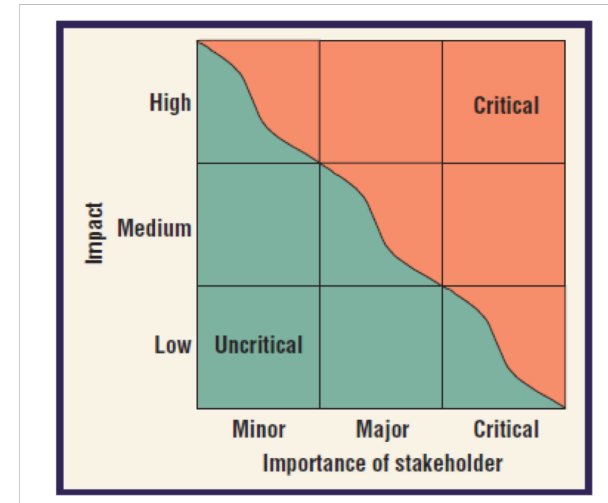
- Ambiguous
- Difficult to verify
- Problems:
 - Deployed system delivers less than the stakeholders expect
 - Deployed system delivers more than the stakeholders need
 - Disagreement whether the delivered system meets a given quality requirements
- Solutions?

Quantification

- Quantification means defining metrics that make a requirement measurable
- Quality requirements - directly measurable or metric does not exist.
- Advantage:
 - unambiguous and verifiable requirements
- Disadvantage:
 - time consuming and expensive

Another perspective

- Requirements should deliver value
- Risk assessment is the key means to determine how a given quality requirement should be represented.
- Critical-> quantification of the requirement
- Uncritical -> no need to specify



The range of adequate quality requirements representation

Table 1

The range of adequate quality requirements representation

Situation	Adequate representation	Verification technique
1. Implicit shared understanding among stakeholders and developers	Omission	Implicit
2. Need to state a general quality direction explicitly but trusting that the supplier will get the details right on this basis	Qualitative	Inspection
3. Involved parties have sufficient shared understanding to generalize properly from examples	By example	Inspection; may be some measurement
4. High risk of not meeting stakeholders' desires and needs adequately	Quantitative in full	Measurement
5. Somewhere between situations 2 and 4	Qualitative with partial quantification	Inspection and partial measurement

