What are Requirements?

Lecture Objectives:

1) Explain the steps of the Volere Requirements Process
2) Explain what happens during Project Blastoff
3) Explain the concept of a context diagram
4) Explain the concept of requirements trawling
5) Explain how prototypes can be used in the requirements trawling process.
6) Define rationale
7) Define fit criterion

- What is a requirement?

Time

Your

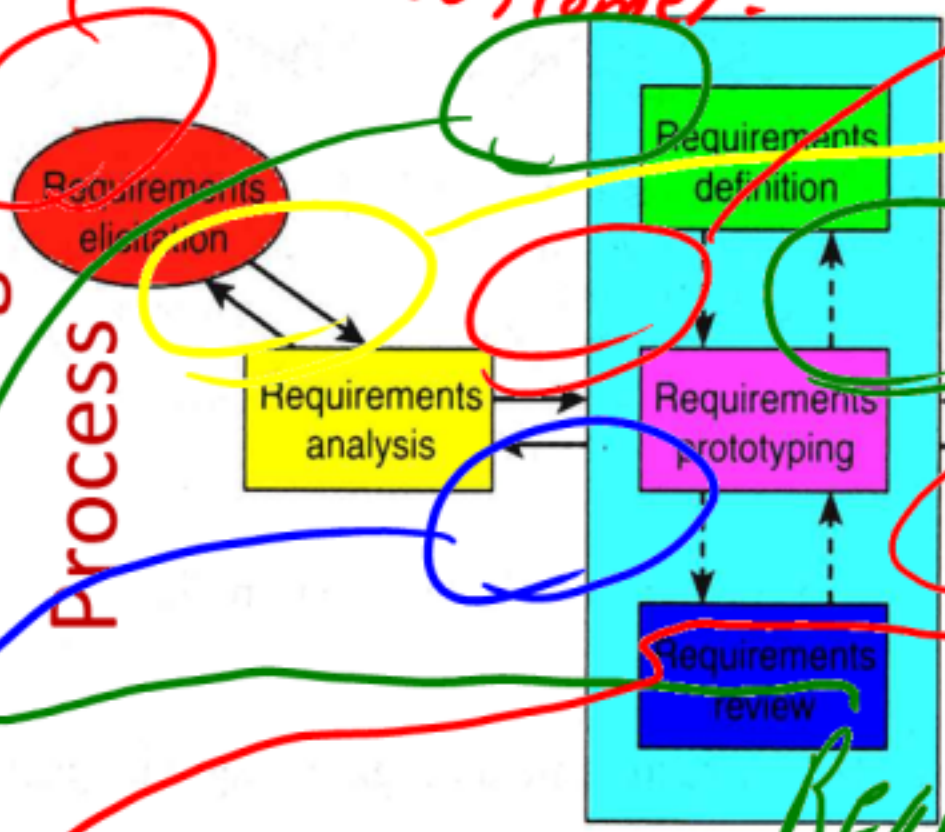
What is a requirement
Formal Definition

- "A condition or capability that must be met or possessed by a system or system component to satisfy a contract, standard, specification or other formally imposed document. The set of all requirements forms the basis for subsequent development of the system or system component." [IEEE std.]

What is a requirement?

- Requirements are specifications of what a system must do
  - Tells you WHAT the system must do, not HOW to do it

Do not overprescribe.



Interviews / QA with customers.

Construction
Final req document.

Requirement Statements Checked for accuracy and prioritized

Requirements formally written.

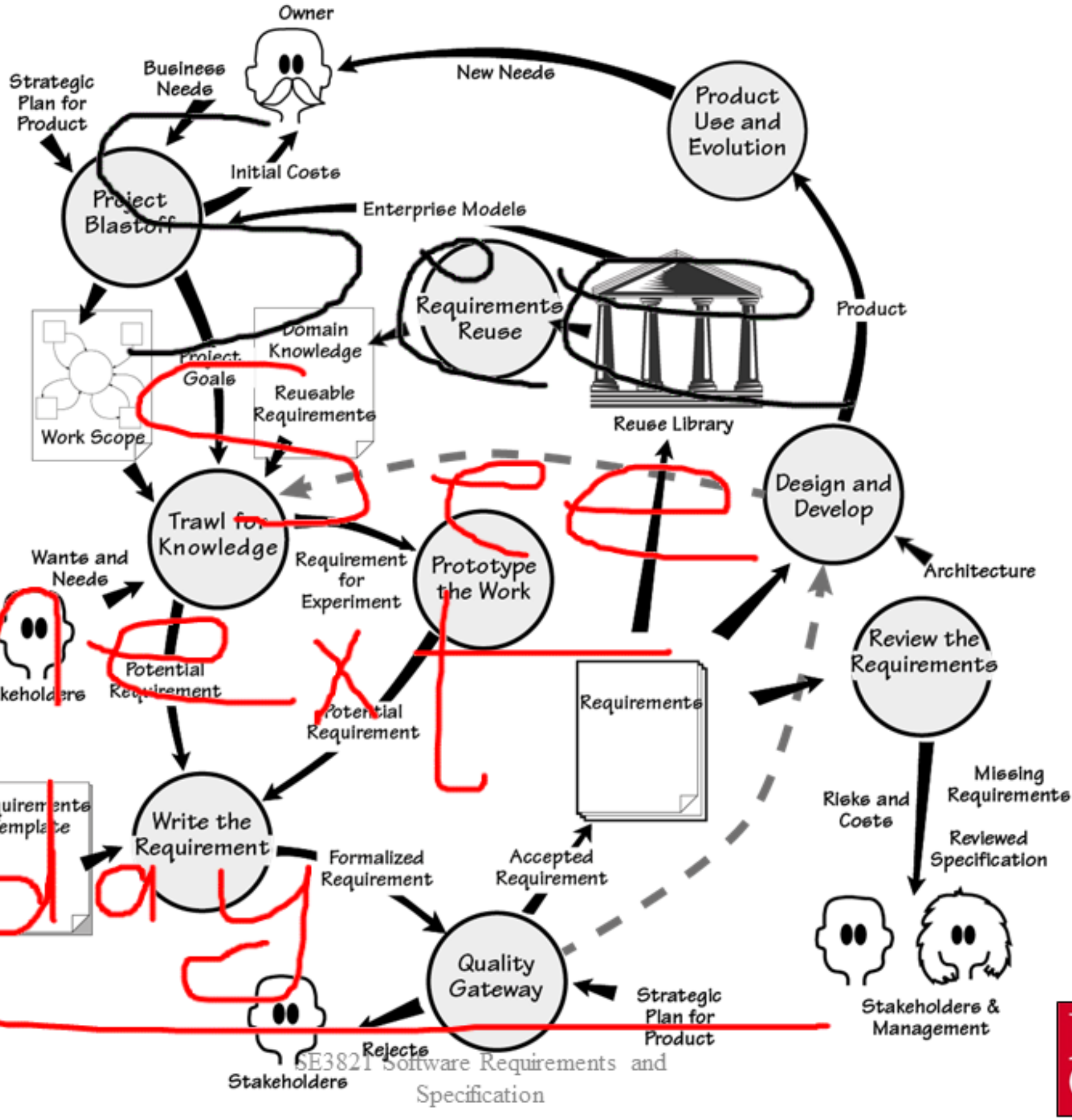
Review to check Reqs for accuracy / correctness.

Customer signs off.

Requirements Engineering

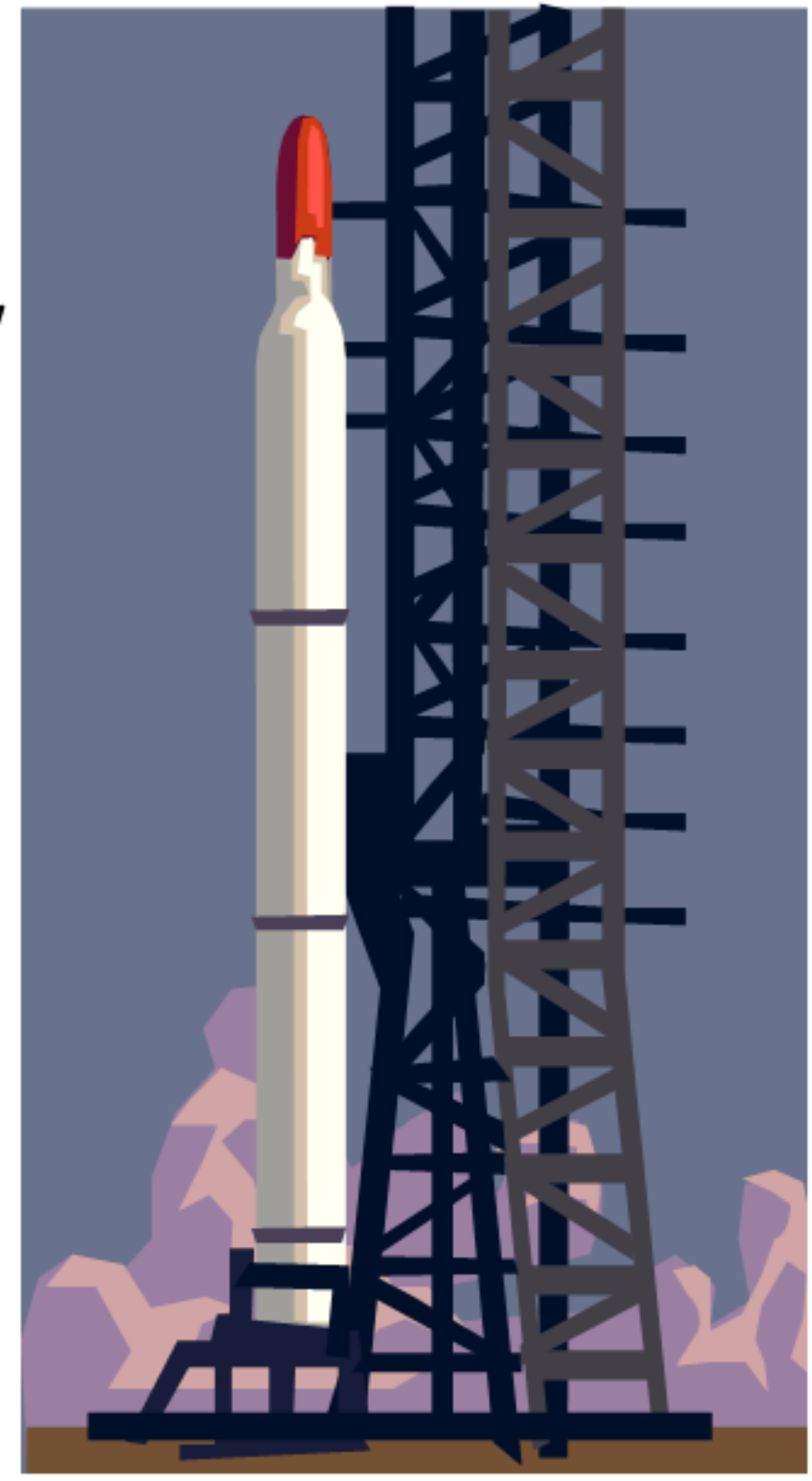
- Elicitation
  - Interviews and QA with the customer to determine what they want in their system
- Requirements Analysis
  - The requirement statements are checked for accuracy
  - requirements are categorized and prioritized
- Requirements definition
  - Requirements are formally written up
- Requirements prototyping
  - Construction of prototype systems to demonstrate to users
  - Typically done for UI portions of a system
- Requirements Review
  - Requirements are shared with the user for their input.
- Requirements specification
  - Final documentation of the requirements is delivered
- Requirements agreement
  - Customer signs off on the requirements document

Volere Requirements Process



Project Blastoff

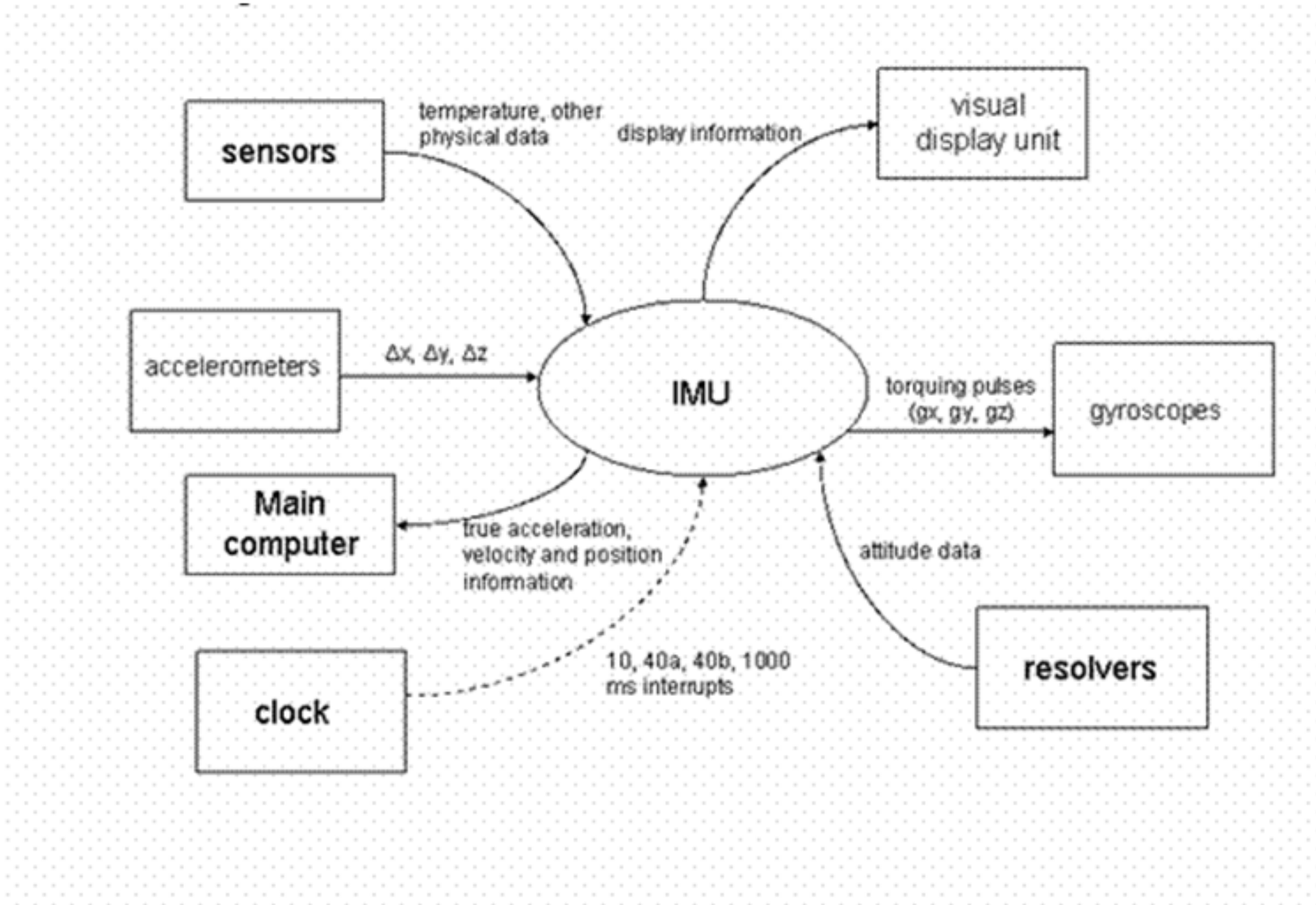
- Constructs a foundation for the requirements discovery that is to follow
  - Scope of the business problem
  - Construct a context diagram of the system
  - Identify the stakeholders
  - Confirm the goals of the project
  - Preliminary estimate of cost



Context Diagram

- A context diagram is a data flow diagram
  - one central process that subsumes everything inside the scope of the system.
  - Shows how the system will receive and send data flows to the external entities involved.
  - DFD that summarizes all processing activity for the system or subsystem
- Other attributes
  - Highest level (most abstract) view of system
  - Shows system boundaries

Context Diagram Example



Partner exercise

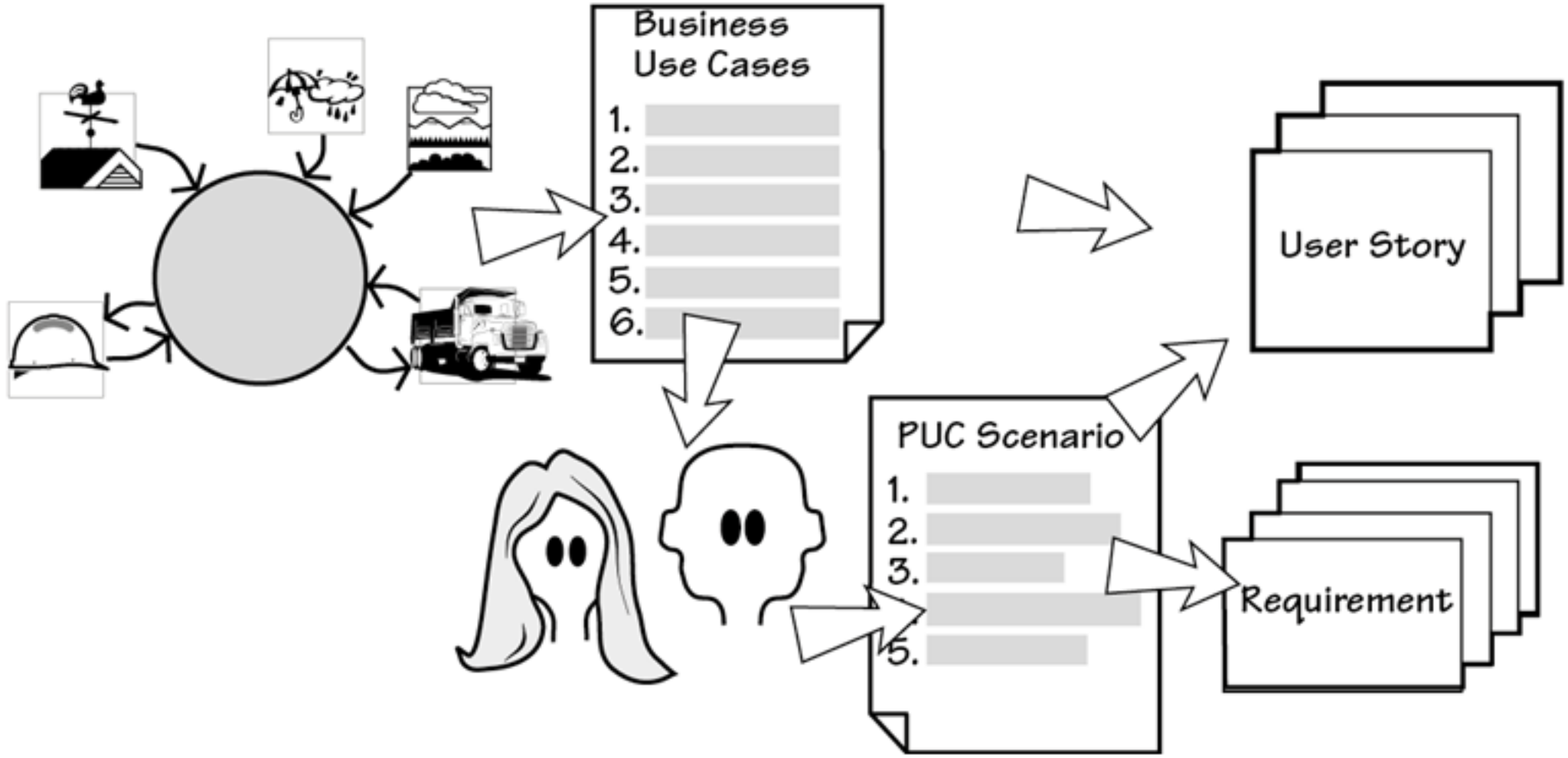
- Draw a context diagram for an automated toll collection system which uses a toll transponder mounted in a vehicle.

Trawling for requirements

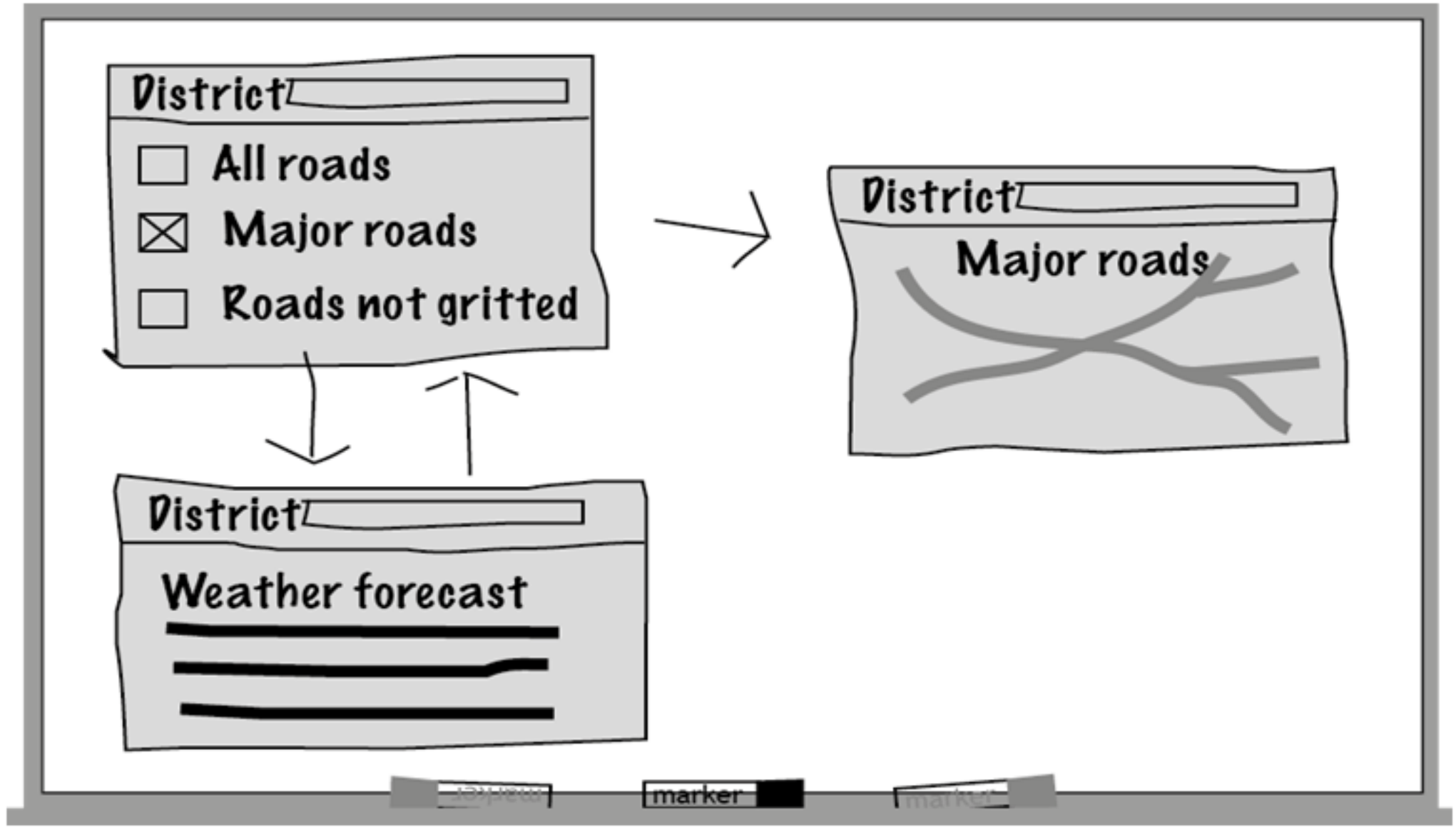
- Business analyst learns the details of the work
  - Business use case – a piece of functionality needed to respond to a business event
- Involves discussion with stakeholders
  - Need to be careful about stakeholder input

Need to find the essence of the system
Stakeholders inevitably talk about their perceived solution to the problem.

Blastoff versus other activities



Prototyping the work

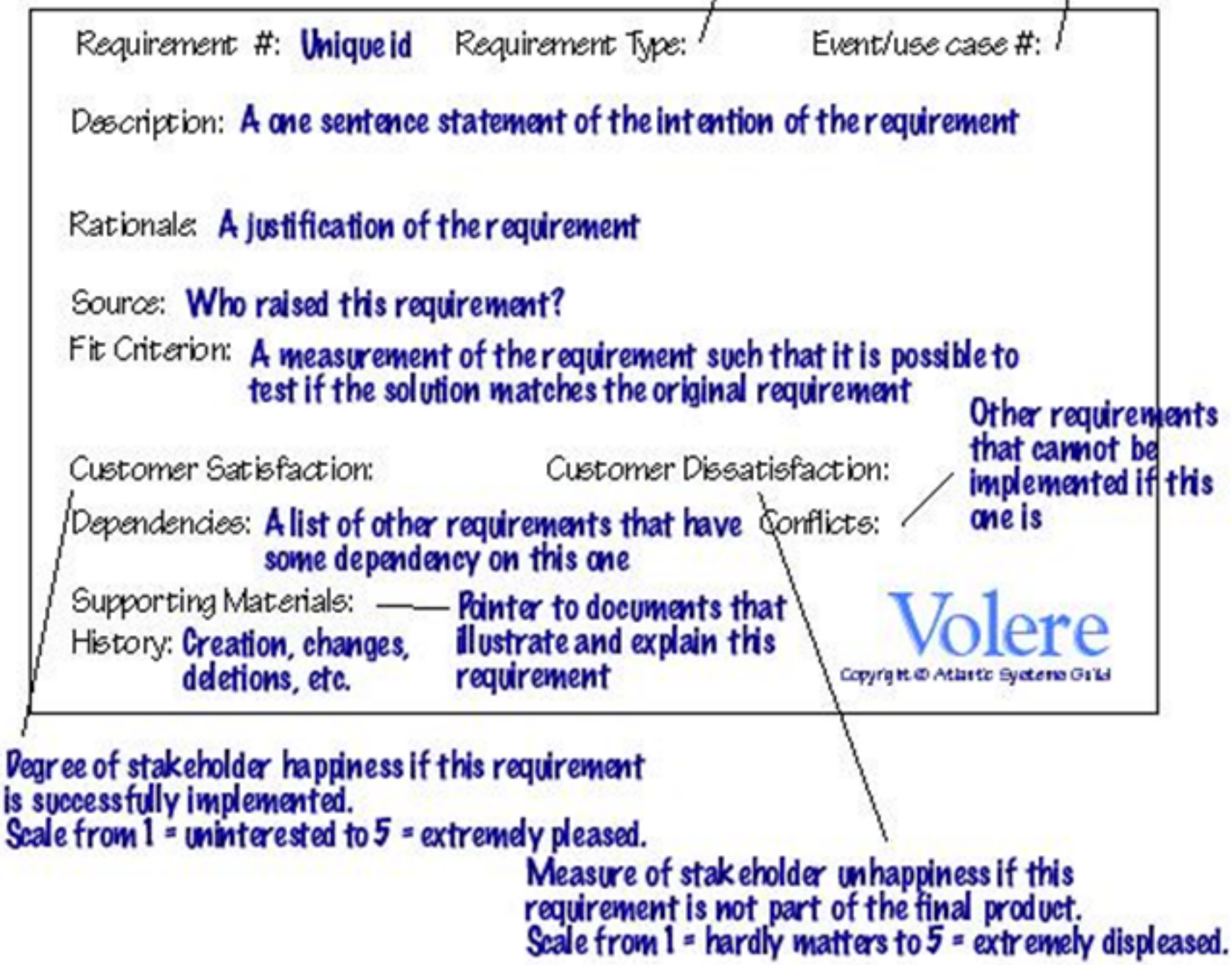


- Quick sketches to model the work being investigated
  - Post it notes, etc.
  - Not necessarily formal

Writing Requirements

- Translate the concepts discovered during requirements trawling into an unambitious specification
- Requirements specification template
  - An outline or guide for the requirements document
- Snow card
  - A convenient, card layout used to ensure that the analyst asks the right questions

Snow Card


The type from the template
List of events / use cases that need this requirement
Requirement #: Unique id
Requirement Type:
Event/use case #:
Description: A one sentence statement of the intention of the requirement
Rationale: A justification of the requirement
Source: Who raised this requirement?
Fit Criterion: A measurement of the requirement such that it is possible to test if the solution matches the original requirement
Other requirements that cannot be implemented if this one is
Customer Satisfaction:
Customer Dissatisfaction:
Dependencies: A list of other requirements that have some dependency on this one
Conflicts:
Supporting Materials:
Pointer to documents that illustrate and explain this requirement
History: Creation, changes, deletions, etc.
Volere
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Degree of stakeholder happiness if this requirement is successfully implemented.
Scale from 1 = uninterested to 5 = extremely pleased.
Measure of stakeholder unhappiness if this requirement is not part of the final product.
Scale from 1 = hardly matters to 5 = extremely displeased.

Definitions

- Rationale
  - The background supporting reason for including a requirement in a project
- Fit criterion
  - A quantification, or measurement, of the requirement, which makes it testable
  - Fit criterion allows testers to determine if an implementation meets the requirement

Examples

- Requirement
  - The product must be user friendly.
- Why? (Rationale)

Examples

- Requirement
  - The product must be user friendly.
- How would we measure this (Fit criteria)