

Systems Development

Requirements Specification

<http://lbgeeks.com/gitc/systemsSpec.php>

March 19, 2007

- **Requirements And Sub Phases**
- **Requirements Specification Goals**
- **Taxonomy**
- **Capture Methods**
- **Needs Translation**
- **Specification**
- **Remaining Schedule**

Requirements And Sub Phases

- **For this course, we split requirements into:**
 - Needs assessment
 - Requirements specification
 - Requirements analysis
- **Customer interaction goes from high to low**
- **Each sub phase addresses different results:**
 - Determining what system should do
 - Defining features objectively
 - Checking for completeness, correctness
- **Without all three results, we cannot design!**

Requirements Specification Goals

- **Seeing what we cannot see**
- **Tangible output from intangible elements**
- **Requirements classification taxonomy**
- **Characteristics of correct requirements**
- **Discuss capture models and specifications**

Requirement Taxonomy

- **Application:**
 - **Product**
 - **Program**
- **Class:**
 - **Primary**
 - **Derived**
- **Compliance:**
 - **Mandatory**
 - **Guidance**
 - **Information**

Requirement Taxonomy (Cont)

- **Characteristics:**
 - **Clear**
 - **Measurable**
 - **Modular**
 - **Neutral**
 - **Objective**
- **Type:**
 - **Function**
 - **Interface**
 - **Performance**
 - **Attribute**
 - **Constraint**

- **Primary:**
 - Flow from direct customer statement
 - Obtained during data gathering
 - Explicit
- **Derived:**
 - Follow on from customer statement
 - Needed by other (primary) requirements
 - Implicit
- **Customer involvement:**
 - Usually aware of primary requirements
 - Must approve derived requirements

Application

- **Product requirements apply to the system under development**
 - **Quantitative: directly measurable, perhaps numeric interpretation**
 - **Qualitative: objective but not directly measurable, perhaps statement of function**
 - **Project requirements apply to the development process or team**
 - **Task to be performed, such as a design review**
 - **Compliance, such as ISO 9001**
 - **Regulatory, such as telecommunication law**
 - **Do we have project requirements? Yes!**
 - **Will we need to specify them further? No.**
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- **Mandatory**
 - **System must meet requirement**
 - **Trace back during test phase**
- **Guidance**
 - **Given a choice, follow requirement**
 - **Not rigorously tracked**
- **Information**
 - **Provided as background input to design**
 - **Ignored if harmful**

Characteristics

- **Clear: unambiguous, understood without question**
- **Measurable: testable, verifiable, simple decision if met or not**
- **Modular: modifiable, changing does not impact other requirements**
- **Neutral: no design, what and perhaps why, but no how**
- **Objective: factual, interpretation not subject to judgement**

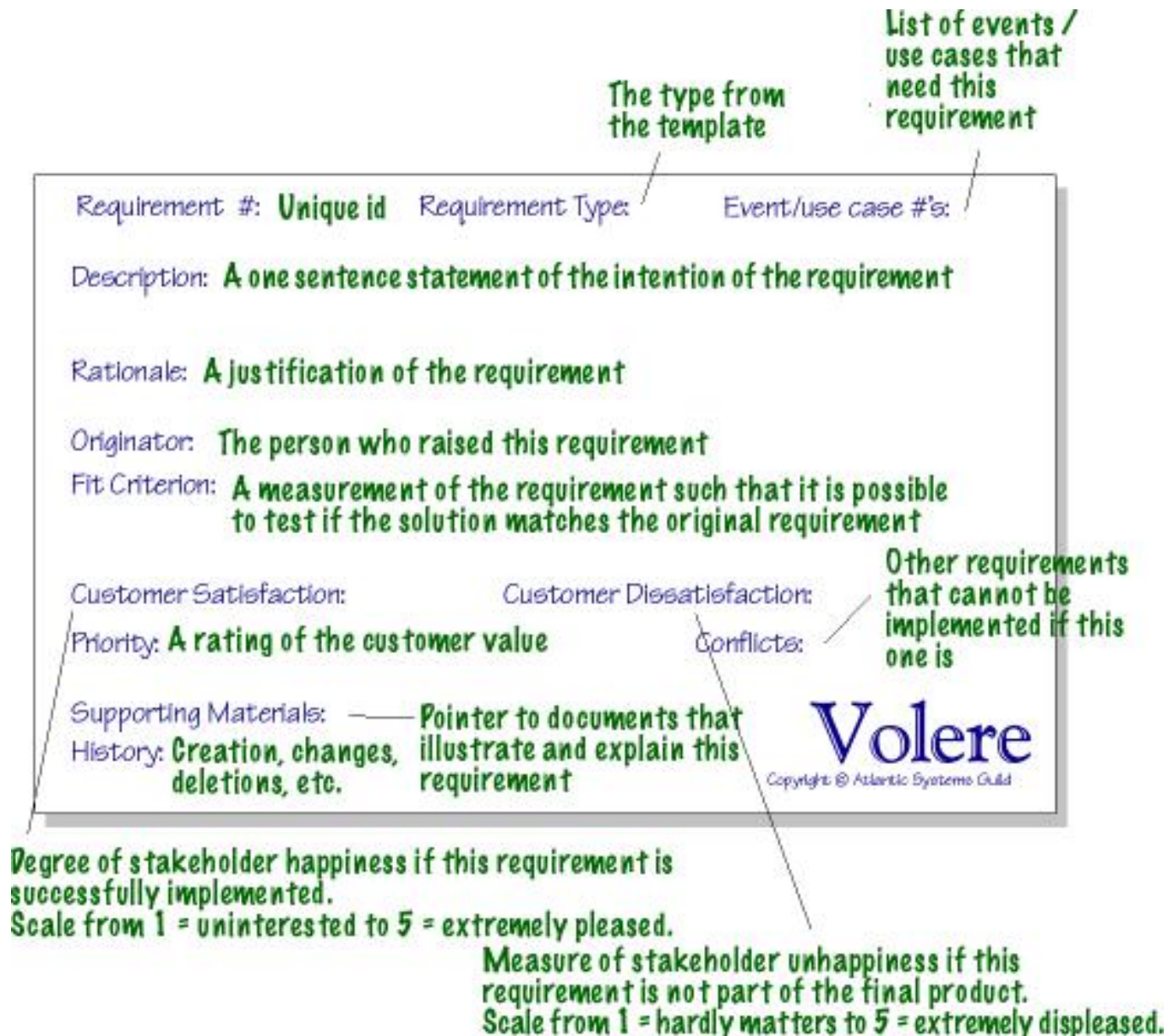
- **Function: activity or capability of system**
- **Interface: input to or output from system**
- **Performance: governs capacity, rate, etc.**
- **Attribute: quality of system, e.g. reliability**
- **Constraint: imposed limit on system, design**

- **Gather information for all requirements:**
 - **Identifier or tracking number**
 - **Dates of creation and modification**
 - **Short title and full text description**
 - **Taxonomy: class, type, etc.**
 - **Status: rejected, accepted, tested**
- **List of parameters given in assignment**

Capture Methods (Cont)

- **Document:**
 - Simple to use, easy to modify, easy to print
 - No filtering or sorting
- **Database:**
 - Excellent tool for audits, record keeping
 - Complex design and implementation
- **Spreadsheet:**
 - More capable than a document
 - Less complex than a database

Example Capture Method



Needs Translation

- **Output of needs assessment is input for this phase**
- **Review follow-up records, surveys**
- **Use customer's original language as much as possible**
- **Change only when necessary to make:**
 - **Clear**
 - **Measurable**
 - **Modular**
 - **Neutral**
 - **Objective**

- **Formal collection of requirements**
- **Types:**
 - **System considers entire project**
 - **Software considers only code, data**
- **Output of this sub-phase**
- **Used as input for requirements analysis**
- **Modified and then passed on to design**
- **Reference document used for testing**
- **Subject to approval by customer**

Class Schedule Reminders

- **Sessions at 19:00:**
 - **Wednesday, March 21**
 - **Monday, March 26**
 - **Wednesday, March 28**
- **Quiz on April 2 at 16:45**
- **Start Requirements Analysis unit on April, April 2**
- **Assignment due April 2 at start of class**