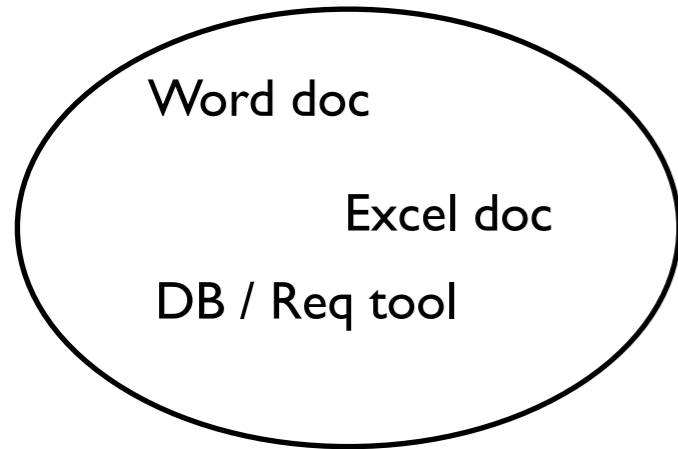


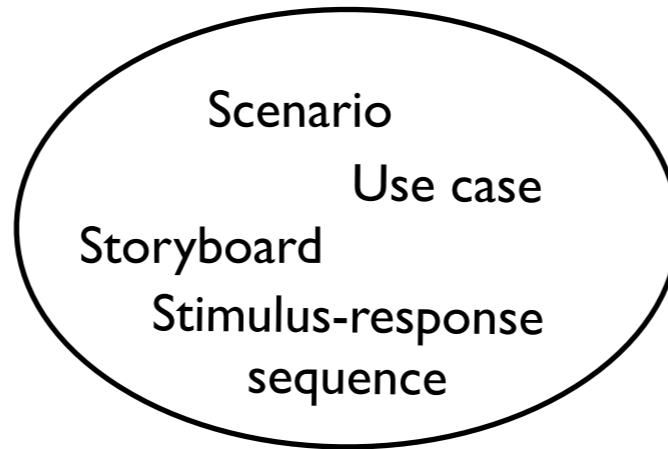
# Quality Requirements

Lectures 5, DAT230, Requirements Engineering  
Robert Feldt, 2012-09-13

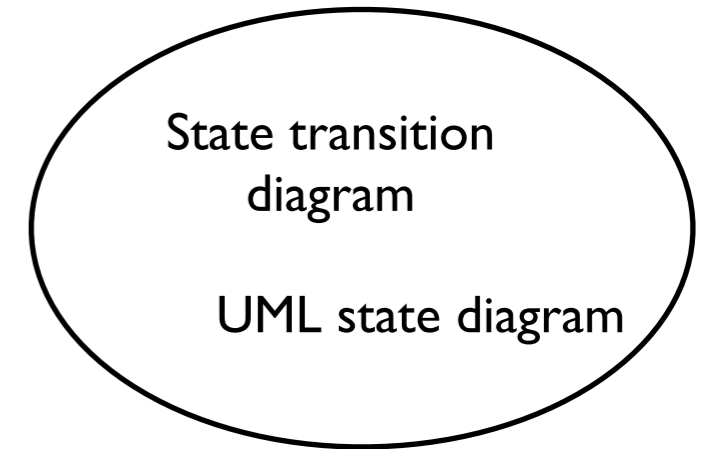
# Specification Techniques



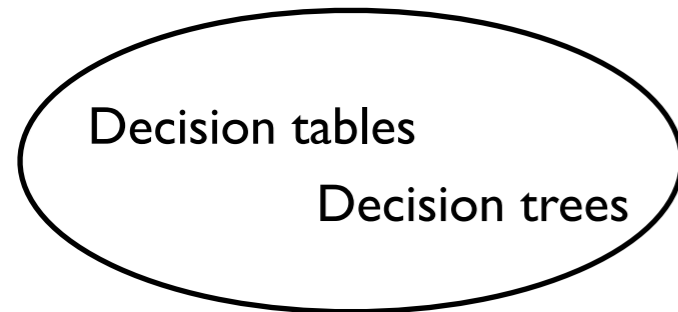
**Text**



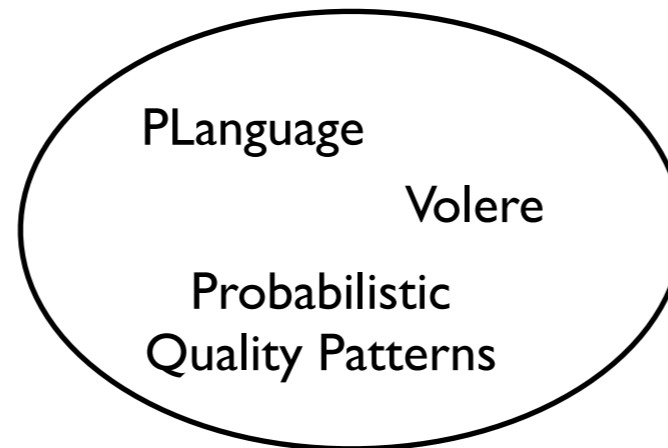
**Interaction- /  
Sequence-based**



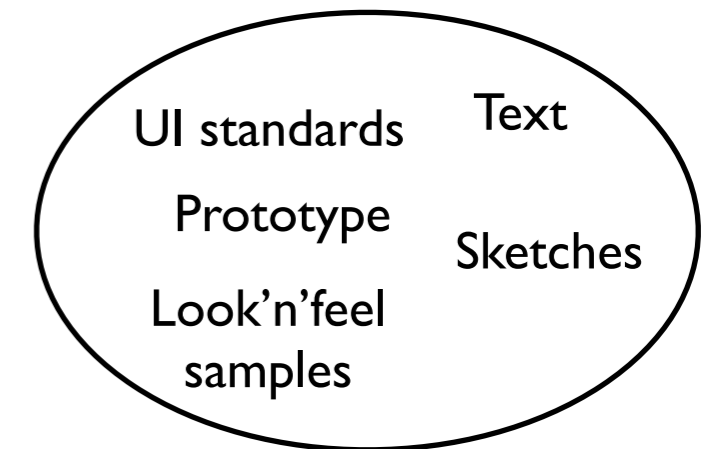
**State-based**



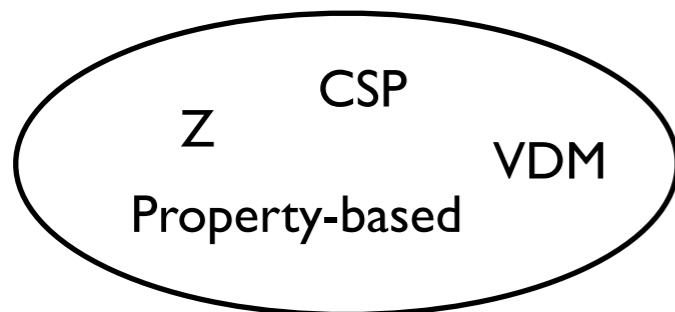
**Decision-based**



**Quality  
Requirements**



**User  
Interfaces**



**Formal**

# Non-functional reqs - customer importance?

<b>NFR type</b>	<b>Avg. weight (of 100)</b>	<b>Std.dev.</b>
Usability	23.21	+/- 13.7
Reliability / security	22.79	+/- 10.6
Performance	22.44	+/- 9.4
Stability / Robustness	19.87	+/- 11.5
Maintainability	11.69	+/- 7.1

149 answers from Swedish industry, Spring 2009

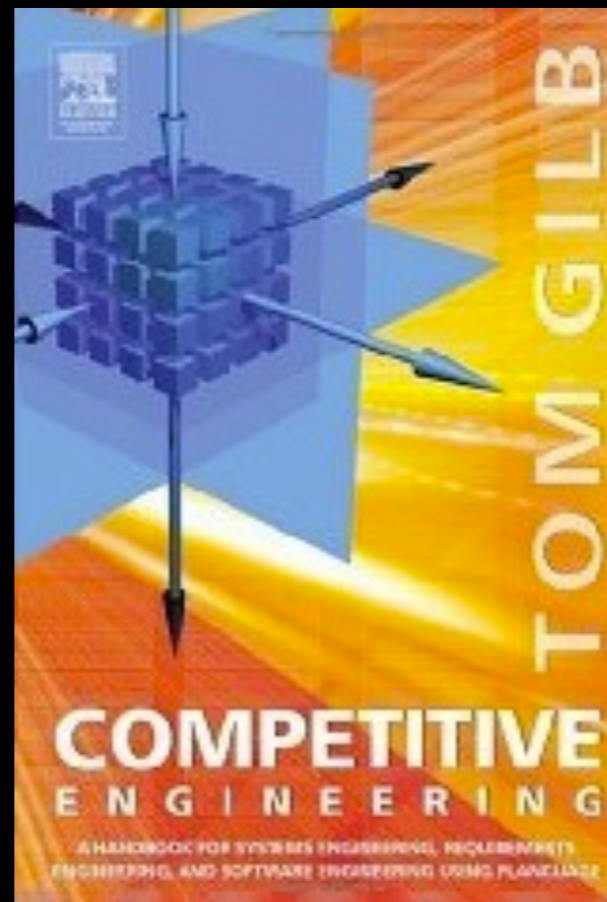


**Figure 1. The ISO/IEC 9126 quality model.**

model systems that comprise communicating com- requirements. The obvious choice was the ISO 9126

# PLanguage

- Keyword-based specification language for requirements
- Developed by Tom Gilb, famous SE consultant
- Used in many large corporations
- Often for Quality Requirements: focus on quantification



# PLanguage Keywords

<b>TAG</b>	A unique, persistent identifier
<b>GIST</b>	A short, simple description of the concept contained in the Planguage statement
<b>STAKEHOLDER</b>	A party materially affected by the requirement
<b>SCALE</b>	The scale of measure used to quantify the statement
<b>METER</b>	The process or device used to establish location on a SCALE
<b>MUST</b>	The minimum level required to avoid failure
<b>PLAN</b>	The level at which good success can be claimed
<b>STRETCH</b>	A stretch goal if everything goes perfectly
<b>WISH</b>	A desirable level of achievement that may not be attainable through available means
<b>PAST</b>	An expression of previous results for comparison
<b>TREND</b>	An historical range or extrapolation of data
<b>RECORD</b>	The best-known achievement
<b>DEFINED</b>	The official definition of a term
<b>AUTHORITY</b>	The person, group, or level of authorization

**Table 2: Sub-keywords for the METER Keyword**

<b>METHOD</b>	The method for measuring to determine a point on the Scale
<b>FREQUENCY</b>	The frequency at which measurements will be taken
<b>SOURCE</b>	The people or department responsible for making the measurement
<b>REPORT</b>	Where and when the measurement is to be reported

# PLanguage - Additional

- Fuzzy: <fuzzy concepts>
- Qualifiers/Modifiers: Keyword [Qualifier1, Qualifier2, ...]
- Collections: {item1, item2, ...}
- Source for statement: Statement <- source

# PLanguage example

*NatLang: "The system must be easy to learn"*



*StructEnglish: "The system must be used successfully to place an order in under 10 minutes without assistance by at least 80% of test subjects with no previous system experience."*



# PLanguage example

*NatLang: "The system must be easy to learn"*



**Tag:** Learnable

**Gist:** Ease of learning to use system

**Scale:** Time for Novice to complete a 1-item order using only online help system

**Meter:** Measurements on 100 novices during UI testing

**Must:** <7 minutes 80% of the time

**Plan:** <5 minutes 80% of the time

**Wish:** <3 minutes 100% of the time

**Past [old system]:** 11 minutes <- recent site statistics

**Novice: Defined:** A person with <6 months experience with Web applications and no prior exposure to our web application

# Don't mix Scale & Meter!



# NFRs in Volere



<http://www.volere.co.uk/>

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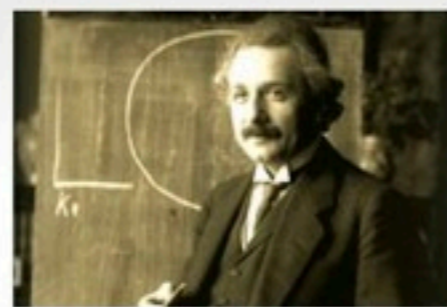
**Volere** (Voh-lair-ray) the Italian verb to want, or to wish.

This is the home of the **Volere Requirements Specification Template** and other **requirements and business analysis resources**. Volere is the umbrella that covers the collection of requirements templates, processes, books, consulting and training. Since its inception, Volere has been used by thousands of organizations around the world. **Read what some of them have to say.**

We offer **courses** including the flagship **Mastering the Requirements Process**, **specification and requirements reviews**, **requirements process design**, and **consulting** to make you better at requirements and business analysis.

Available downloads are the **Volere Requirements Specification Template**, **Stakeholder Analysis**, **Prioritisation Analysis** and the **Atomic Requirement Template**, or as it is more popularly known, the Snow Card. Most content is free with registration.

The Volere process provides a well-defined structure and guides as to which requirements content is appropriate for you. The process and template work with existing tools (Caliber, DOORS, Requisite, IRqA, etc.) and methods including agile methods. Volere is applicable to modeling techniques such as UML, business process, data and state models. The process is based on experience from worldwide business analysis projects, and is continually improved with input from our users.





## News and Updates


**August 2011**


A new article **Simplicity and Requirements** by Suzanne Robertson has been posted.

## Volere Events

 Brussels, September 13,14. Suzanne Robertson teaches the advanced **Mastering the Requirements Process part 2**. Please contact **IT Works** for details. **Sorry, this course is now full.**

 Brussels, October 3-5. James Robertson teaches **Mastering the Requirements Process**. Please contact **IT Works** for details.

 Bonn, October 10-12. The Atlantic Systems Guild presents the **Guild Way towards Great Projects**. **Registrations at SIGS-DATACOM.**

 London, October 17-19. James Robertson teaches **Mastering the Requirements Process**. For more information on this popular course, contact **IRM UK**.

 The Netherlands, October 24-26. James Robertson teaches **Mastering the Requirements Process**. For details and registration, please contact **Array Seminars**.

# Volere

## Requirements Specification Template

**Edition 15—March 2010**

by James & Suzanne Robertson  
principals of the Atlantic Systems Guild

The Volere Requirements Specification Template is intended for use as a basis for your requirements specifications. The template provides sections for each of the requirements types appropriate to today's software systems. You may download the template from the Volere site and adapt it to your requirements gathering process and requirements tool. The template can be used with Requisite, DOORS, Caliber RM, IRqA and other popular tools see <http://www.volere.co.uk/tools.htm>

## Contents

### Project Drivers

1. The Purpose of the Project
2. The Stakeholders

### Project Constraints

3. Mandated Constraints
4. Naming Conventions and Terminology
5. Relevant Facts and Assumptions

### Functional Requirements

6. The Scope of the Work
7. Business Data Model & Data Dictionary
8. The Scope of the Product
9. Functional Requirements

### Non-functional Requirements

10. Look and Feel Requirements
11. Usability and Humanity Requirements
12. Performance Requirements
13. Operational and Environmental Requirements
14. Maintainability and Support Requirements
15. Security Requirements
16. Cultural and Political Requirements
17. Legal Requirements

### Project Issues

18. Open Issues
19. Off-the-Shelf Solutions
20. New Problems
21. Tasks
22. Migration to the New Product
23. Risks
24. Costs
25. User Documentation and Training
26. Waiting Room
27. Ideas for Solutions

*Functional requirements* are the fundamental or essential subject matter of the product. They describe what the product has to do or what processing actions it must take.

*Non-functional requirements* are the properties that the functions must have, such as performance and usability. Do not be deterred by the unfortunate name for this kind of requirements, they are as important as the functional requirements for the product's success.

*Project constraints* are restrictions on the product due to the budget or the time available to build the product.

*Design constraints* impose restrictions on how the product must be designed. For example, it might have to be implemented in the hand-held device being given to major customers, or it might have to use the existing servers and desktop computers, or any other hardware, software, or business practice.

*Project drivers* are the business-related forces. For example, the purpose of the project is a project driver, as are all of the stakeholders—each for different reasons.

*Project issues* define the conditions under which the project will be done. Our reason for including them as part of the requirements is to present a coherent picture of all factors that contribute to the success or failure of the project and to illustrate how managers can use requirements as input when managing a project.

# Volere NFRs

- **Look & Feel** - Appearance, Style
- **Usability** - Ease of Use, Personalization/  
Internationalization, Learning, Understandability, Accessibility
- **Performance** - Speed & Latency, Safety, Precision/  
Accuracy, Reliability, Robustness, Capacity, Scalability, Longevity
- **Operational** - Environment, Adjacent systems,  
Productization, Release
- **Maintainability** - Maintenance, Supportability,  
Adaptability
- **Security** - Accessability, Integrity, Privacy, Audit, Immunity
- **Cultural & Legal**