

Software Requirements Engineering (SE2001)



Dr. Syed Muazzam Ali Shah

HEC Approved Ph.D. Supervisor

(Assistant Professor)

Department of Software Engineering

NUCES-FAST Karachi

Contact#: (021) 111-128-128 Ext. 130

Website: sites.google.com/view/muazzam-kazmi/home

Official page: <https://khi.nu.edu.pk/personnel/dr-syed-muazzam-ali-shah-2/>

Google Scholar: <https://scholar.google.com.tw/citations?hl=en&user=OvcfR-IAAAAJ>

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Requirements Elicitation & Analysis

Requirements Elicitation

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- ❖ Activities involved in discovering the requirements for a system.
- ❖ System developers and engineers work with customer and end-users to find out:
 - ☐ The problem to be solved
 - ☐ The system services
 - ☐ The performance of the system
 - ☐ Hardware constraints

Requirements Elicitation

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- ❖ This doesn't just involve asking people what they want.
- ❖ It requires a careful analysis of:
 - The organization
 - The application domain and business processes where the system will be used.

Dimensions to Requirements Elicitation

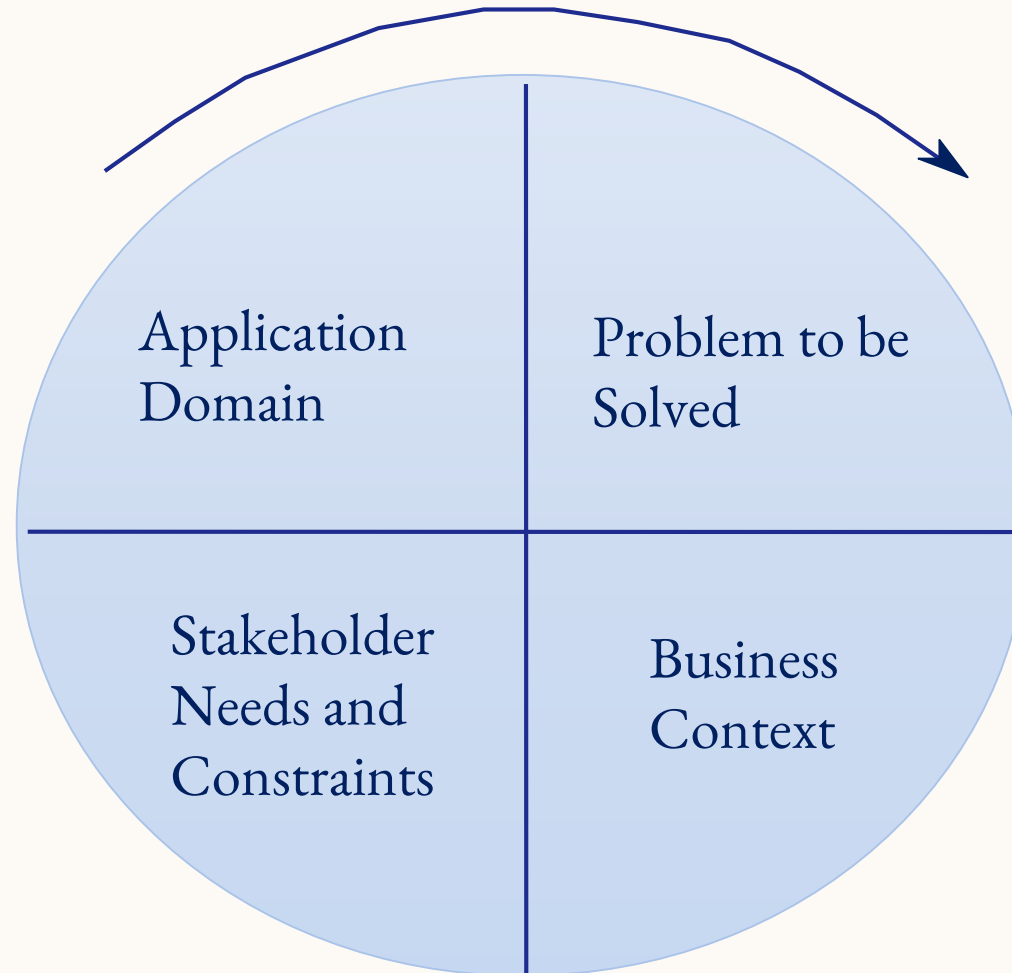
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There are four dimensions to requirements elicitation.

- ❖ Application domain understanding
- ❖ Problem understanding
- ❖ Business understanding
- ❖ Understanding the needs and constraints of system stakeholders

Dimensions to Requirements Elicitation

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Dimensions to Requirements Elicitation

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Application domain understanding:

- ❖ Knowledge of the general area where the system is applied.
- ❖ **For example:**
 - To understand the requirements for a cataloguing system, you must have a general knowledge of the libraries and how libraries work.

Dimensions to Requirements Elicitation

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Problem understanding :

- ❖ The details of the specific customer problem where the system will be applied must be understood.
- ❖ For example:
 - For a cataloguing system, you must understand how a particular library system organizes its collection.

Dimensions to Requirements Elicitation

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Business understanding :

- ❖ Systems are generally intended to contribute in some way to the development of a business/organization.
- ❖ Understand how these system interact and affect the different parts of the business.
- ❖ How they contribute to overall business goals.



Dimensions to Requirements Elicitation

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Understanding the needs and constraints of system stakeholders:

- ❖ Understand, in detail, the specific needs of people who require system support in their work.

Dimensions to Requirements Elicitation

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- ❖ Effective requirements elicitation is very important.
- ❖ If the customer's real requirements are not discovered, they are unlikely to be satisfied with the final system.
- ❖ The acceptability of the system depends on how well it meets the customer's needs and supports their work.

Elicitation and Analysis Processes

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- ❖ Requirements elicitation and requirements analysis are closely linked processes.
- ❖ As requirements are discovered during the elicitation process, some analysis is inevitably carried out.
 - Problems are immediately recognized.
 - Discussed with the source of the requirements.
 - Attempt to resolve the problem in the requirements.

Elicitation and Analysis Processes

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❖ A good requirements elicitation process should include four critical activities.

- ☐ Objective setting
- ☐ Background knowledge acquisition
- ☐ Knowledge organization
- ☐ Stakeholder requirements collection

Elicitation and Analysis Processes

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Objective setting:

- ❖ Overall organizational objectives should be established at this stage, these include:
 - ☐ General goals of business.
 - ☐ An outline description of the problem to be solved.
 - ☐ Why the system may be necessary.
 - ☐ The constraints on the system such as budget, schedule, and interoperability constraints.

Elicitation and Analysis Processes

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Background knowledge acquisition:

- ❖ Requirements engineers gather and understand background information, this includes:
 - ☐ Information about the organization where the system is to be installed.
 - ☐ Information about the application domain of the system.
 - ☐ Information about any existing systems which are in use and which may be replace.

Elicitation and Analysis Processes

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Knowledge Organization:

- ❖ The large amount of knowledge which has been collected in previous stage must be organized and collated.
- ❖ Identifying system stakeholders and their roles in the organization.
- ❖ Prioritizing the goals of the organization.
- ❖ Discarding domain knowledge which does not contribute directly to the system requirements.

Elicitation and Analysis Processes

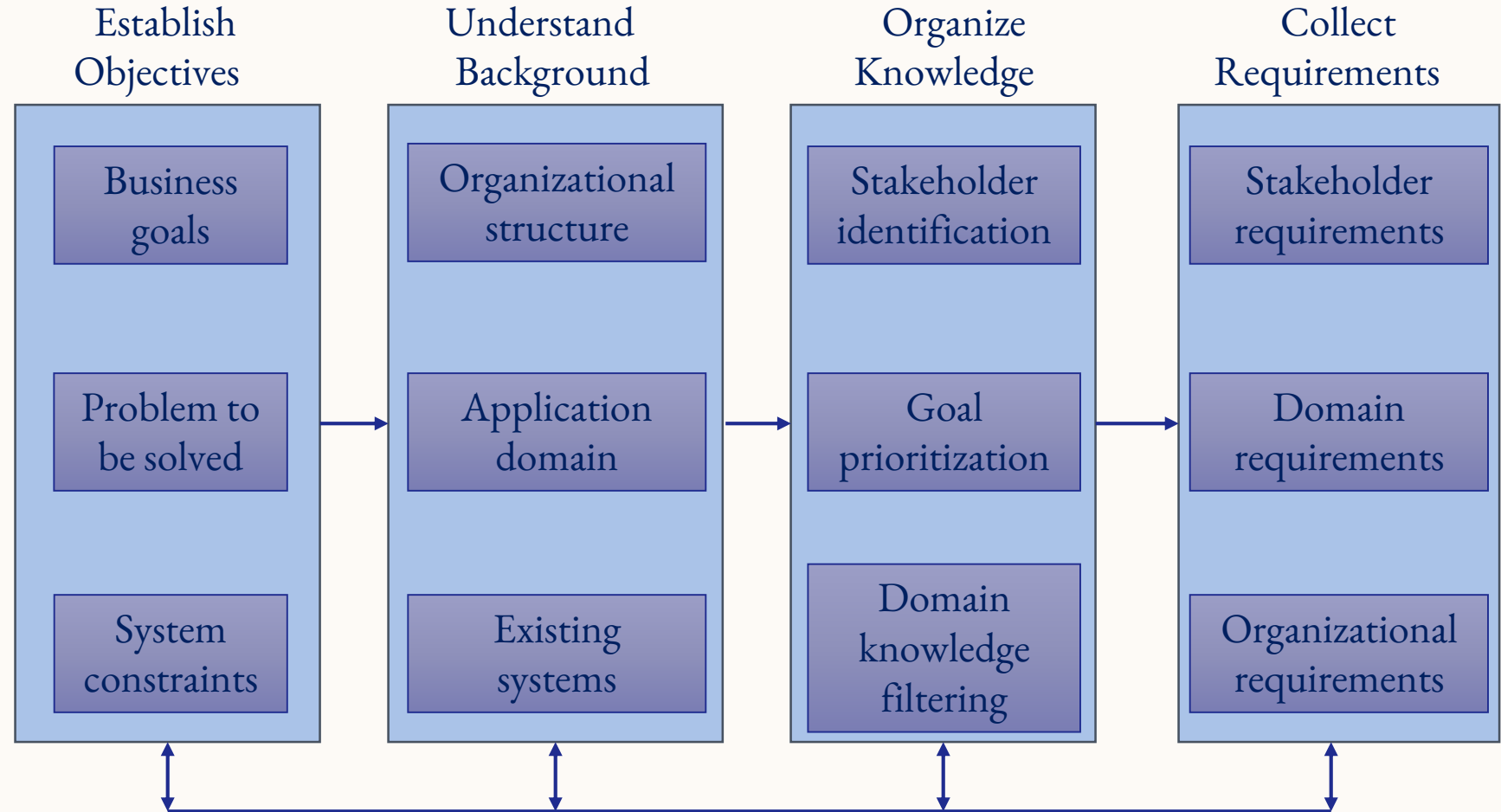
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Stakeholder requirements collection:

- ❖ It involves consulting system stakeholders to discover their requirements.
- ❖ Deriving requirements which come from the application domain and the organization which is acquiring the system.

A General Requirements Elicitation process

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A General Requirements Elicitation process

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Comments on this process - 1:

- ❖ It is an idealized process, while the reality of requirements elicitation tends to be much messier
- ❖ The activities are usually mixed up with each other
- ❖ If objective setting activities are not carried out, significant analysis problems occur, as no objective and business goals are available to prioritize requirements

A General Requirements Elicitation process

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Comments on this process - 2:

- ❖ The output from the requirements elicitation process should be a draft document.
 - ☐ Which describes the system requirements.
 - ☐ Which is then analyzed to discover problems and conflicts in the requirements definition.
- ❖ This process is followed by the requirements analysis process.



THANK YOU

Dr. Syed Muazzam Ali Shah
muazzam.ali@nu.edu.pk