



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

A couple of discussion questions – Discuss with neighbor

- [Truth 2] How do we balance what the customer wants and what we know to be better. For example, if the customer wants an app moved from iOS to Android & wants it to look the same, even though those apps have low user acceptance on Android.
- [Truth 2, 4] How much say should engineering have in driving what gets accomplished? My interpretation of what the book is saying, and I could be wrong, is that engineering is at the bottom of the food chain. I've always viewed engineering as being a very strong driver of what gets done so this approach seems rather docile to me.
- [Truth 6] What are good strategies or approaches to take to convince others that they need what they aren't asking for?

- What is a requirement?

⇒ Something the user needs

Expectations and guidelines

⇒ High level view of system.

Your Time

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.]

Build
Feature or Function
Performance Need
Government Doc

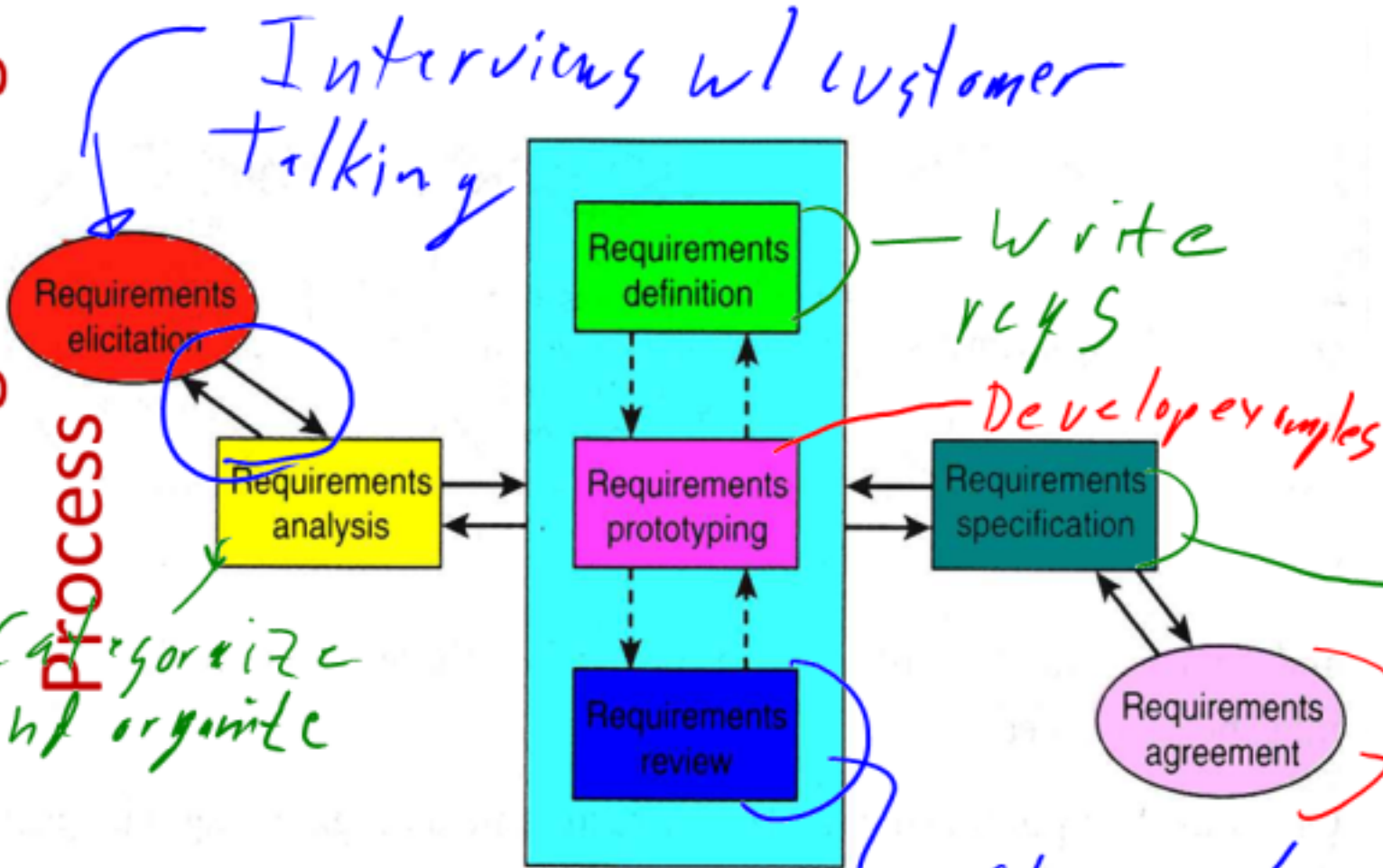
What is a requirement?

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

↳ Constraint

Requirements Engineering

Process



Categorize and organize

Interviews w/ customer talking

Write reqs

Developer examples

Write a document

Share w/ customer for verification

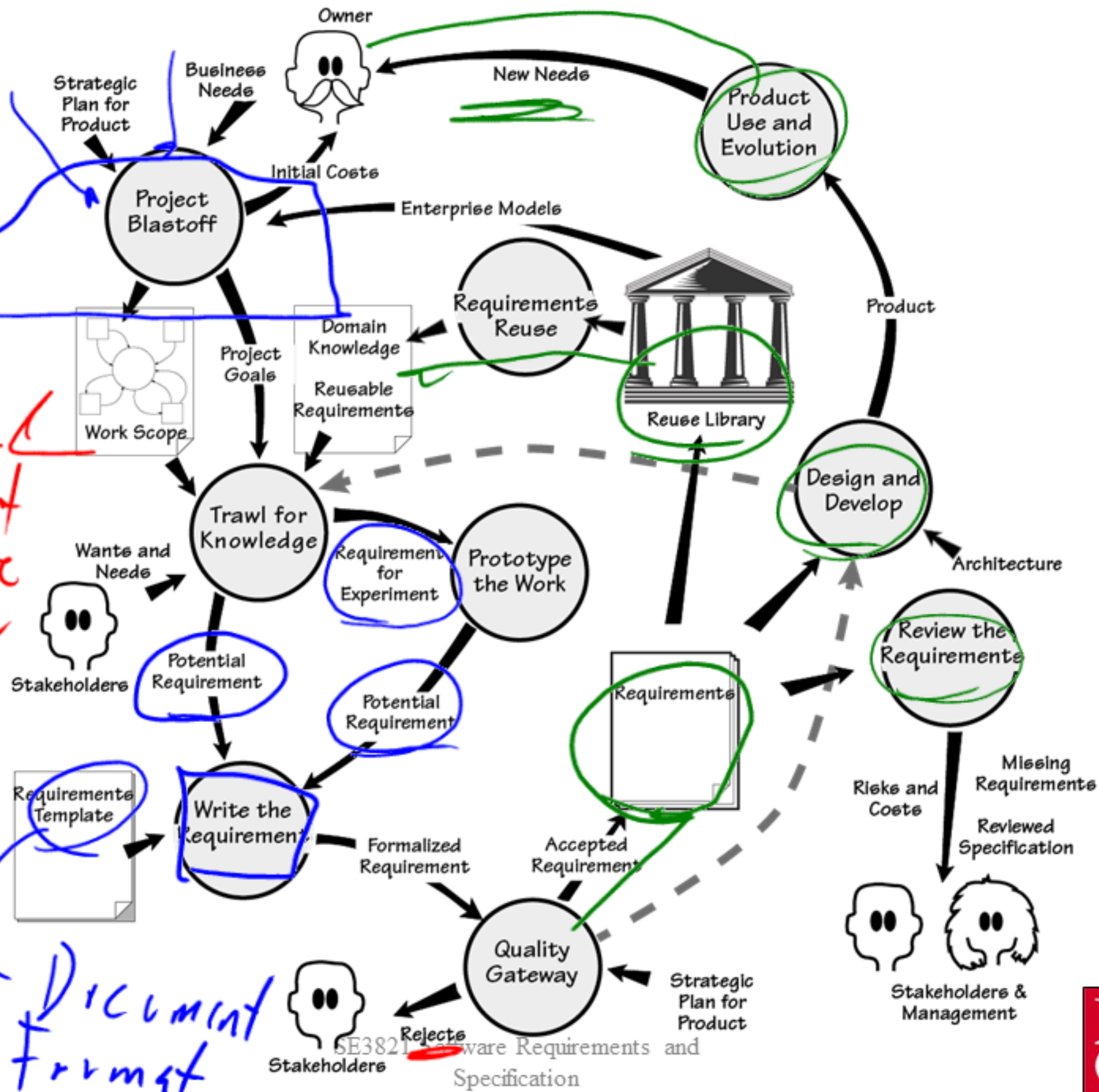
Customer sign off

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

*Really
of what
are
dirty*



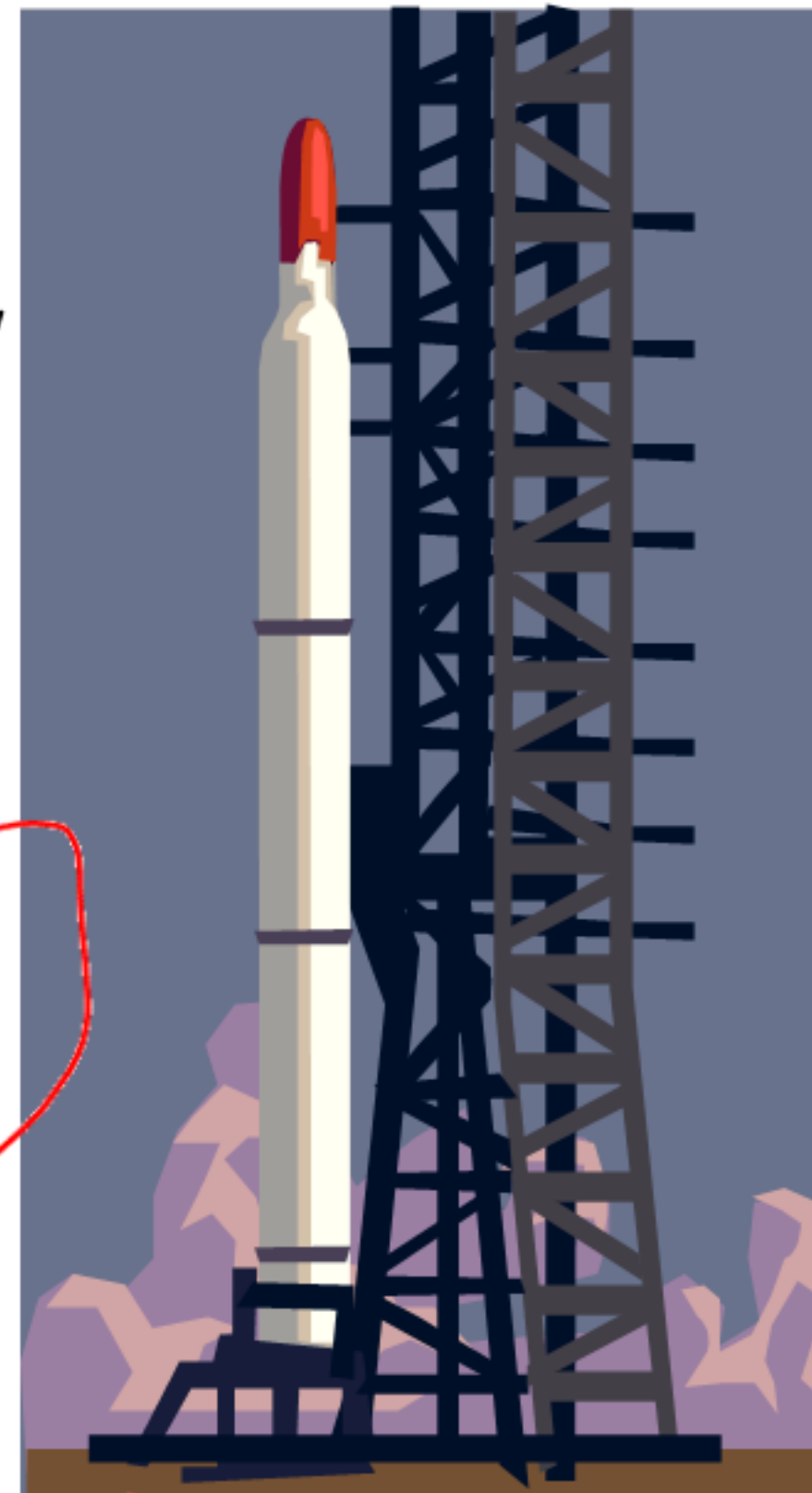
Document format



Basis

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



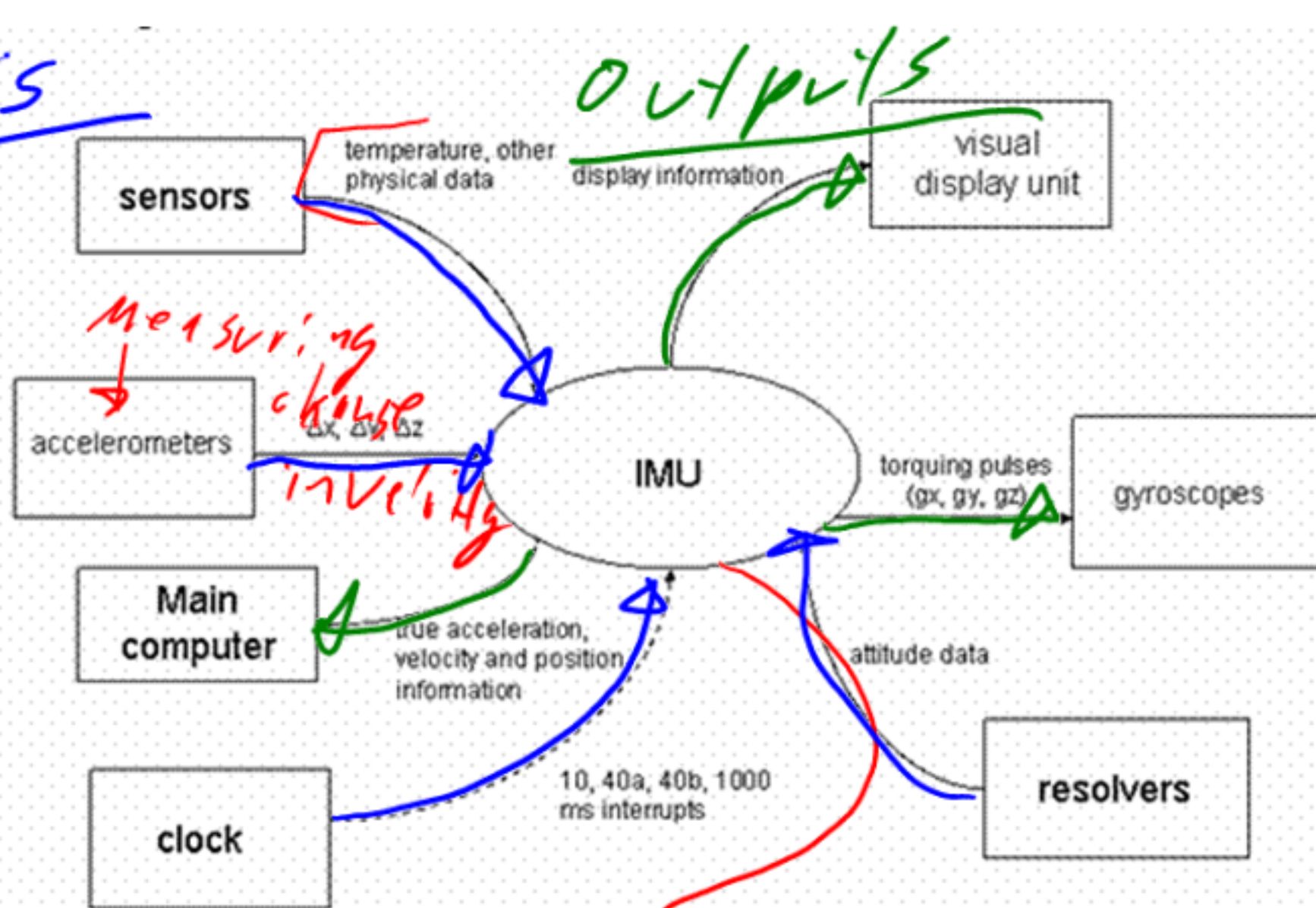
People who care

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

Shows information flow

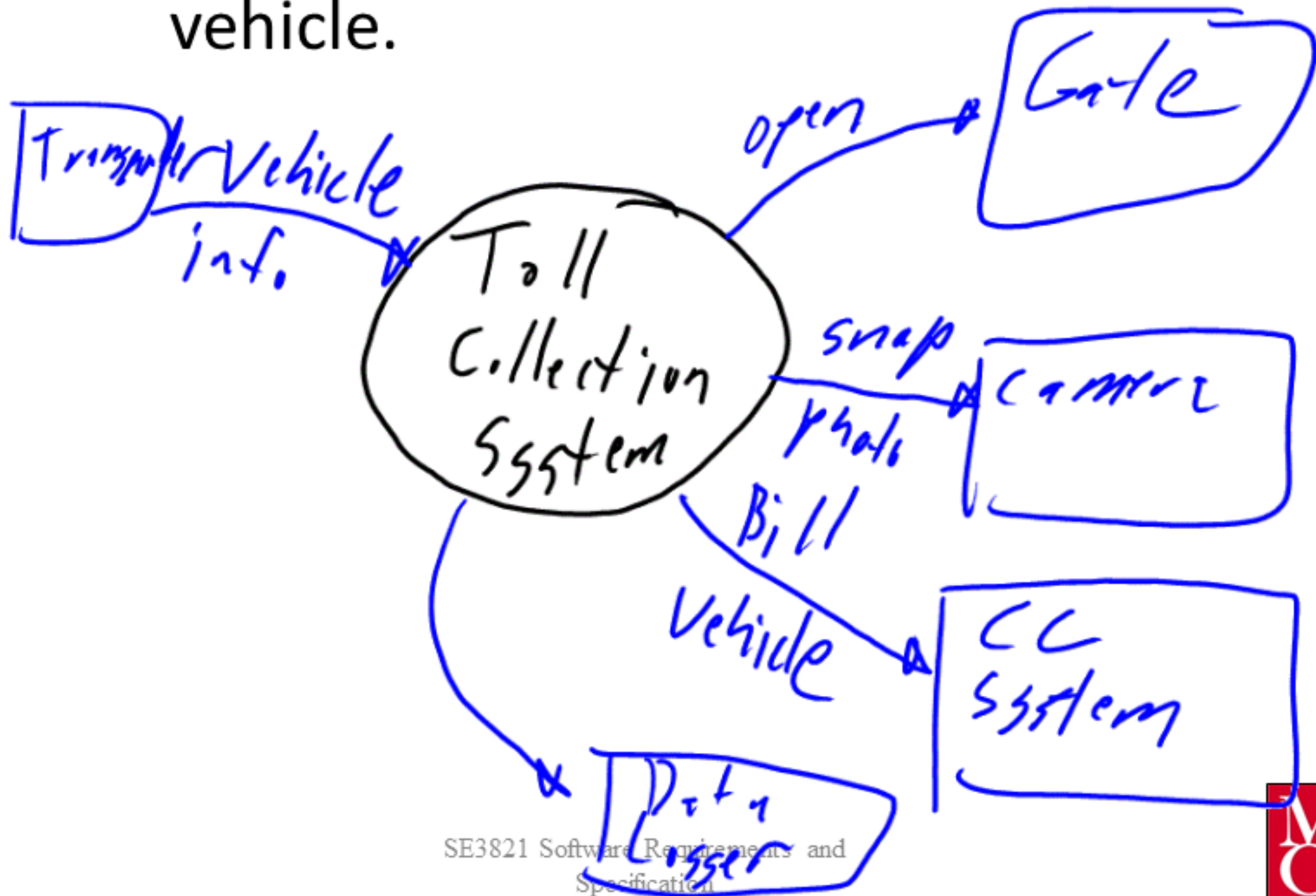
Context Diagram Example



Internal Measurement Unit

Partner exercise

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





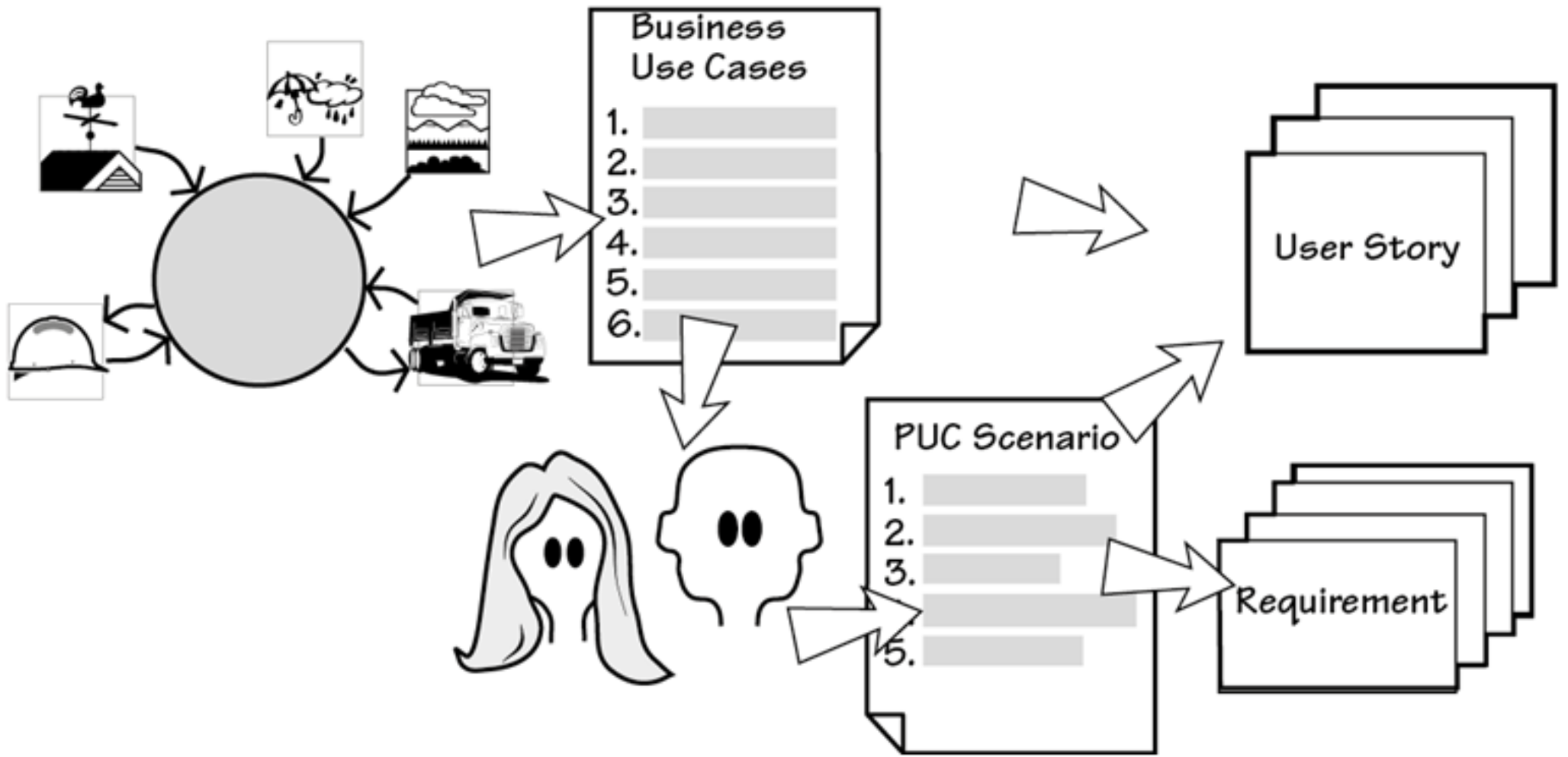
Trawling for requirements

- 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

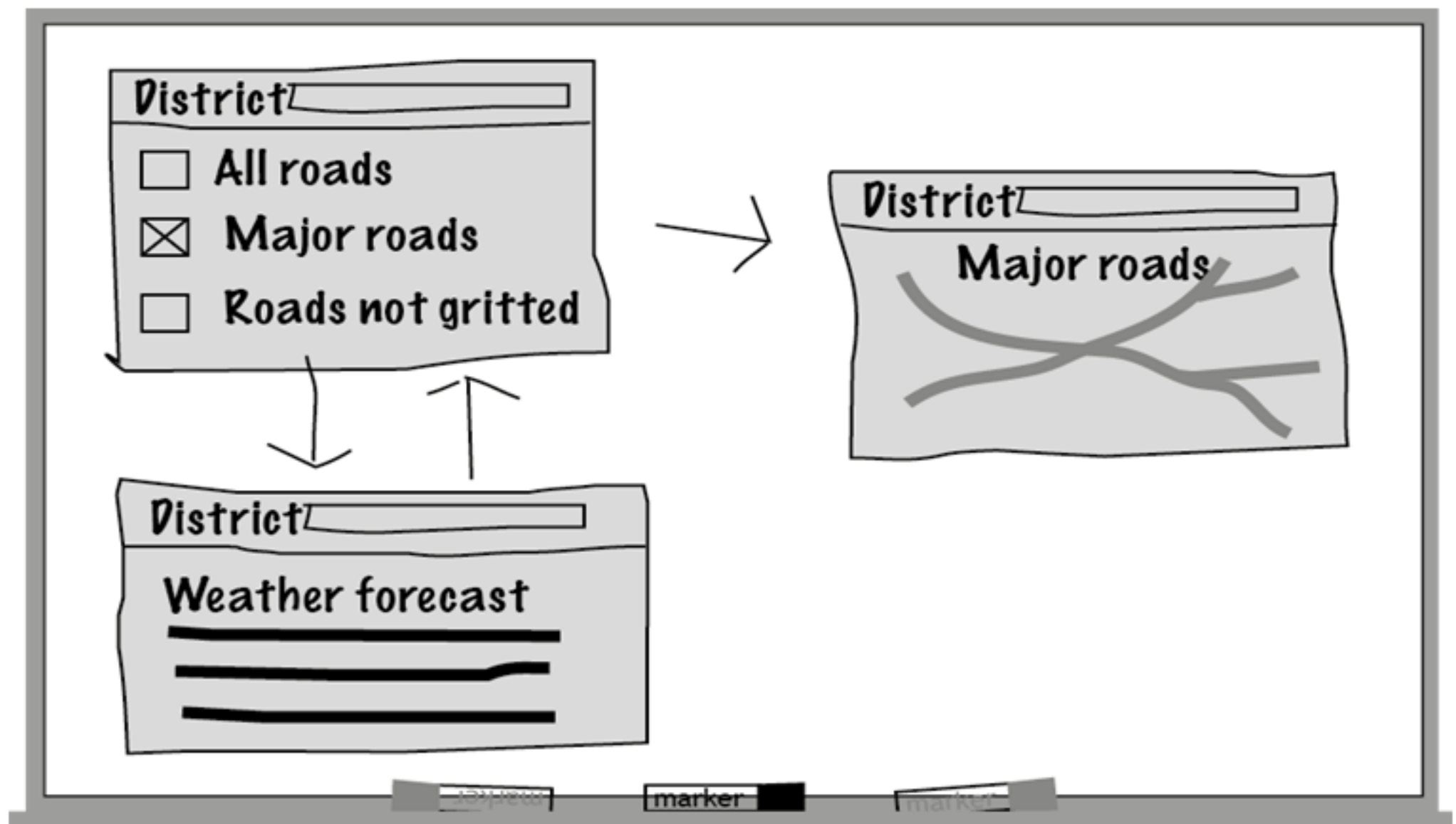
Need to find the essence of the system
Stakeholders inevitably talk about their perceived solution to the problem.



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

Requirement #: **Unique id** Requirement Type: *The type from the template* Event/use case #: *List of events / use cases that need this requirement*

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**

Customer Satisfaction: Customer Dissatisfaction: *Other requirements that cannot be implemented if this one is*

Dependencies: **A list of other requirements that have some dependency on this one** Conflicts: *Other requirements that cannot be implemented if this one is*

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)