



Requirement Engineering



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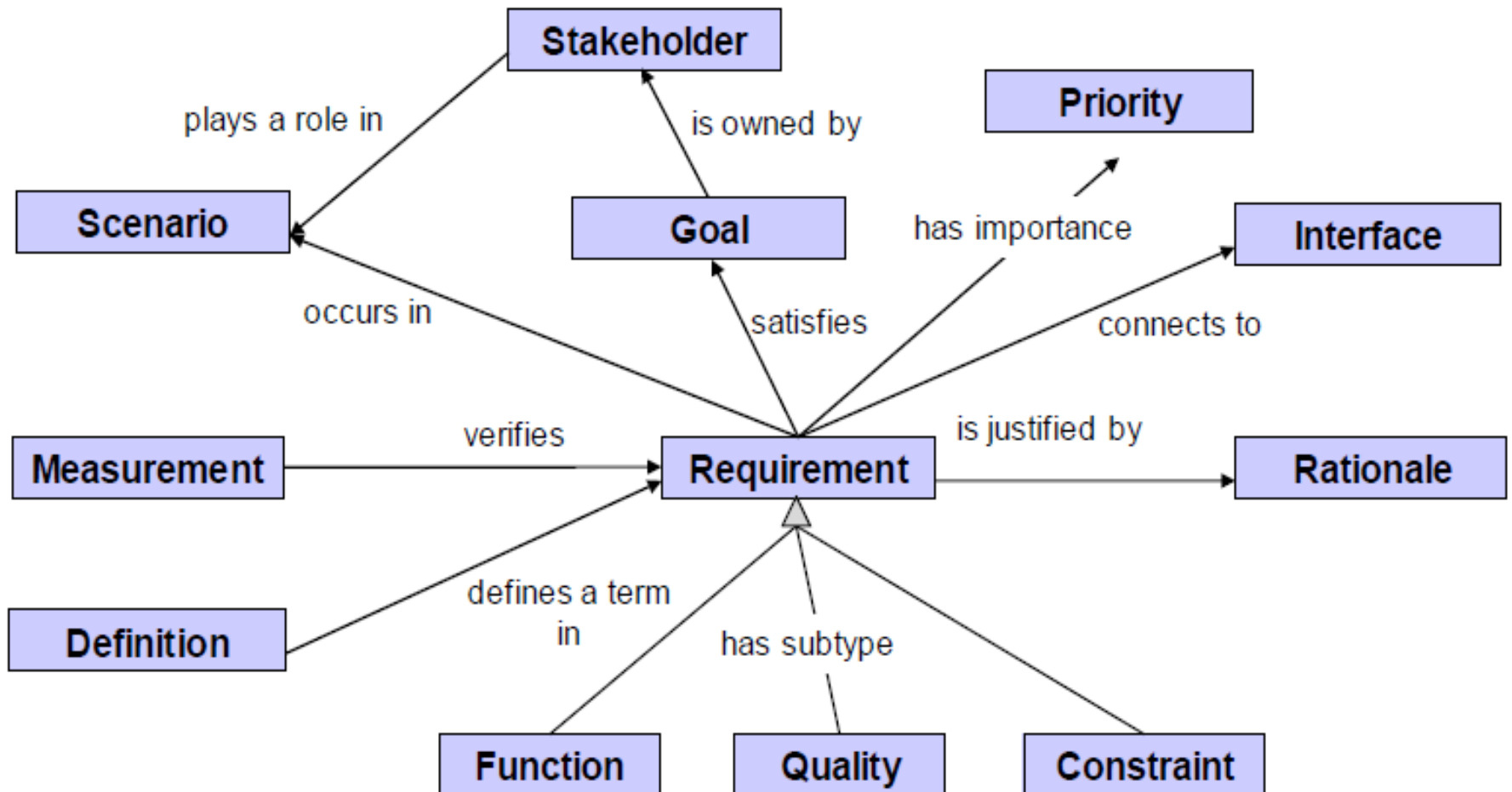
What is the meaning of requirement

- ▶ Requirement is:
 - ▶ A singular documented physical and functional need that a particular product or process must be able to perform.
 - ▶ It is a statement that identifies a necessary attribute, capability, characteristic, or quality of a system for it to have value and utility to a customer, organization, internal user, or other stakeholder.

Types of the requirement

- ▶ Basically the requirement is separated to two types:
 - ▶ **Functional requirement.**
 - ▶ A detailed statements of the behavior and information that the solution will need.
 - ▶ **Quality (non-functional) requirement.**
 - ▶ detailed statements of the conditions under which the solution must remain effective, qualities that the solution must have, or constraints within which it must operate.

A requirement specification



Requirement engineering

▶ Requirements Phases

▶ Elicitation

- ▶ Proactively working with stakeholders to discover needs, identifying and negotiate conflicts, and establish scope and boundaries for the project.

▶ Analysis

- ▶ Gaining a deeper understanding of the product and its interactions; identifying requirements with global impact in order to define the high level architectural design; negotiating architectural trade-offs.

Requirement engineering

- ▶ **Requirements Phases (Cont'd)**
- ▶ **Specification:**
 - ▶ Producing documents that capture the requirements.
- ▶ **Management:**
 - ▶ Ongoing management activities including software configuration, traceability, impact analysis, version control.
- ▶ **Verification & Validation:**
 - ▶ Ensuring that the requirements as the stakeholder expectations and the product meets stakeholder requirements.

Project Blastoff!

- ▶ Determine the purpose of the project.
 - ▶ Develop a short, measurable statement of what the product must achieve for the business.
- ▶ Identify stakeholders
 - ▶ Client
 - ▶ Customer
 - ▶ Users
 - ▶ Other stakeholders (Developers,Analyst, Sponsor etc)
- ▶ Identify constraints
 - ▶ Design solutions
 - ▶ Time and money

Project Blastoff! (Cont'd)

- ▶ Define common terminology.
- ▶ Identify facts and assumptions.
- ▶ Determine the scope of the work
 - ▶ Product boundaries
 - ▶ Process boundaries
- ▶ Estimate the cost
 - ▶ Time
 - ▶ Effort
- ▶ Analyze the risks.

Product Purpose

Goals of the Product

- ▶ **Content**
 - ▶ What do we want this product for? (No more than 3 sentences).
- ▶ **Motivation**
 - ▶ A goal statement that justifies the product.
- ▶ Remember ALL goals must be measurable and expressed in terms of value to the organization.

Product Purpose

Example 1

- ▶ **System to enable a travel agency to sell flights and other services online..**
- ▶ **Goal stated as**
“We want to be able to sell flight, hotel, and car reservations online.”
- ▶ **Measured by increased sales.**
“Sales will increase by 25% per quarter”

Stakeholder Identification

Stakeholders are the people who **understand how the current system works.**

Stakeholders can **describe what the new system needs to do.**

Stakeholders will have conflicting ideas. You need to **emerge and negotiate these conflicts early.**

- ▶ **To identify them ask the following questions:**
- ▶ Who are the users of the current system
- ▶ Who will be impacted directly by the system?
- ▶ Who will indirectly benefit or be affected?

Stakeholder Identification (Cont'd)

A project stakeholder is someone who may gain or lose something as a result of the project.

- ▶ A user of the product.
- ▶ Financer of the project
- ▶ Developer, network specialist, usability expert etc helping to build the product.
- ▶ Standards organization etc (tax lawyer firm or a standards institute)
- ▶ External organization that can influence project success, such as an environmental group or a competitor.

Stakeholder Identification (Cont'd)

- ▶ **Knowledge, Role, Person**

- ▶ **Knowledge**

- ▶ What type of knowledge, expertise, or decision making are we looking for?

- ▶ **Role**

- ▶ What role, job, department, or organization represents this knowledge?

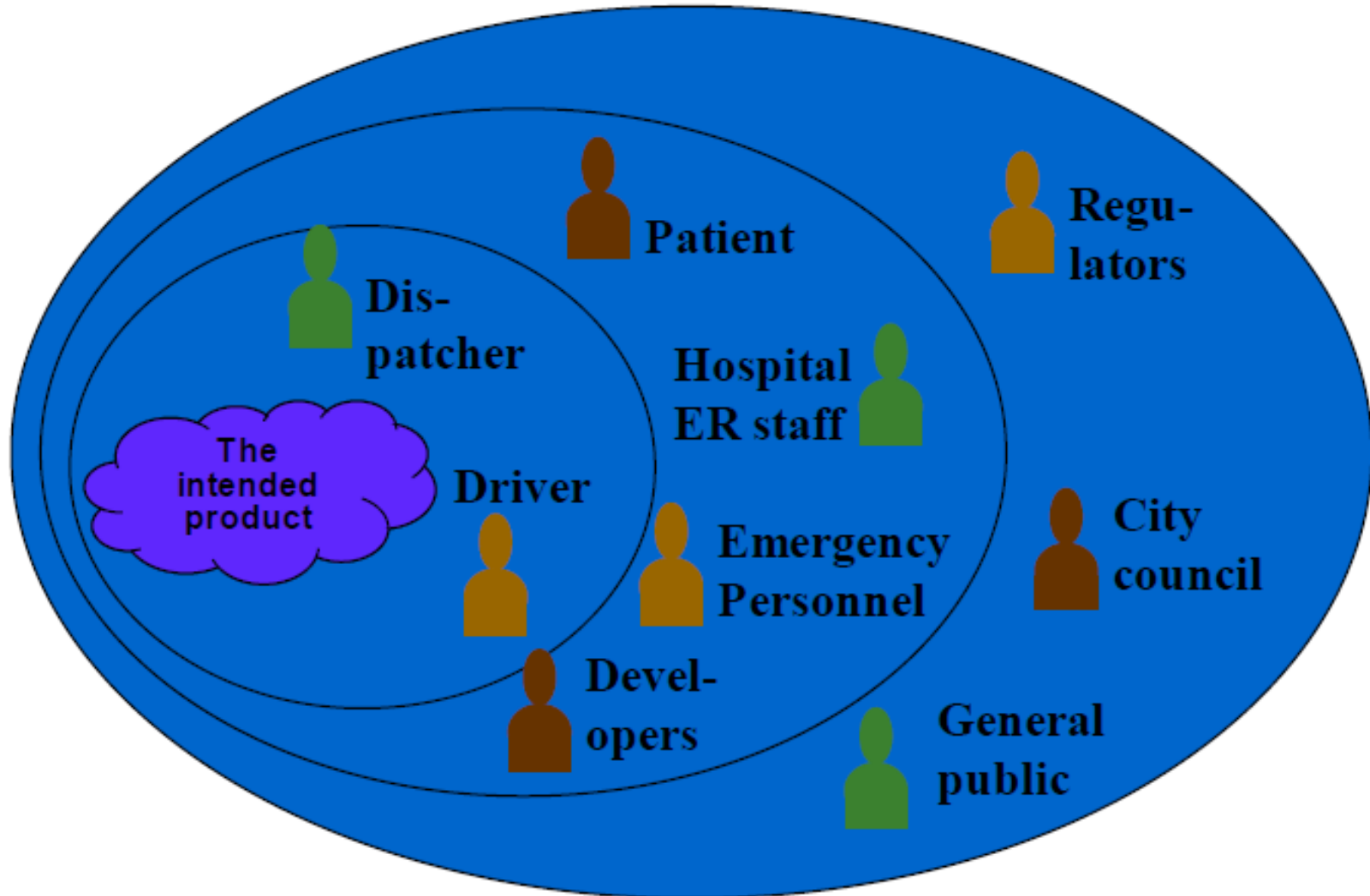
- ▶ **Person**

- ▶ Who is the specific person who can supply this knowledge?

Who makes a good representative?

- ▶ **We have to choose the right PERSON or PEOPLE to fill each stakeholder role.**
- ▶ Look for a CRACK stakeholder:
 - ▶ Collaborative
 - ▶ Representative
 - ▶ Authorized
 - ▶ Committed
 - ▶ Knowledgeable
- ▶ *All these characteristics need to be present for the process to go smoothly.*

Stakeholders analysis model



Influences analysis

	Negative		Positive	
Stakeholder	Strong	Weak	Weak	Strong
Residents' Association		At the moment the OTRA is undecided. With careful integration, could become positive.		
Anytown Council				Currently very keen. Could change at local council elections in May.
Mansion Preservation Society		Opposed to any route within 100m of Mansion; otherwise in favour		
...				