

# Project Business Analysis

PMG 461 – MGM 461

## Lecture 5

### Gathering Information and Requirements

Prepared by  
Eng. Ahmed Hussein, MBA, PfMP®,  
PMP®, CMP APMG



Lecture

05

## What we will cover

1. Requirements Engineering Process
2. Requirements Elicitation
3. Requirements Analysis
4. Requirements Validation

## Lecture

## 05

## Introduction



Business Analysts elicit requirements from stakeholders using various qualitative and quantitative techniques. Selection based on project considerations and complexity, number of stakeholders and their location , available time and budget.



Business analysts contribute to identifying and engaging stakeholders as they serve as the bridge between the project technical team and business users. They engage stakeholders through applying various engagement strategies.



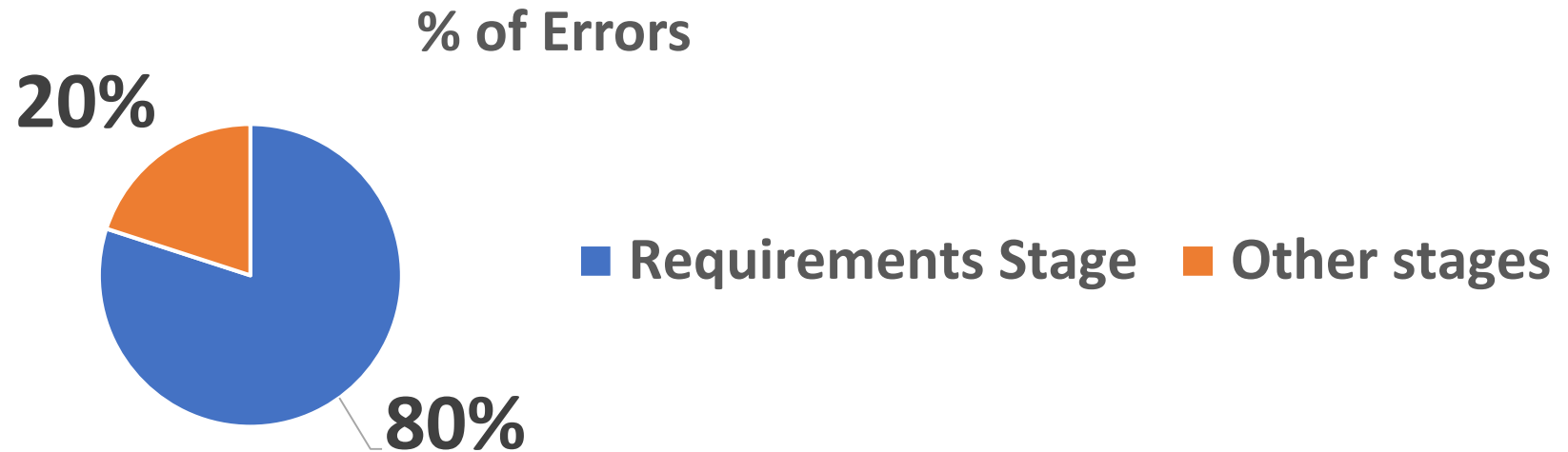
Different stakeholders have different views of the problem, requirements, and solution. the business analyst captures that in Business Activity Models, works to eliminate redundancies and conflicts, and creates a consensus model that includes all views.

Lecture  
**05**

# Requirements Engineering Process



## The Problem with Requirements



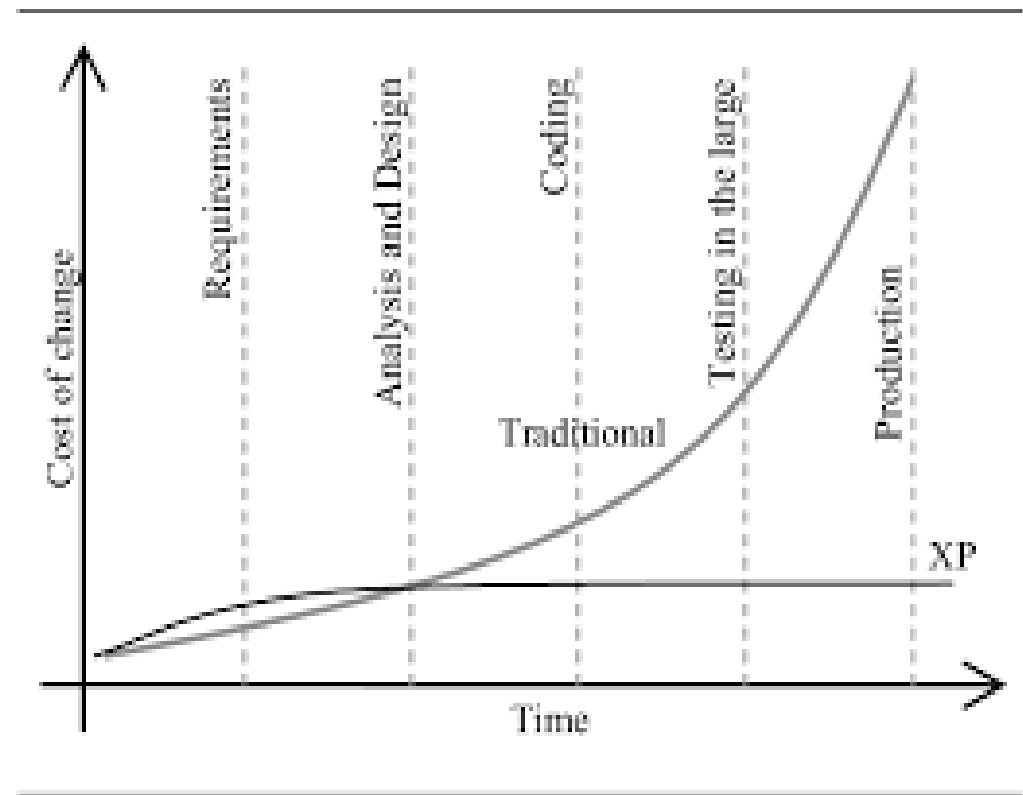
- Requirements are the most problematic aspect of the project.
- Time allocated to requirements is usually far less than other processes due to time and budget constraints (less than 12%).
- Poor alignment to business strategy and objectives, coupled with poor requirements management result in that the delivered product may not provide the solution requested.

## Lecture

## 05

## Cost of Changes

- In Traditional Project Management approaches, the cost of changing requirements increases as the project progresses.
- While in Agile approaches, the cost of changing requirements does not change as the project progresses.

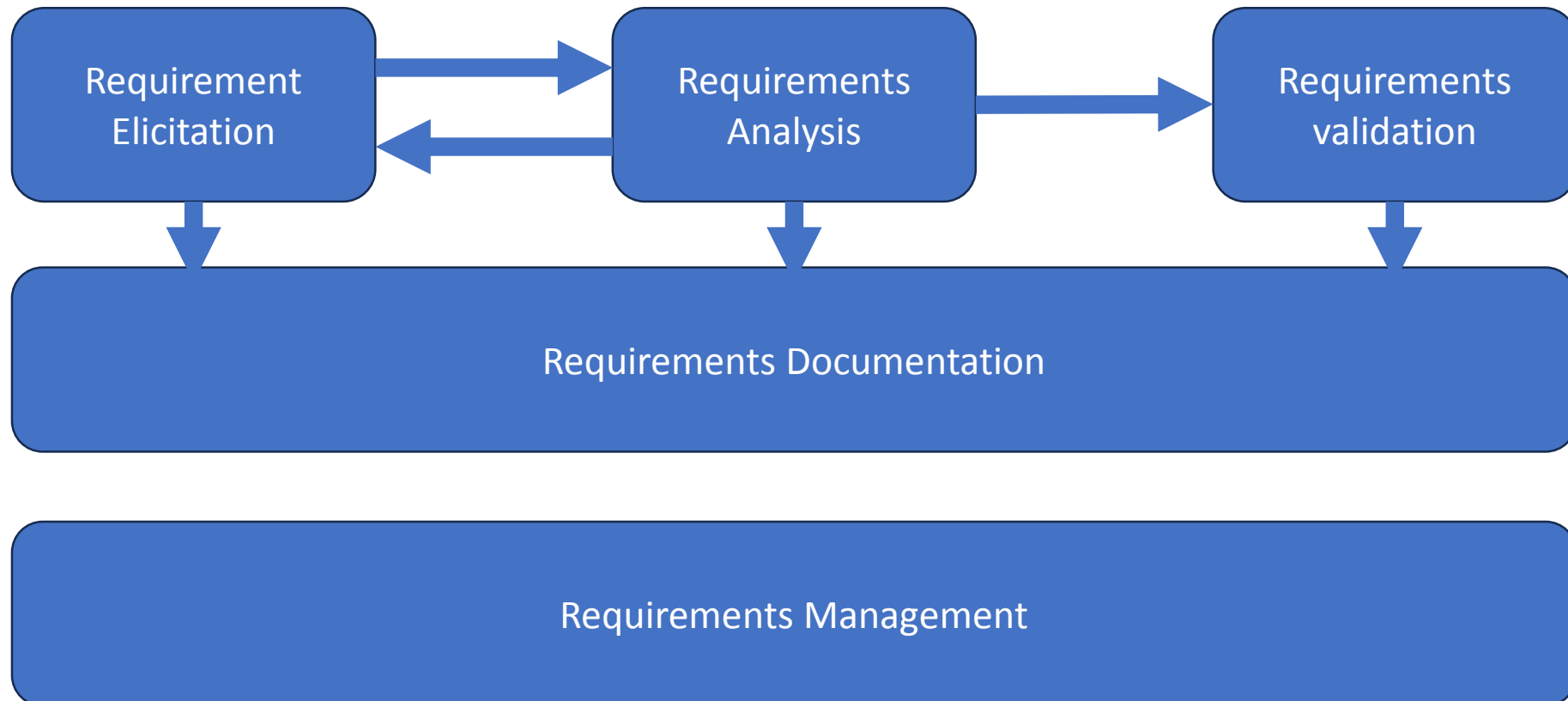


## Examples of Requirements Problems

- Not relevant
- Not Clear
- Ambiguous
- Duplication
- Conflicting requirements
- Not traceable
- Stakeholders' unclear about needs
- Inconsistent level of detail
- Taking things for granted

Lecture  
**05**

# Requirements Engineering Process



# Requirements Engineering Process

## 1. Requirements Elicitation

- Objective: Gather information and requirements from business stakeholders.
- Challenges: User explanations may lack clarity and completeness.
- Action: Business analyst lists and scrutinizes requirements for clarity and completeness.
- Outcome: Identifies areas for further elicitation.

# Requirements Engineering Process

## 2. Requirements Analysis

- Focus: Examine gathered requirements to identify overlaps, conflicts, or duplicates.
- Role: Business analyst acts as a gatekeeper, allowing only well-formed requirements into the document.
- Result: Highlights areas for further elicitation.

# Requirements Engineering Process

## 3. Requirements Validation

- Involvement: External stakeholders review and 'sign off' the requirements document.
- Content: Document includes requirements, business process and system models.
- Verification: Analyst checks document for completeness and consistency.
- Confirmation: Business representatives confirm the document as a true statement of the required system.

# Requirements Engineering Process

## 4. Requirements Documentation

- Purpose: Develop a well-organized requirements document.
- Content: Document includes models of business processes and the system.
- Analyst's Role: Analyze and check document for completeness and consistency.
- Completion: Document is considered complete when signed off.

# Requirements Engineering Process

## 5. Requirements Management

- Encompasses: Handling changes throughout project lifecycle. Recording, analyzing, and acting on changes to ensure traceability.
- Importance: Ensures every requirement is traceable from initial recording to sign-off during user acceptance testing.
- Tools: Using CASE (Computer aided systems engineering) tools for requirements management.

## Actors and roles (Business stakeholders)

### Project Sponsor

- Ensures business objectives are met.
- Approves project charter.
- Delivers agreed business benefits.
- Allocates funds and resources.
- Accepts project deliverables.
- Approves requirements document.
- Resolve conflicting requirement

## Actors and roles (Business stakeholders)

### Domain Expert

- Provides high-level advice on requirements.
- Relevant in scenarios like multi-function requirements, redesigned processes, new product introduction, or adopting industry best practice.
- Brings industry expertise but may pose risks if not familiar with company culture.

## Actors and roles (Business stakeholders)

### Business Users

- Individuals or groups applying new processes and systems.
- Describe current procedures, identify system requirements.
- Assist in defining detailed requirements.
- Play various roles, including the 'customer' role, when applicable.

## Actors and roles (Project Team)

### Project Manager

- Reports to the project sponsor.
- Breaks down the project, allocates tasks, schedules, monitors progress, takes corrective action.
- Ensures alignment with business requirements and objectives.

## Actors and roles (Project Team)

### **Business Analyst(s)**

- Responsible for requirements engineering.
- Collaborate with business staff to gather and analyze requirements
- Ensure complete, documented requirements, and aligned with objectives.
- Responsible for Quality of requirements

## Actors and roles (Project Team)

### Project Team

- Checks technical feasibility of requirements.
- Produces prototypes to clarify user requests.
- Assists business users in confirming analyst's understanding.

Lecture  
**05**

# Requirements Elicitation



## Lecture

## 05

# Tacit Knowledge

**Definition:**

- Tacit knowledge is unspoken, hard-to-articulate knowledge.
- Explicit knowledge (Process and data) is easily communicable.

**Common Elements of Tacit Knowledge:**

- Skills: for ex. how they communicate, negotiate, influence, lead, or motivate.
- Taken-for-granted information: requirements forgotten or thought of as "not worth mentioning", for example, we need the user to have strong password when logging in.
- Front story/back story: describing the formal process (front story) vs. telling what really happens (back story)
- Conceptualizing requirements: when stakeholders are uncertain or cannot visualize what do they want.
- Intuitive understanding: when people don't think about what they do, and act based on experience.

Lecture

05

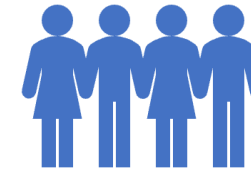
## Tacit Knowledge Examples



Norms of behaviors and communication.



Organizational Culture



Team and group norms and behaviors

Lecture  
**05**

## Tacit vs. Explicit Knowledge

|              | Tacit                                                                                                                                           | Explicit                                                                                                                                                                  |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Individual   | <ul style="list-style-type: none"> <li>Skills</li> <li>Values</li> <li>Taken for granted knowledge</li> <li>Intuitive acts</li> </ul>           | <ul style="list-style-type: none"> <li>Task definition</li> <li>Job description</li> <li>Targets</li> <li>Volumes</li> <li>Frequencies</li> </ul>                         |
| Organization | <ul style="list-style-type: none"> <li>Norms</li> <li>Back story</li> <li>Culture</li> <li>Group norms</li> <li>Organization History</li> </ul> | <ul style="list-style-type: none"> <li>Procedures</li> <li>Styles</li> <li>Processes</li> <li>Knowledge repositories</li> <li>Manuals</li> <li>Company Reports</li> </ul> |

Lecture

05

## Challenges in Tacit Knowledge

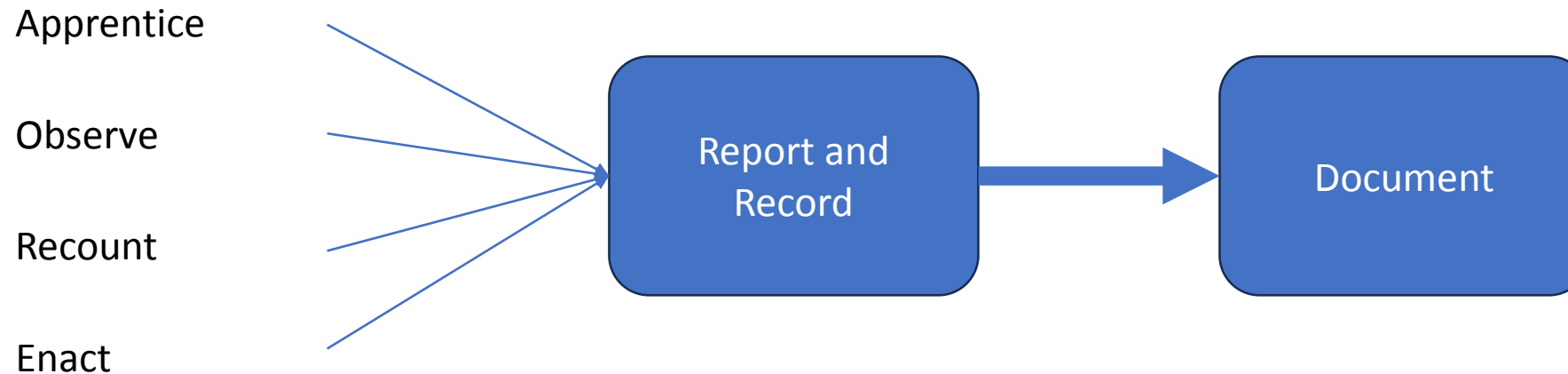
Skills are hard to explain verbally.

Taken-for-granted information may be overlooked.

Front story may differ from the actual situation.

Lecture  
**05**

# Converting Tacit to Explicit Knowledge



- Apprentice: shadowing or protocoling analysis
- Observe: observation
- Recount: scenarios or story telling
- Enact: prototyping or role play

## Lecture 05

# Requirements List

- Requirements are uncovered and gathered from stakeholders
- Done in Two phases:
  - Building Requirement List
  - Developing organized Requirements Catalogue
- Business need log is an input to requirement list
- Requirements List is an informal document that begins after initial interview or meeting.

| Requirement                           | Source             | Comment                                                                       |
|---------------------------------------|--------------------|-------------------------------------------------------------------------------|
| Reduce amount of paper moved          | Head of Operations | Check if this is a real requirement                                           |
| System must capture customer payments | Sales Manager      | Only valid for orders for retail customers, corporate customers are different |
| We need the information quicker       | Management         | Quantify - what timescale? What is wrong currently                            |

## Evolution of Requirements

Documentation is a dynamic process, continually refined to capture evolving requirements.

- Requirements Documentation is an evolving process.
- Continuous iterations and refinement to requirements as more requirements are identified.
- Initial stage requirements may lack detail and vary in scope.
- Objective is to ensure comprehensive documentation.

Lecture  
**05**

# Requirement Analysis



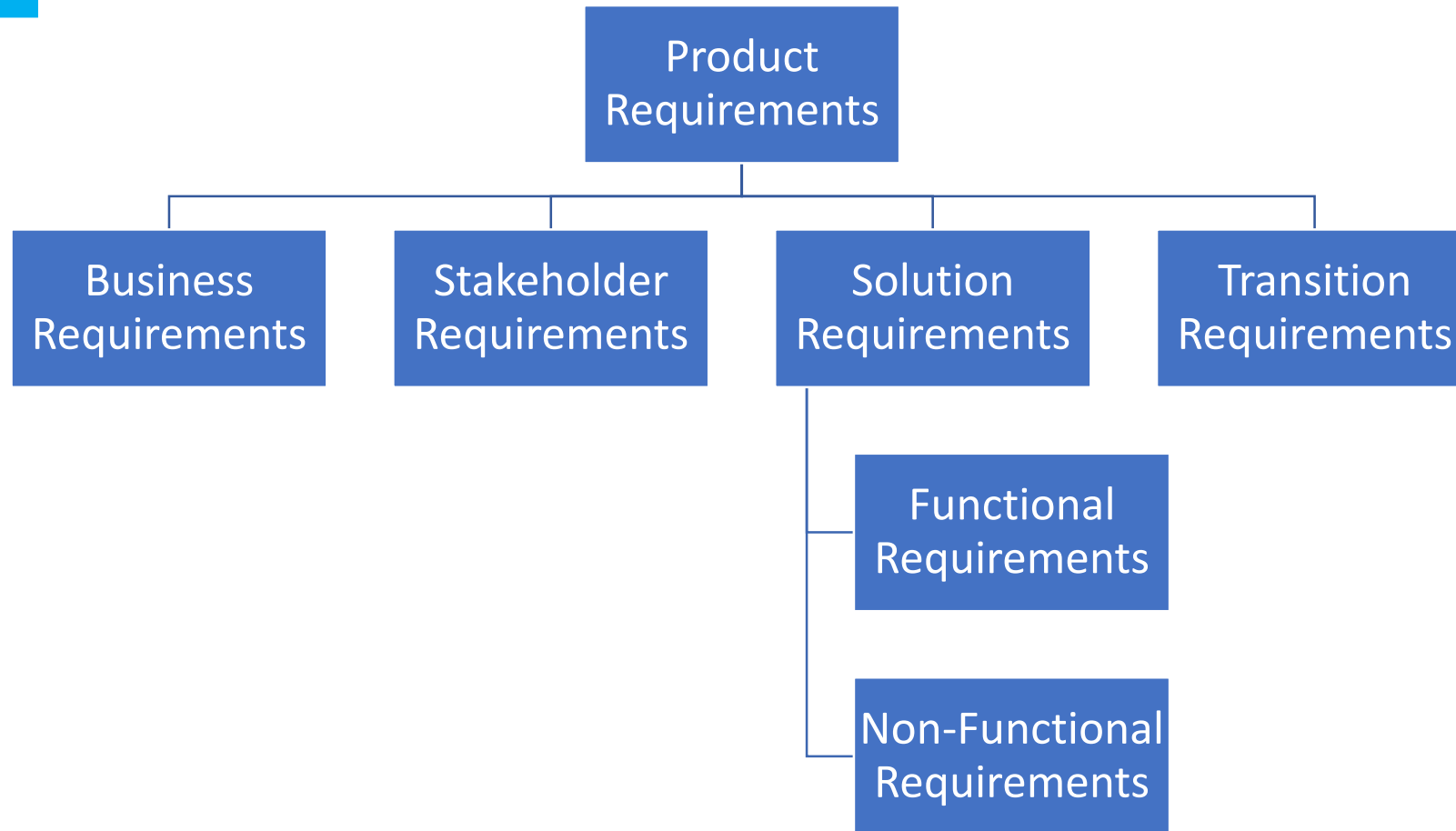
## Requirement Analysis

*Requirements analysis ensures the transformation of elicited requirements into well-formed, high-quality documentation.*

- **Analyst's Role:** Gatekeeper ensuring the quality of requirements.
- Requires high degree of Logical Thought and Rigor.
- Iterative cycle with requirements elicitation.
- Potential Actions while Analyzing:
  - Accept as-is,
  - Reword,
  - Merge,
  - Seek clarification.
- **Final Output:** All requirements documented in the requirements catalogue.

Lecture  
**05**

# Requirements Categorization



Lecture  
**05**

## Requirement Filters (1 / 2)

### Checking for Overlapping/Duplicates

- Group similar requirements for easy identification.
- Merge or separate based on duplications or overlaps.

### Unraveling Multiple Requirements

- Split grouped requirements into individual detailed requirement.

### Necessity Checking

- Align with business and project objectives.
- Address problems, not symptoms.

### Feasibility Evaluation

- Technical, business, and financial aspects considered.

Lecture

05

## Requirement Filters (2 / 2)

### Removing Conflicts

- Resolution through negotiation.
- Escalation if no compromise.

### Checking for Solutions

- Ensure requirements address needs, not predetermined solutions.

### Confirming Quality

- Ensure the quality of all defined requirements and make any necessary modifications.

Lecture

05

## Requirements' Quality Criteria

Clarity

Conciseness

Consistency

Relevance

Unambiguity

Correctness

Testability

Traceability

Lecture  
**05**

# SMART Requirements

- Review and ensure ALL Defined requirements are SMART.
- Example: Business Requirement for Operations: Reduce Order Processing time in operations from 2 hours to 30 min. by Dec. 2024



Lecture  
**05**

# Requirements Validation



## Lecture

## 05

## Validating Requirements

- When Analysts deem the requirements document complete and correct, they need to present to Business Representatives for review and confirmation and approval.
- Review and confirmation should be done through a Review group that consists of key stakeholders' representatives formed for thorough validation.
- In some projects, the steering committee acts as the review group.
- Review Meeting Format: Could Formal review meeting, virtual meeting, or individual responses via email.
- Roles:
  - Chairperson (usually the project sponsor) for review control.
  - Business analyst for presenting the document.

Lecture  
**05**

## Review Criteria for Representatives

Each representative reviews specific aspects aligned with their expertise.

| Business Sponsor                                                                                                            | Business Owners                                                                                         | Domain Expert                                                                                | Technical Team                                                                   | Quality Team                                                                  | PMO                                                                                                                                            |
|-----------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|-------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Alignment with business objectives.</li> <li>• Project scope adherence.</li> </ul> | <ul style="list-style-type: none"> <li>• Clear and unambiguous expression of business needs.</li> </ul> | <ul style="list-style-type: none"> <li>• Validation of correct business practice.</li> </ul> | <ul style="list-style-type: none"> <li>• Technical feasibility check.</li> </ul> | <ul style="list-style-type: none"> <li>• Assurance of testability.</li> </ul> | <ul style="list-style-type: none"> <li>• Compliance with standards and policies.</li> <li>• Adherence to quality review procedures.</li> </ul> |

Lecture

05

# Possible Review Outcomes



## Satisfactory Confirmation

Document signed off.



## Minor Amendments Required

Chairperson signs off post-amendments.



## Significant Rework Needed

Document undergoes further review post-reworking.

## Lecture

## 05

## Key Points

- Requirements are the most problematic aspect of the project contributing to 80% of errors.
- Requirements engineering is a process that involves eliciting, analyzing, documenting, and validating requirements, and involves multiple business and project stakeholders
- Tacit knowledge can be gathered via observation, protocol analysis, interviews, scenario and role-play and converted into explicit knowledge
- Requirement analysis ensures documenting all requirements in a complete and comprehensive manner including categorizations, filtering, and ensuring quality
- Requirements validation involving being reviewed by a group of stakeholders' representatives where each reviews aspects related to them.

## For Discussion Panel and Next Lecture:

- Reading, Chapter 9 “Gathering the Requirements” from textbook “Business Analysis” by James Cadle, Malcolm Eva, Keith Hindle, Debra Paul, 2nd edition
- Watch the video: [“Knowledge Transfer Portfolio: 3 techniques to capture tacit knowledge”](#)

Lecture

05



For Discussion Panel and  
Next Lecture



# Thank You