

# 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](https://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>



# **Requirements Managements**

# Change Management

- ❖ Change management is concerned with the procedures, processes and standards which are used to manage changes to system requirements.
- ❖ Without formal change management, it is impossible to ensure that proposed changes support business goals.

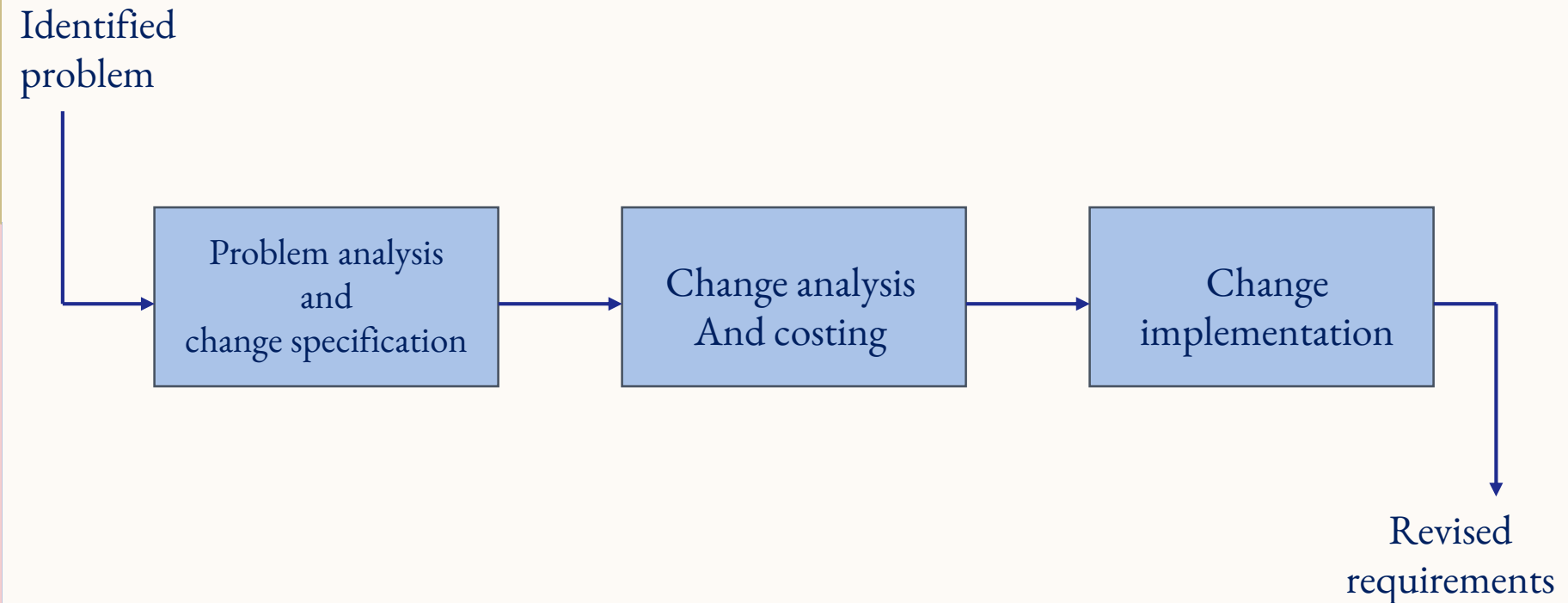
# Change Management Policies - 1

- ❖ The change request process and the information required to process each change request.
- ❖ The process used to analyze the impact and costs of change and the associated traceability information.

# Change Management Policies - 2

- ❖ The membership of the body which formally considers change requests.
- ❖ The software support (if any) for the change control process.

# Change Management Stages - 1



# Change Management Stages - 2

## ❖ Problem Analysis & Change Specification:

- Some requirements problem is identified.
- This could come from an analysis of the requirements, new customer needs, or operational problems with the system.
- The requirements are analyzed using problem information and requirements changes are proposed.

# Change Management Stages - 3

## ❖ Change Analysis and Costing:

- This checks how many requirements (and, if necessary, system components) are affected by the change and roughly how much it would cost, in both time and money, to make the change.

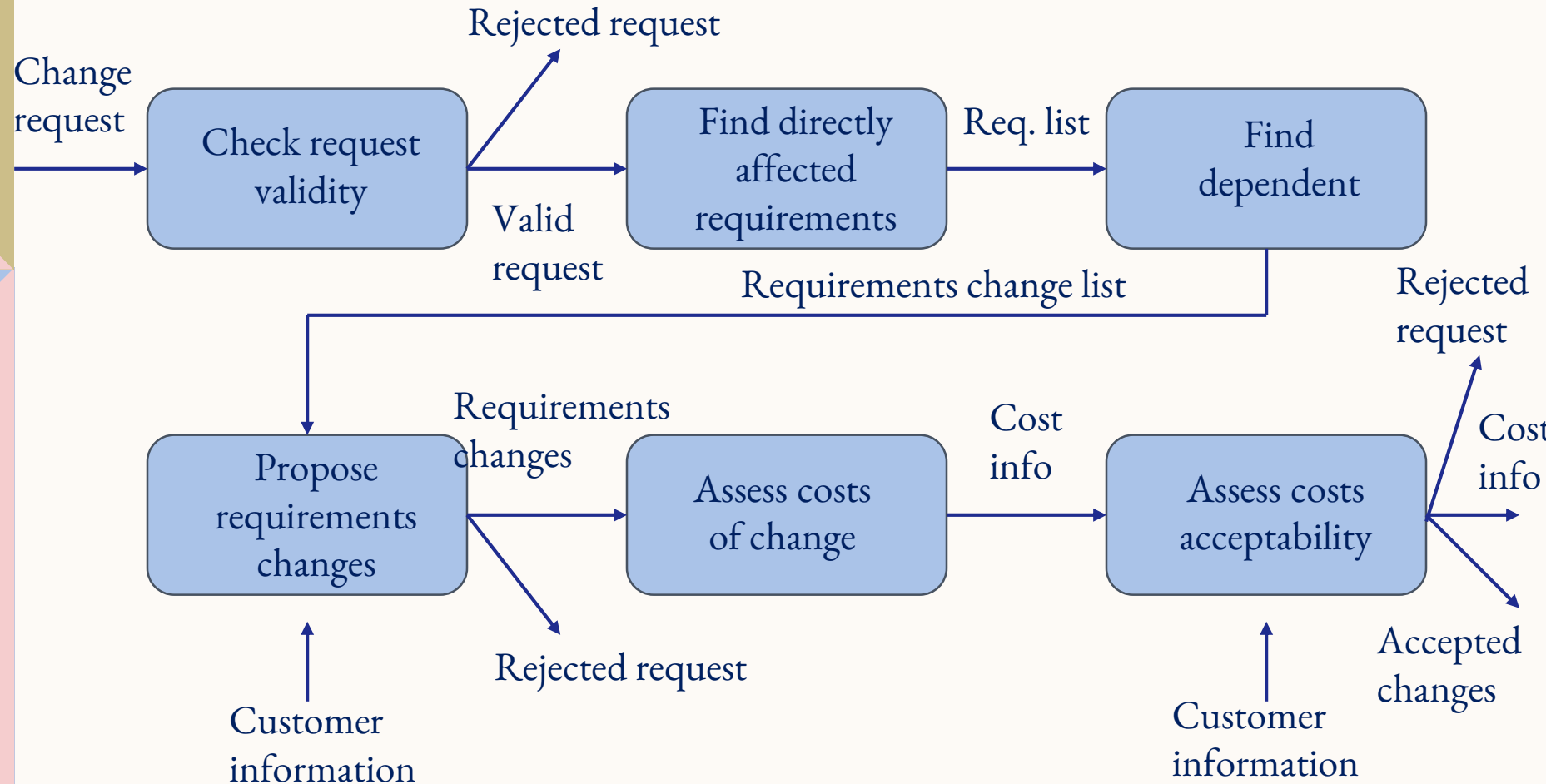


# Change Management Stages - 4

## ❖ Change Implementation:

- A set of amendments to the requirements document or a new document version is produced.
- This should, of course, be validated using whatever normal quality checking procedures are used.

# Change Analysis And Costing Process



# Change Analysis Activities - 1

- ❖ The change request is checked for validity.
- ❖ Customers can misunderstand requirements and suggest unnecessary changes.
- ❖ The requirements which are directly affected by the change are discovered.
- ❖ Traceability information is used to find dependent requirements affected by the change.

# Change Analysis Activities - 2

- ❖ The actual changes which must be made to the requirements are proposed.
- ❖ The costs of making the changes are estimated.
- ❖ Negotiations with customers are held to check if the costs of the proposed changes are acceptable.

# Change Request Rejection Reasons - 1

- ❖ If the change request is invalid.
- ❖ This normally arises if a customer has misunderstood something about the requirements and proposed a change which isn't necessary

# Change Request Rejection Reasons - 2

- ❖ If the change request results in consequential changes which are unacceptable to the user.
- ❖ If the cost of implementing the change is too high or takes too long.

# Change Processing

- ❖ Proposed changes are usually recorded on a change request form which is then passed to all of the people involved in the analysis of the change. It may include:
  - Fields to document the change analysis
  - Data fields
  - Responsibility fields
  - Status field
  - Comments field



# Tool Support For Change Management

- ❖ May be provided through requirements management tools or through configuration management tools.



# Tools Features - 1

- ❖ Electronic change request forms which are filled in by different participants in the process.
- ❖ A database to store and manage these forms.
- ❖ A change model which may be instantiated so that people responsible for one stage of the process know who is responsible for the next process activity.

# Tools Features - 2

- ❖ Electronic transfer of forms between people with different responsibilities and electronic mail notification when activities have been completed.
- ❖ In some cases, direct links to a requirements database.



# **THANK YOU**

Dr. Syed Muazzam Ali Shah  
[muazzam.ali@nu.edu.pk](mailto:muazzam.ali@nu.edu.pk)