

Chapter 3: Requirements

- **Requirements Defined**
- **Characteristics and Types**
- **Capturing and Codification**
- **Chapter Outline**
- **Exercise**

Requirements Defined

- **Formal statement defining what the project should do**
- **Natural but precise language**
- **Communicate project specification to others**
- **Have characteristics and types**
- **Used as input for testing project**

Characteristics and Types

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

Characteristics

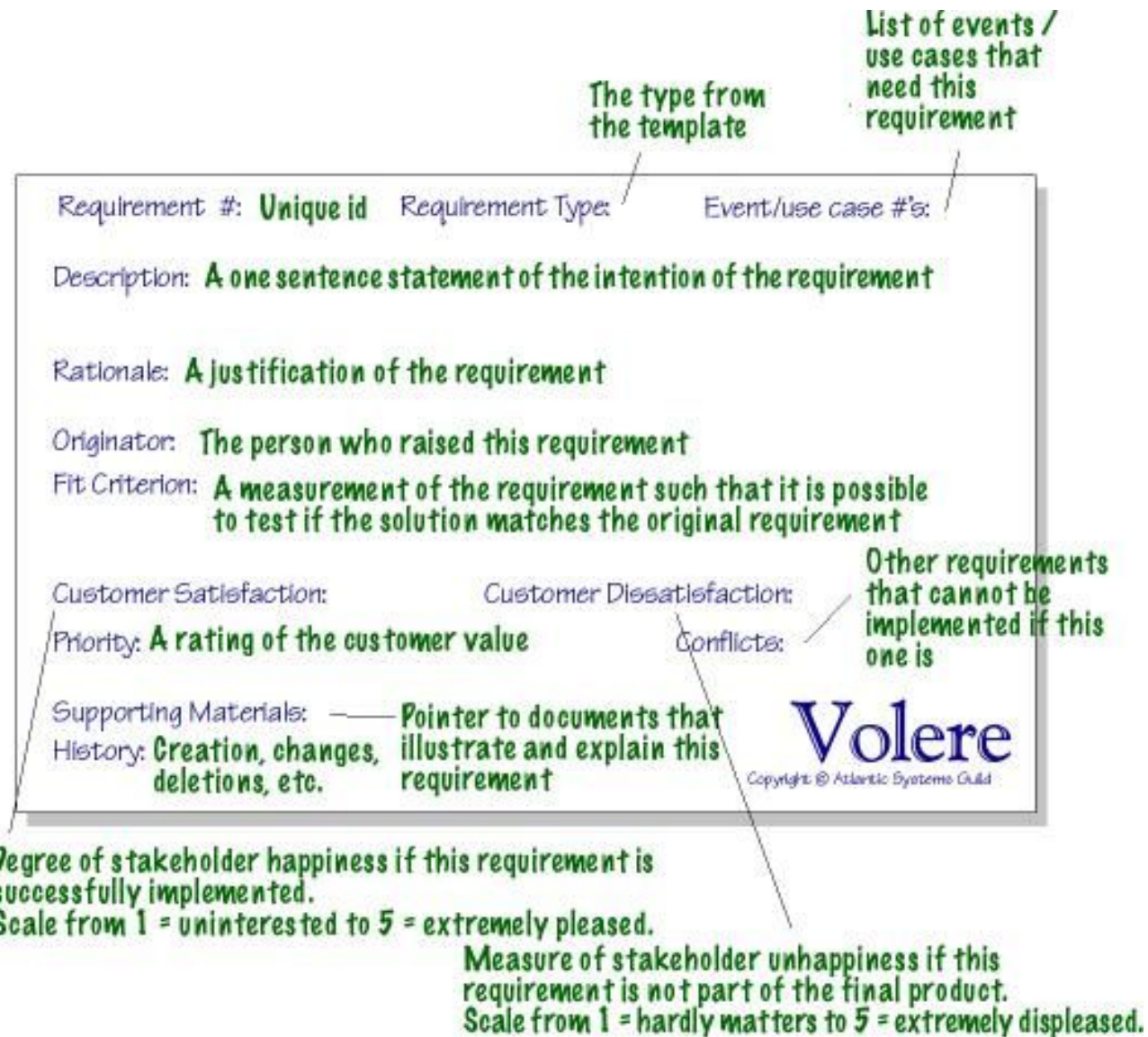
- **Clear: unambiguous, understood without question**
- **Measurable: testable, verifiable, simple decision if met or not**
- **Modular: modifiable, changing does not impact other requirements**
- **Neutral: no design, what and perhaps why, but no how**
- **Objective: factual, interpretation not subject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

Capturing Requirements

- **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



- **State as natural language sentence**
- **Include the following:**
 - **Identifier or tracking number**
 - **Short title and full text description**
 - **Requirement type**
- **Sentence must meet all characteristics**

- **Perform research for Chapter 2**
- **Develop a project functional block diagram**
- **Organize chapter based on this diagram**
- **First section (3.1) should summarize project**
- **Each sub section (3.2-3.n) should reflect requirements of a functional block**
- **Alternative: number sections by type**

Example Requirements Outline

- **3.1 System Summary**
- **3.2 User Interface**
 - **3.2.1 Required Parameters**
 - **3.2.2 Data Validation**
- **3.3 Processing Algorithms**
 - **3.3.1 Inputs and Outputs**
 - **3.3.2 Data Transformations**
- **3.4 Final Products**
 - **3.4.1 Reports**
 - **3.4.2 Database Storage**
- **3.5 Other Requirements**

Alternative Requirements Outline

- **3.1 System Summary**
- **3.2 Functional Requirements**
- **3.3 Interface Requirements**
- **3.4 Performance Requirements**
- **3.5 Attribute Requirements**
- **3.6 Constraint Requirements**

- **Choose a capture method**
- **Make a template for capturing requirements**
- **Identify functional blocks**
- **Write a dozen requirements**
- **Share these with supervisor**