


UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior  
de Ingeniería Informática  
Departamento de Lenguajes  
y Sistemas Informáticos

# Requirements Elicitation

*Software Engineering and Databases Group  
Department of Computer Languages and Systems  
University of Seville  
February 2016*

La traducción de este material docente ha sido financiada mediante la convocatoria 1.10B - Ayudas de innovación y mejora docente, convocatoria 2013-2014, modalidad B del II Plan Propio de Docencia de la Universidad de Sevilla. No ha habido financiación alguna para este proyecto de otros soportes.




UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior  
de Ingeniería Informática  
Departamento de Lenguajes  
y Sistemas Informáticos

## Requirements Elicitation

- Learning objectives
  - Know the **goals, problems, products and processes** of requirements elicitation.
  - Know the main requirements elicitation **techniques**.

1. Requirements Elicitation goals
2. Elicitation problems
3. Elicitation products
4. Elicitation process
5. Understand the problem domain
  - 5.1 Glossary of terms
6. Identify pos & neg aspects
  - 6.1 Information gathering
  - 6.2 Interviews and meetings
7. Understand the business model
8. Understand the IT environment
  - 8.1 Deployment diagrams
9. Obtain and document needs
  - 9.1 Business objectives



February 2016

Requirements Engineering

1

UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model

8. Understand the IT environment

8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation

• Requirements elicitation goals


– Identify and document **business needs**\*; in order to do so, you have to:

• Know the **problem domain**, in order to be able to communicate with customers & users in their own language.

• Know the current **business model**, in order to identify needs, positive & negative aspects and potential expectations.

• Know the **technological environment**, in order to identify the technical restrictions of the system to be developed.

\* Stakeholder needs / customer requirements in CMMI-DEV terminology.



February 2016

Requirements Engineering

2

UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model

8. Understand the IT environment

8.1 Deployment diagrams

9. Obtain and document needs

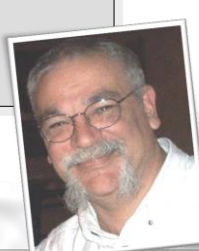
9.1 Business objectives

Requirements Elicitation

• Requirements elicitation goals

“Never lose sight of **why** software is being developed: to **satisfy real needs**, to **solve real problems**. The only way to solve real needs is to **communicate** with those who have the needs. The **customer** or **user** is the most **important** person involved with your project.”


Alan Davis (Colorado University)



February 2016

Requirements Engineering

3



UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior  
de Ingeniería Informática  
Departamento de Lenguajes  
y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain  
5.1 Glossary of terms

6. Identify pos & neg aspects  
6.1 Information gathering  
6.2 Interviews and meetings

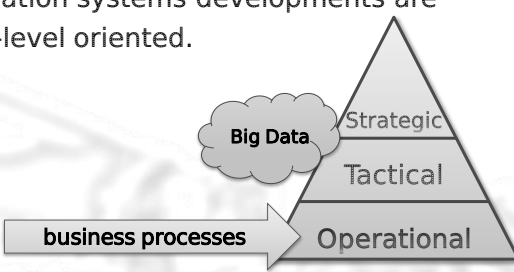
7. Understand the business model

8. Understand the IT environment  
8.1 Deployment diagrams

9. Obtain and document needs  
9.1 Business objectives

Requirements Elicitation


- Requirements elicitation goals
  - Information systems should help their organizations to...
    - Make competitiveness **strategic decisions**.
    - Make business **tactical decisions**.
    - Perform **business processes** and their related **operations**.
  - Most information systems developments are **operational-level oriented**.



February 2016

Requirements Engineering

4



UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior  
de Ingeniería Informática  
Departamento de Lenguajes  
y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain  
5.1 Glossary of terms

6. Identify pos & neg aspects  
6.1 Information gathering  
6.2 Interviews and meetings


7. Understand the business model

8. Understand the IT environment  
8.1 Deployment diagrams

9. Obtain and document needs  
9.1 Business objectives

Requirements Elicitation

- Requirements elicitation goals
  - Designing an information system without knowing customers' organization operations (**business processes**) is a recipe for **failure**.
  - A **technically correct** product can be developed, but it will not succeed because of **being useless** for their users.



February 2016

Requirements Engineering

5

UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model

8. Understand the IT environment

8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation

- Elicitation problems
  - Requirements elicitation is mainly a **social**, more than technological, activity.
  - The nature of the usual problems are therefore **psychological** and **social**, more than technical.

February 2016

Requirements Engineering

6

UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model

8. Understand the IT environment

8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation

- Articulation problems (I)
  - Difficulty to express needs clearly.**
  - Not being aware of own needs.
  - Not understanding how technology can help.

Panel 1: Dilbert: "I'LL NEED TO KNOW YOUR REQUIREMENTS BEFORE I START TO DESIGN THE SOFTWARE."  
Panel 2: Dilbert: "FIRST OF ALL, WHAT ARE YOU TRYING TO ACCOMPLISH?"  
Panel 3: Dilbert: "I'M TRYING TO MAKE YOU DESIGN MY SOFTWARE."  
Panel 4: Dilbert: "I MEAN WHAT ARE YOU TRYING TO ACCOMPLISH WITH THE SOFTWARE?"  
Panel 5: Dilbert: "I WON'T KNOW WHAT I CAN ACCOMPLISH UNTIL YOU TELL ME WHAT THE SOFTWARE CAN DO."  
Panel 6: Dilbert: "TRY TO GET THIS CONCEPT THROUGH YOUR THICK SKULL: THE SOFTWARE CAN DO WHATEVER I DESIGN IT TO DO!"  
Panel 7: Dilbert: "CAN YOU DESIGN IT TO TELL YOU MY REQUIREMENTS?"

Source: <http://dilbert.com/strips/2006-01-29>


February 2016

Requirements Engineering

7

RE

4



UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior de Ingeniería Informática  
Departamento de Lenguajes y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model

8. Understand the IT environment


8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation

- **Articulation problems (II)**
  - Being afraid of appearing incompetent for technological ignorance.
  - **Not making decisions because of not being able neither to foresee the consequences, nor to understand the alternatives, nor to have a global vision.**
  - Not listening to customers & users properly.



TODAY IS THE THREE-YEAR ANNIVERSARY OF OUR FIRST MEETING TO DISCUSS PROJECT REQUIREMENTS.

AND WE'RE STILL DISCUSSING REQUIREMENTS. DOES ANYONE ELSE SEE A PROBLEM HERE?


WHEN YOU'RE DONE, CAN WE TALK ABOUT REQUIREMENTS?

Source: <http://dilbert.com/strip/2002-04-04>

February 2016

Requirements Engineering

8



UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior de Ingeniería Informática  
Departamento de Lenguajes y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model

8. Understand the IT environment

8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation

- **Communication problems**
  - Different culture and vocabulary.
  - Different interests on the system to be developed.
  - Inappropriate communication media (i.e. diagrams that customers & users do not understand).
  - Personal or political conflicts.
- **Cognitive limitations**
  - Not understanding the problem domain.
  - Making assumptions about the problem domain.
  - Making assumptions about technological aspects.
  - Excessive simplifications.

February 2016

Requirements Engineering

9

UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model

8. Understand the IT environment

8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation

• Human behavior (I)

– Conflicts and ambiguities about stakeholders’ roles.

– **Indifference of customers, users or requirements engineers.**

– Being afraid of become unemployed because of the new system.

I’LL DESIGN THE SYSTEM AS SOON AS YOU GIVE ME THE USER REQUIREMENTS.

BETTER YET, YOU COULD BUILD THE SYSTEM. THEN I’LL TELL YOUR BOSS THAT IT DOESN’T MEET MY NEEDS.

I DON’T MEAN TO FRIGHTEN YOU, BUT YOU’LL HAVE TO DO SOME ACTUAL WORK.

THAT’S CRAZY TALK.

Source: <http://dilbert.com/strip/2003-03-21>

February 2016

Requirements Engineering

10

UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model

8. Understand the IT environment

8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation

• Human behavior (II)

– Conflicts and ambiguities about stakeholders’ roles.

– Indifference of customers, users or requirements engineers.

– **Being afraid of become unemployed because of the new system.**

I hate drones!

February 2016

Requirements Engineering

11

RE

6



UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model

8. Understand the IT environment

8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation

• Technical problems (I)

– Problem domain complexity.

– **Requirements complexity.**

– Changing requirements, *the more you see, the more you need.*

– Changes in hardware and software.

– Multiple requirements sources.

– Unclear information sources.

YOUR USER REQUIREMENTS INCLUDE FOUR HUNDRED FEATURES.

DO YOU REALIZE THAT NO HUMAN WOULD BE ABLE TO USE A PRODUCT WITH THAT LEVEL OF COMPLEXITY?

GOOD POINT. I'D BETTER ADD "EASY TO USE" TO THE LIST.

Source: <http://dilbert.com/strip/2001-04-14>

February 2016

Requirements Engineering

12

UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model

8. Understand the IT environment

8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation

• Technical problems (II)

– Problem domain complexity.

– Requirements complexity.

– **Changing requirements, the more you see, the more you need.**

– Changes in hardware and software.

– Multiple requirements sources.

– Unclear information sources.

WALLY, I FORGOT TO TELL YOU THAT ALL OF THE PROJECT REQUIREMENTS CHANGED.

WHAT?! ALL MY WORK WAS FOR NOTHING?!

HE ACTUALLY BELIEVES YOU DID WORK?

I THINK I'LL GET SOME HOMEMADE COOKIES OUT OF THIS!

Source: <http://dilbert.com/strip/1997-03-31>


February 2016

Requirements Engineering

13

RE

7



UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior  
de Ingeniería Informática  
Departamento de Lenguajes  
y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model

8. Understand the IT environment

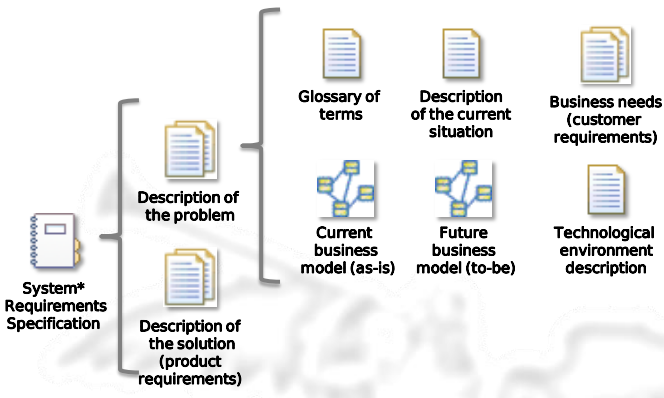
8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation

- Products of requirements elicitation
  - The main product is the **description of the problem** to which the system to be developed (or maintained) must provide a solution.




\* Know as *Software Requirements Specification* if the system to be developed is software only.

February 2016

Requirements Engineering

14



UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior  
de Ingeniería Informática  
Departamento de Lenguajes  
y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model

8. Understand the IT environment

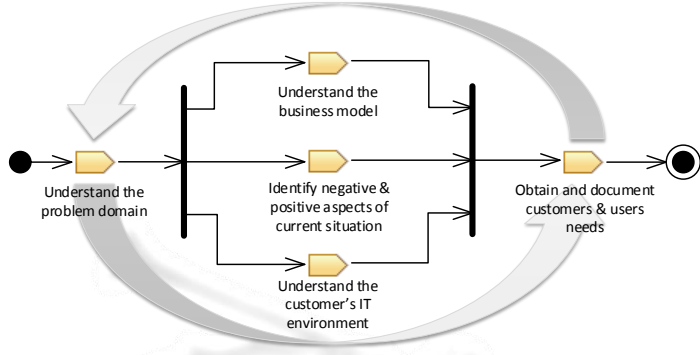
8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation

- (Ideal) Requirements elicitation process\*
  - In real projects, several iterations will take place.



\* Process developed for the MADEJA-IR Project of the Junta de Andalucía (<http://www.juntadeandalucia.es/servicios/madeja/>).

February 2016

Requirements Engineering

15



UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model

8. Understand the IT environment

8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation

• UPD activity diagram

```
graph LR; RE[Requirements Engineer] --> U[Understand the problem domain]; CU[Customers & users] --> U; IPD((Information about the problem domain)) --> U; PD[Previous documentation (PPT, offer, ...)] --> U; U --> MM[Meeting minutes]; U --> GT[Glossary of terms]; U --> RD[Relevant documentation];
```

February 2016

Requirements Engineering

16

UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model

8. Understand the IT environment

8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation

• UPD activity goals

Obtain **enough knowledge** about the problem domain in order to be able to...

- **Communicate** efficiently with customers & users.
- **Understand** their business.
- **Understand** their needs (customer requirements).
- Be able to **propose** a solution (product requirements).

February 2016

Requirements Engineering

17

UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model

8. Understand the IT environment

8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation

• UPD activity products

**Glossary of terms**, the main product of this activity.

**Minutes of meetings and interviews** with customers & users held during activity performance.

**Relevant documentation**, of interest to the project, obtained during activity performance.

February 2016

Requirements Engineering

18

UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model

8. Understand the IT environment

8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation

• Risks of not performing the UPD activity

**Inappropriate final product**

• Facing the development of a software system without enough knowledge of the problem domain often makes the final product not match the expectations of customers & users.

**Loss of customers & users confidence**

• Holding meetings and interviews with customers & users without enough knowledge of the problem domain will probably lead to not understanding their needs and to a big damage of their confidence on the project.

February 2016

Requirements Engineering

19

RE

10

UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model

8. Understand the IT environment

8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation

• UPD activity techniques

Documentation survey.

*In situ* observation, immersion.

Interviews, meetings.

Glossary of terms development.

February 2016

Requirements Engineering

20

UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model

8. Understand the IT environment

8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation

• What is a glossary of terms?

– It is a little **encyclopedia** of the problem domain: an alphabetically sorted list with definitions of terms in the problem domain.

– Every term has a **name** (maybe some **synonyms** too) and a **definition** that may include **multimedia** elements such as photographs, scanned documents, diagrams, etc.


– It is **easy to develop** and implement using a wiki, shared documents, etc.

February 2016

Requirements Engineering

21

UNIVERSIDAD DE SEVILLA



Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Requirements Elicitation goals


2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms



6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model

8. Understand the IT environment



8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation

- Why is a glossary of terms useful?
  - It allows **knowledge sharing** among the development team.
  - It facilitates the **incorporation** of new development team members.
  - It allows customers & users check that the acquired knowledge is **correct**.
  - It promotes **communication** by unifying vocabulary.




February 2016

Requirements Engineering

22

UNIVERSIDAD DE SEVILLA



Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Requirements Elicitation goals


2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms



6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model

8. Understand the IT environment



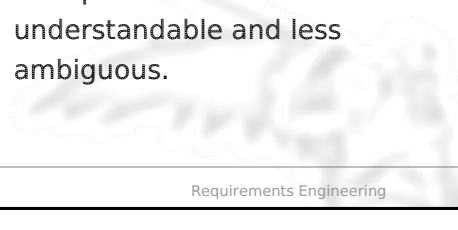
8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation

- Principle of Circularity [ J. Leite]
  - A glossary must be as **self-contained** as possible.
  - It helps to relate terms and to avoid some knowledge to be left out of the glossary.
- Principle of Minimum Vocabulary [ J. Leite]
  - Requirements must be expressed using mainly glossary elements.
  - It helps them to be more understandable and less ambiguous.



Profesor Julio Leite, Pontificia Universidade Católica de Rio de Janeiro, Brasil.

February 2016

Requirements Engineering

23

UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model

8. Understand the IT environment

8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation

• IPNA activity diagram

February 2016

Requirements Engineering

24

UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model

8. Understand the IT environment

8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation

• IPNA activity goals

Make explicit **which aspects work correctly and which not** before developing the new system.

**Negative** aspects should be **avoided** in the system to be developed, while **positive** ones should be **preserved** when possible.


February 2016

Requirements Engineering

25

RE

13



UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior de Ingeniería Informática  
Departamento de Lenguajes y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model


8. Understand the IT environment




8.1 Deployment diagrams


9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation




- IPNA activity products
  -  **Pros & cons of the current situation**, the main product of this activity.
  -  **Minutes of meetings and interviews** with customers & users held during activity performance.
  -  **Relevant documentation**, of interest to the project, obtained during activity performance.



February 2016

Requirements Engineering

26



UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior de Ingeniería Informática  
Departamento de Lenguajes y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model


8. Understand the IT environment



8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation



- Risks of not performing the IPNA activity
  -  **Repeating errors of the current situation**
    - Not being aware of the negatives aspects of the current situation may cause that they will be repeated in the system to be developed.
  -  **Abandon good practices**
    - Not being aware of current good practices and not incorporating them into the new system may provoke rejection from the users.


February 2016

Requirements Engineering

27



UNIVERSIDAD DE SEVILLA



Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model

8. Understand the IT environment


8.1 Deployment diagrams


9. Obtain and document needs


9.1 Business objectives


Requirements Elicitation


• IPNA activity technics

 Documentation survey.

 *In situ* observation, immersion.

 Interviews, meetings.

 Strengths & weaknesses record.




February 2016

Requirements Engineering

28

UNIVERSIDAD DE SEVILLA



Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model

8. Understand the IT environment

8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation

• Documentation survey


– Study of internal documents, commercial documents (invoices, deliveries, ...), etc.

• In situ observation

– **Passive** observation in users' workplace.

– Occasionally some questions can be asked, but not interrupting users' work.


– Avoid making users feel watched.



February 2016

Requirements Engineering

29



UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior  
de Ingeniería Informática  
Departamento de Lenguajes  
y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model

8. Understand the IT environment



8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation


- **Immersion / learning**
  - **Active** observation in users' workplace, working with them as a new employee. It is very time consuming.
- **Surveys**
  - Sending forms to a high number of users.
  - Response rate is usually low (<10%).
  - Development of effective forms is a complex task.



February 2016

Requirements Engineering

30



UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior  
de Ingeniería Informática  
Departamento de Lenguajes  
y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model

8. Understand the IT environment


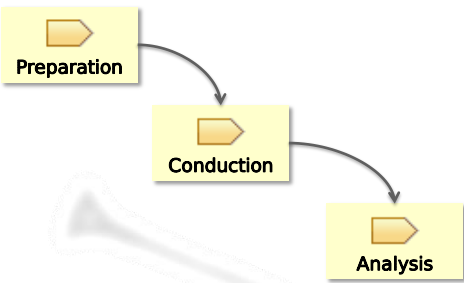
8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation

- **Interviews and meetings**
  - Both types of interactions with customers & users follow a similar process, based on:
    - Preparation
    - Conduction
    - Analysis



February 2016

Requirements Engineering

31

UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior  
de Ingeniería Informática  
Departamento de Lenguajes  
y Sistemas Informáticos

# Requirements Elicitation

- **Interviews and meetings preparation (I)**
  1. **Know the problem domain vocabulary**
    - Essential to understand what participants say.
  2. **Select participants**
    - Minimize the number of meetings / interviews.
    - Managers usually provide a general vision, while future users have a more detailed one.

1. Requirements Elicitation goals
2. Elicitation problems
3. Elicitation products
4. Elicitation process
5. Understand the problem domain
  - 5.1 Glossary of terms
6. Identify pos & neg aspects
  - 6.1 Information gathering
  - 6.2 Interviews and meetings
7. Understand the business model
8. Understand the IT environment
  - 8.1 Deployment diagrams
9. Obtain and document needs
  - 9.1 Business objectives

February 2016

Requirements Engineering

32

UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior  
de Ingeniería Informática  
Departamento de Lenguajes  
y Sistemas Informáticos

# Requirements Elicitation

- Interviews and meetings preparation (II)
  - 3. Specify meeting/interview goals and contents**
    - Meeting/interview time should be minimized.
    - Participants should know beforehand the goal of the meeting/interview and the questions to be asked.
  - 4. Schedule the meeting/interview**
    - Set a date, time, place, and duration of each meeting/interview according to the participants.

- Requirements Elicitation goals
- Elicitation problems
- Elicitation products
- Elicitation process
- Understand the problem domain
  - 5.1 Glossary of terms
- Identify pos & neg aspects
  - 6.1 Information gathering
  - 6.2 Interviews and meetings**
- Understand the business model
- Understand the IT environment
  - 8.1 Deployment diagrams
- Obtain and document needs
  - 9.1 Business objectives

February 2016

Requirements Engineering

33

UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model

8. Understand the IT environment

8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation


• Interviews and meetings conduction (I)

1. Opening (5-15 min.)

• Introduce the participants and remember the goal of the meeting, how information is going to be used, etc.

• Explain notations not familiar to the participants.

• Cause a good impression, transmit security, and convey confidence.



February 2016

Requirements Engineering

34

UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model

8. Understand the IT environment

8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation


• Interviews and meetings conduction (II)

2. Development (≤ 2 hours, 20%/80%)

• Avoid monologues and keep control; a third person can take notes or the meeting can be recorded if participants agree.

• Start with open questions (cannot be answered with a yes or no) and end with more specific questions.


• Do not anticipate answers and use the problem domain vocabulary.



February 2016

Requirements Engineering

35



UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior  
de Ingeniería Informática  
Departamento de Lenguajes  
y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model

8. Understand the IT environment

8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation


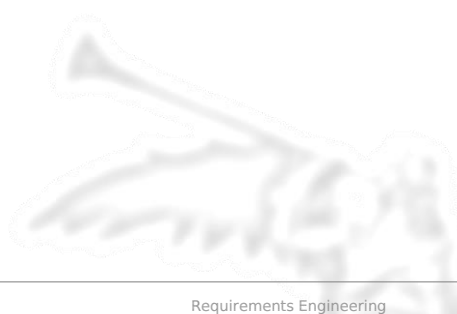
• Interviews and meetings conduction (III)

3. Ending (5-10 min.)

• Summarize to avoid misunderstandings.

• Thank the participants' cooperation.


• Schedule another meeting/interview in case of necessity and leave the door open for future contacts.



February 2016

Requirements Engineering

36



UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior  
de Ingeniería Informática  
Departamento de Lenguajes  
y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model

8. Understand the IT environment

8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives



Requirements Elicitation

• Interviews and meetings analysis

– Write the **meeting/interview minutes** by clearing the handouts and reorganizing the information.

– Check the results out with those from other meetings/interviews.


– Send the minutes to the participants for their confirmation.



February 2016

Requirements Engineering

37



UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior  
de Ingeniería Informática  
Departamento de Lenguajes  
y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model

8. Understand the IT environment

8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation


• Pros & cons of interviews and meetings

– Advantages of meetings over interviews

• They save time by contacting several people at the same time.

• They allow to contrast participants’ opinions directly instead of doing it separately.


• They usually generate a greater implication of customers & users.



February 2016

Requirements Engineering

38



UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior  
de Ingeniería Informática  
Departamento de Lenguajes  
y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model

8. Understand the IT environment

8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation


• Pros & cons of interviews and meetings

– Drawbacks of meetings over interviews

• A group of people is much more difficult to control than a single person.

• The level of detail of the obtained information is usually lower than in interviews.

• Scheduling is much more complex because of the implication of several people.




February 2016

Requirements Engineering


39





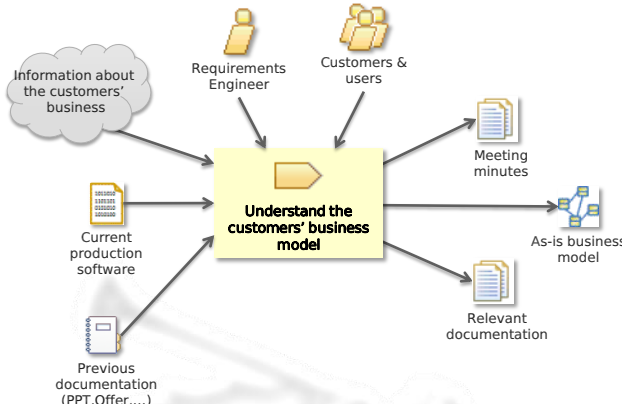
UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior de Ingeniería Informática  
Departamento de Lenguajes y Sistemas Informáticos

# Requirements Elicitation



## • UBM activity diagram

1. Requirements Elicitation goals
2. Elicitation problems
3. Elicitation products
4. Elicitation process
5. Understand the problem domain
  - 5.1 Glossary of terms
6. Identify pos & neg aspects
  - 6.1 Information gathering
  - 6.2 Interviews and meetings
7. Understand the business model
8. Understand the IT environment
  - 8.1 Deployment diagrams
9. Obtain and document needs
  - 9.1 Business objectives



```


graph LR
    InfoCloud([Information about the customers' business]) --> Center[Understand the customers' business model]
    Eng[Requirements Engineer] --> Center
    Users[Customers & users] --> Center
    CurrProd[Current production software] --> Center
    PrevDoc[Previous documentation (PPT, Offer,...)] --> Center
    Center --> Meeting[Meeting minutes]
    Center --> AsIs[As-is business model]
    Center --> Relevant[Relevant documentation]
  
```

The diagram illustrates the UBM (Understand the Business Model) activity. A central yellow box labeled "Understand the customers' business model" (with a yellow arrow icon) is the core of the process. It receives inputs from five sources: a cloud labeled "Information about the customers' business", an icon of a person labeled "Requirements Engineer", an icon of a group of people labeled "Customers & users", a document icon labeled "Current production software", and a folder icon labeled "Previous documentation (PPT, Offer,...)". From the central box, three arrows point outwards to "Meeting minutes" (document icon), "As-is business model" (network diagram icon), and "Relevant documentation" (document icon).

February 2016


Requirements Engineering

40




UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior  
de Ingeniería Informática  
Departamento de Lenguajes  
y Sistemas Informáticos

# Requirements Elicitation



- UBM activity goals
  - ① Understand the **current business**, specially its **business processes**.
  - ② Understand the **context** in which the system to be developed will be used and propose possible **improvements**, regardless of current business processes being manual or automated.


1. Requirements Elicitation goals
2. Elicitation problems
3. Elicitation products
4. Elicitation process
5. Understand the problem domain
  - 5.1 Glossary of terms
6. Identify pos & neg aspects
  - 6.1 Information gathering
  - 6.2 Interviews and meetings
7. Understand the business model
8. Understand the IT environment
  - 8.1 Deployment diagrams
9. Obtain and document needs
  - 9.1 Business objectives



February 2016

Requirements Engineering

41



UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior  
de Ingeniería Informática  
Departamento de Lenguajes  
y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model


8. Understand the IT environment




8.1 Deployment diagrams


9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation




- UBM activity products
  -  **Current business model**, the main product of this activity.
  -  **Minutes of meetings and interviews** with customers & users held during activity performance.
  -  **Relevant documentation**, of interest to the project, obtained during activity performance.



February 2016

Requirements Engineering

42



UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior  
de Ingeniería Informática  
Departamento de Lenguajes  
y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model


8. Understand the IT environment



8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation




- Risks of not performing the UBM activity
  -  **Poor integration**
    - Not understanding the business model usually cause that the product, while technically correct, is not properly integrated into the customer's business.
  -  **Low usability**
    - Not understanding the business model usually cause that the product, while technically correct, has a low usability by not providing users with a simple way to perform their business processes.

February 2016

Requirements Engineering

43



UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior de Ingeniería Informática  
Departamento de Lenguajes y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain  
5.1 Glossary of terms

6. Identify pos & neg aspects  
6.1 Information gathering  
6.2 Interviews and meetings


7. Understand the business model


8. Understand the IT environment  
8.1 Deployment diagrams


9. Obtain and document needs  
9.1 Business objectives


Requirements Elicitation


• UBM activity technics

 Documentation survey.

 *In situ* observation, immersion.

 Interviews, meetings.


 Business process modeling.



February 2016

Requirements Engineering

44



UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior de Ingeniería Informática  
Departamento de Lenguajes y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain  
5.1 Glossary of terms

6. Identify pos & neg aspects  
6.1 Information gathering  
6.2 Interviews and meetings

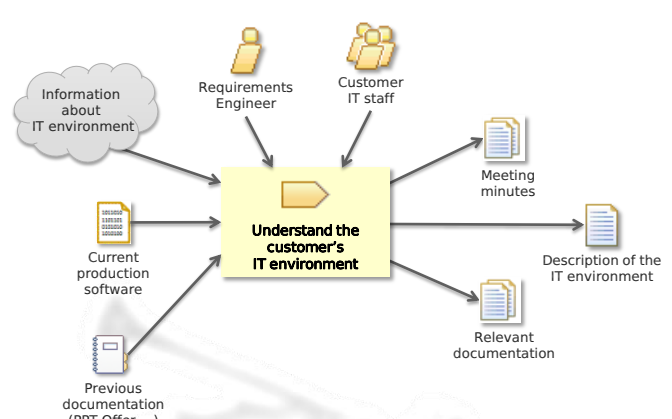
7. Understand the business model

8. Understand the IT environment  
8.1 Deployment diagrams

9. Obtain and document needs  
9.1 Business objectives

Requirements Elicitation

• UIT activity diagram



February 2016

Requirements Engineering

45

RE

23

UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model

8. Understand the IT environment

8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation

• UIT activity goals

Understand the current IT environment

• Hardware, software, networks, etc.

• Service architecture that could be already implemented.

February 2016

Requirements Engineering

46

UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model

8. Understand the IT environment

8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation

• UIT activity products

Description of the IT environment, the main product of this activity. It describes, at the level of detail considered as necessary, the customer's IT environment.


Minutes of meetings and interviews held during activity performance.

Relevant documentation, of interest to the project, obtained during activity performance.

February 2016

Requirements Engineering

47



UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior  
de Ingeniería Informática  
Departamento de Lenguajes  
y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model


8. Understand the IT environment


8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives


Requirements Elicitation





**Inadequate performance**

- If the system to be developed has to be put into production in the current IT environment, not understanding it can lead to a wrong architecture and therefore to an inadequate performance.




**Wasting resources**

- Not understanding the IT environment, especially the available services, can cause the project resources to be wasted in developing capabilities that are already available through existing services and that could therefore have been reused.

February 2016

Requirements Engineering

48



UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior  
de Ingeniería Informática  
Departamento de Lenguajes  
y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model


8. Understand the IT environment


8.1 Deployment diagrams

9. Obtain and document needs


9.1 Business objectives

Requirements Elicitation







**Documentation survey.**




***In situ* observation, immersion.**



**Interviews, meetings.**




**UML deployment diagrams.**



February 2016

Requirements Engineering

49

  
**UNIVERSIDAD DE SEVILLA**  
 Escuela Técnica Superior  
 de Ingeniería Informática  
 Departamento de Lenguajes  
 y Sistemas Informáticos

# Requirements Elicitation

- What are UML deployment diagrams?
  - They represent hardware nodes and their connections, i.e. the physical architecture of an information system.

1. Requirements Elicitation goals
2. Elicitation problems
3. Elicitation products
4. Elicitation process
5. Understand the problem domain
  - 5.1 Glossary of terms
6. Identify pos & neg aspects
  - 6.1 Information gathering
  - 6.2 Interviews and meetings
7. Understand the business model
8. Understand the IT environment
  - 8.1 Deployment diagrams
9. Obtain and document needs
  - 9.1 Business objectives

```

graph TD
    Cliente["<<Cliente>>  
Terminal Punto de Venta"]
    Servidor["<<Servidor>>  
Base de Datos"]
    Control["Control"]
    Cliente -- "<<TCP/IP>>" --- Servidor
    Cliente -- "<<RDSI>>" --- Control
    Servidor -- "<<LAN>>" --- Control
    
```

A UML Deployment Diagram showing three components: a client terminal, a server database, and a control unit. The client terminal is connected to the server database via a TCP/IP connection. The client terminal is also connected to the control unit via an RDSI connection. The server database is connected to the control unit via a LAN connection.

```


graph TD
    Firewall[firewall]
    LocalNetwork[local network]
    PrimaryServer[primary server]
    Workstation[workstation]
    Firewall -- "1 <br> <<tcp-ips>>" --- LocalNetwork
    LocalNetwork -- "1 <br> <<ethernet>>" --- PrimaryServer
    LocalNetwork -- "1 <br> <<ethernet>>" --- Workstation
    
```

A network diagram showing a firewall connected to a local network via a single TCP/IP connection. The local network is connected to a primary server and a workstation via single Ethernet connections.

February 2016


Requirements Engineering

50



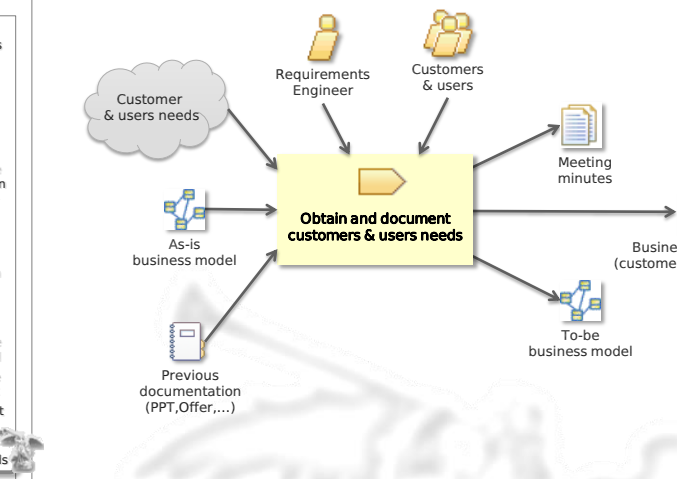
UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior  
de Ingeniería Informática  
Departamento de Lenguajes  
y Sistemas Informáticos

## Requirements Elicitation



MADEJA

### • ODN activity diagram




```

graph TD
    C[Customer & users needs] --> O[Obtain and document customers & users needs]
    RE[Requirements Engineer] --> O
    CU[Customers & users] --> O
    AIM[As-is business model] --> O
    PD[Previous documentation PPT, Offer,...] --> O
    O --> MM[Meeting minutes]
    O --> BO[Business objectives customer requirements]
    O --> TB[To-be business model]
    
```

1. Requirements Elicitation goals
2. Elicitation problems
3. Elicitation products
4. Elicitation process
5. Understand the problem domain
  - 5.1 Glossary of terms
6. Identify pos & neg aspects
  - 6.1 Information gathering
  - 6.2 Interviews and meetings
7. Understand the business model
8. Understand the IT environment
  - 8.1 Deployment diagrams
9. Obtain and document needs
  - 9.1 Business objectives



UNIVERSIDAD DE SEVILLA



Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model


8. Understand the IT environment

8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives


Requirements Elicitation



• ODN activity goals

🎯 Obtain **customers & users needs** and document them as **business objectives** (customer requirements).

🎯 Include the ***to-be* business process models** if they differ significantly from the *as-is* business model, or if the *as-is* business model was not previously considered in the project.




February 2016

Requirements Engineering

52

UNIVERSIDAD DE SEVILLA



Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model


8. Understand the IT environment

8.1 Deployment diagrams


9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation



• ODN activity products (I)




**Business objectives** (customer requirements), the main product of this activity.

• They must record customers & users needs as well as possible.

• If they have already been collected, in whole or in part, in other documents such as the Technical Specification, then traces must be set.


• If needed, they may be hierarchically decomposed to ease understanding and to be represented graphically.



February 2016

Requirements Engineering

53



UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior  
de Ingeniería Informática  
Departamento de Lenguajes  
y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model


8. Understand the IT environment



8.1 Deployment diagrams


9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation




- ODN activity products (II)
  -  **To-be business model.** It must describe, at the level of detail considered as necessary, the business model to be implemented in customers' organization. If there are not many differences with the as-is business model, it may be enough to specify such differences.
  -  **Minutes of meetings and interviews** with customers & users held during activity performance.



February 2016

Requirements Engineering

54



UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior  
de Ingeniería Informática  
Departamento de Lenguajes  
y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model


8. Understand the IT environment



8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation




- Risks of not performing the ODN activity (I)
  -  **Inappropriate final product**
    - Not understanding neither the business objectives nor the business model usually results in a final product which is not as expected by customers & users.
  -  **Poor integration**
    - Not understanding neither the business objectives nor the business model usually results in a final product which is not properly integrated into customer's business.

February 2016

Requirements Engineering

55



UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior  
de Ingeniería Informática  
Departamento de Lenguajes  
y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model


8. Understand the IT environment


8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation





Risks of not performing ODN activity (II)

Low usability

- Not understanding neither the business objectives nor the business model usually results in a low usability of the product by not providing users with a simple way to perform their business processes.


Loss of improvement opportunities

- Not understanding neither the business objectives nor the business model often causes developers not being able to propose improvements to the product because of not knowing the rationale behind the functionality they are implementing.

February 2016

Requirements Engineering

56



UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior  
de Ingeniería Informática  
Departamento de Lenguajes  
y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model


8. Understand the IT environment

8.1 Deployment diagrams


9. Obtain and document needs


9.1 Business objectives


Requirements Elicitation





ODN activity techniques

Documentation survey.

*In situ* observation, immersion.

Interviews, meetings.

Business process modeling.

Business objectives specification.


February 2016

Requirements Engineering

57

RE

29



UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior de Ingeniería Informática  
Departamento de Lenguajes y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model

8. Understand the IT environment

8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation

• Template for business objectives


<id>-999	<nombre descriptivo>
[Versión]	<nº versión> (<fecha versión>)
[Dependencias]	<ul style="list-style-type: none"><li>&lt;procesos de negocio actuales o a implantar de los que depende&gt;</li><li>&lt;objetivo de negocio padre, si lo tiene&gt; (padre)</li><li>&lt;otros objetivos de negocio de los que depende&gt;</li><li>...</li></ul>
Descripción	<descripción del objetivo de negocio en términos del dominio del problema>.
Subobjetivos	<ul style="list-style-type: none"><li>&lt;objetivos de negocio hijos (subobjetivos), si los tiene&gt;</li></ul>
[Importancia]	<importancia del proceso de negocio para el cliente>.
[Prioridad]	<prioridad del objetivo de negocio para la dirección del proyecto>
Comentarios	<comentarios adicionales sobre el objetivo de negocio>

Comentarios	<comentarios adicionales sobre el objetivo de negocio>
[Importancia]	<importancia del objetivo de negocio para la dirección del proyecto>
[Prioridad]	<prioridad del proceso de negocio para el cliente>
Subobjetivos	<objetivos de negocio hijos (subobjetivos), si los tiene>

February 2016

Requirements Engineering

58



UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior de Ingeniería Informática  
Departamento de Lenguajes y Sistemas Informáticos

1. Requirements Elicitation goals

2. Elicitation problems

3. Elicitation products

4. Elicitation process

5. Understand the problem domain

5.1 Glossary of terms

6. Identify pos & neg aspects

6.1 Information gathering

6.2 Interviews and meetings

7. Understand the business model

8. Understand the IT environment


8.1 Deployment diagrams

9. Obtain and document needs

9.1 Business objectives

Requirements Elicitation

• Comments, suggestions, ...



Amador Durán Toro  
amador@us.es  
Departamento de Lenguajes y Sistemas Informáticos  
E.T.S. Ingeniería Informática, Universidad de Sevilla, España

February 2016

Requirements Engineering

59