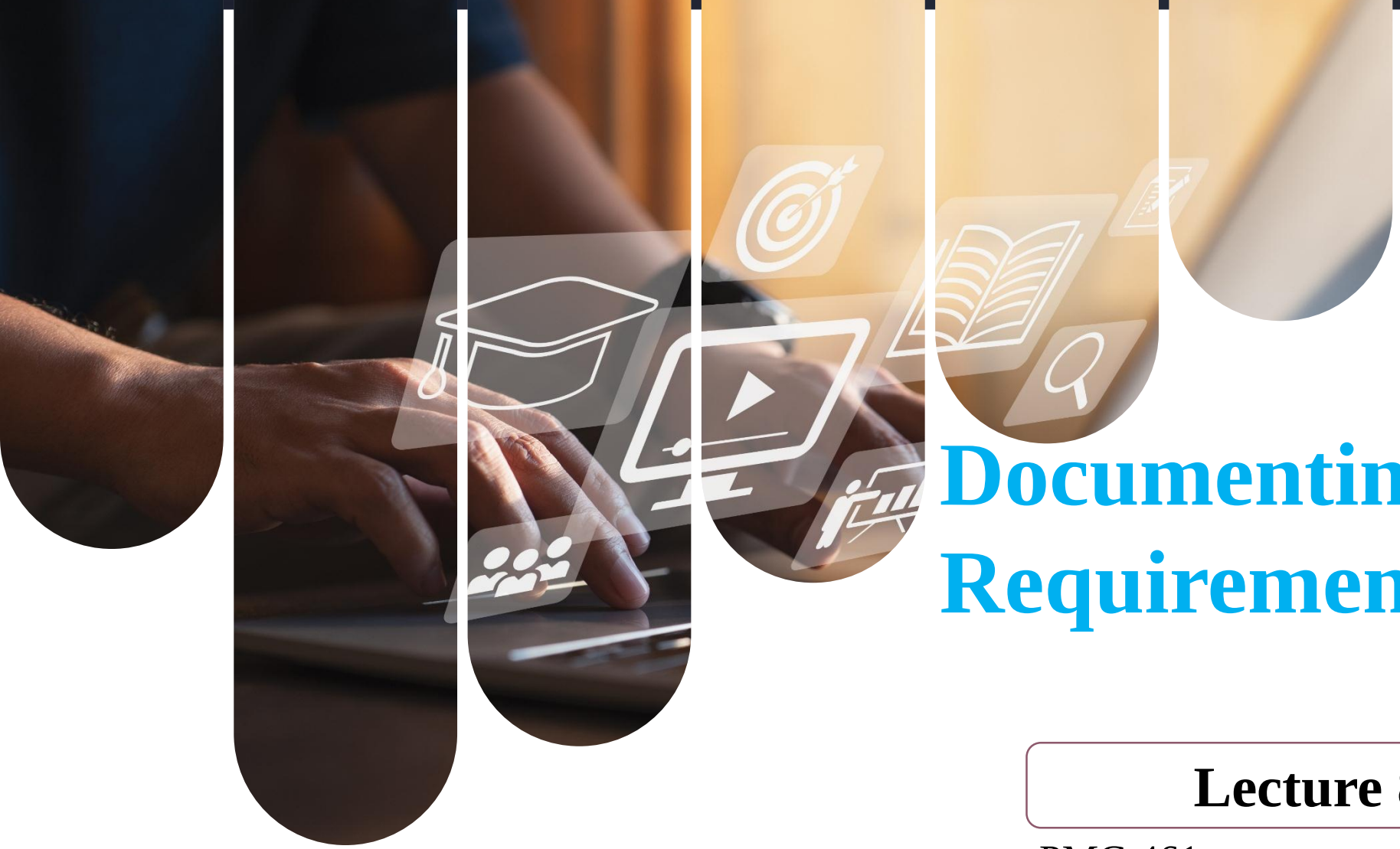
MIDOCEAN UNIVERSITY

Project Business Analysis

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

PMG 461
Bachelor of Project Management

Lecture 8



Documenting Requirements

Lecture 8

PMG 461
Project Business Analysis

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

In Previous Lectures

- Contribute to identifying and engaging stakeholders.
- Plan for business analysis plan and work plan before starting the analysis
- Requirements are engineered through elicitation, analysis, documentation, validation, and requirements management.
- Business Analysts elicit requirements from stakeholders using various qualitative and quantitative techniques.
- Business Analyst Models requirement using a mix of the various modelling techniques

Lecture
08

What we will cover

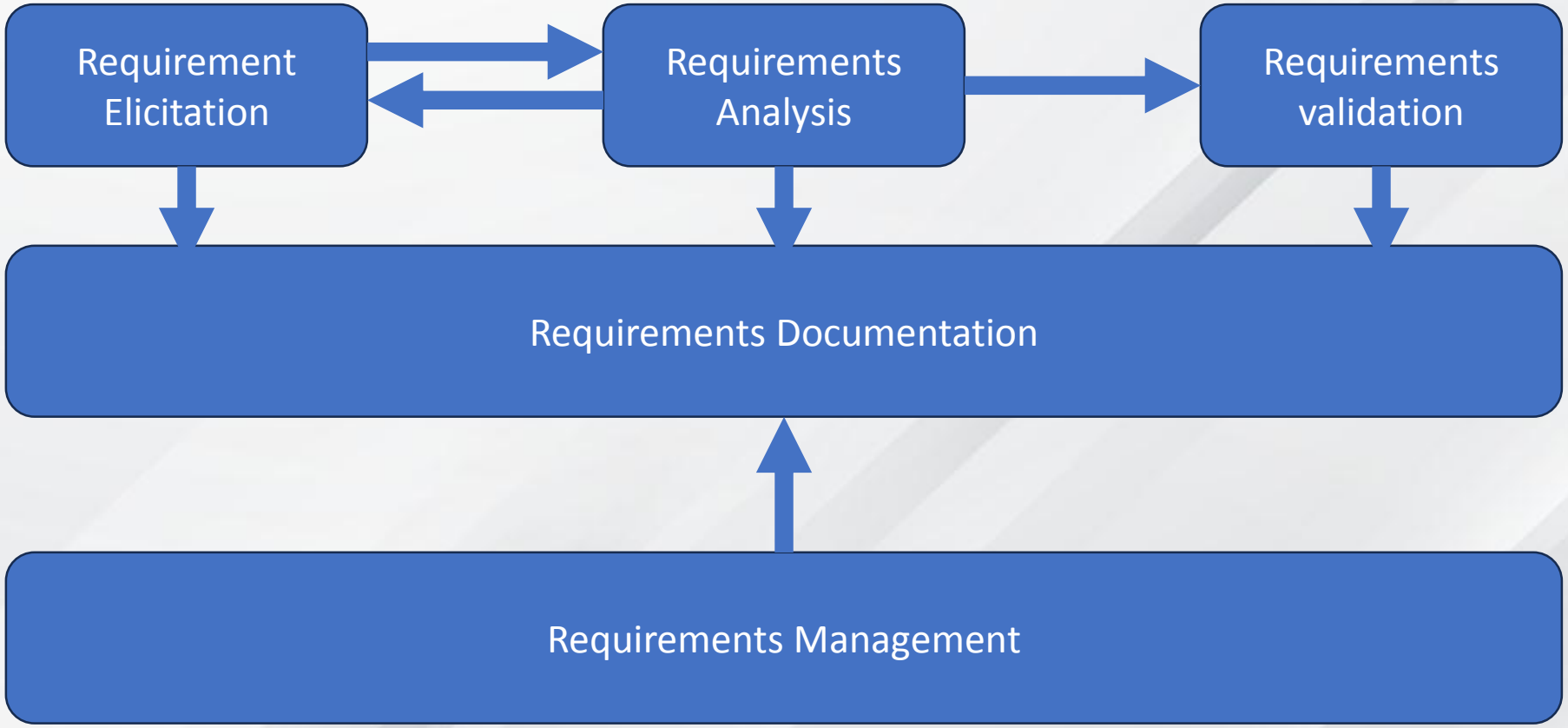
1. Business Requirements Document
2. Content of Requirements Document
3. Writing, Categorizing and Prioritizing Requirements
4. Peer Review and Version Control for Requirements Document

MIDOCEAN UNIVERSITY

Lecture
08

Requirements Document Overview

Requirements Documentation is done throughout the Requirements Engineering Process.



Requirements Documentation

Requirements documentation encompasses the detailed articulation of how individual requirements align with the overarching business objectives of the project.

These requirements initially commence at a high-level, evolving into more detailed specifications as greater insight into project requirements is acquired.

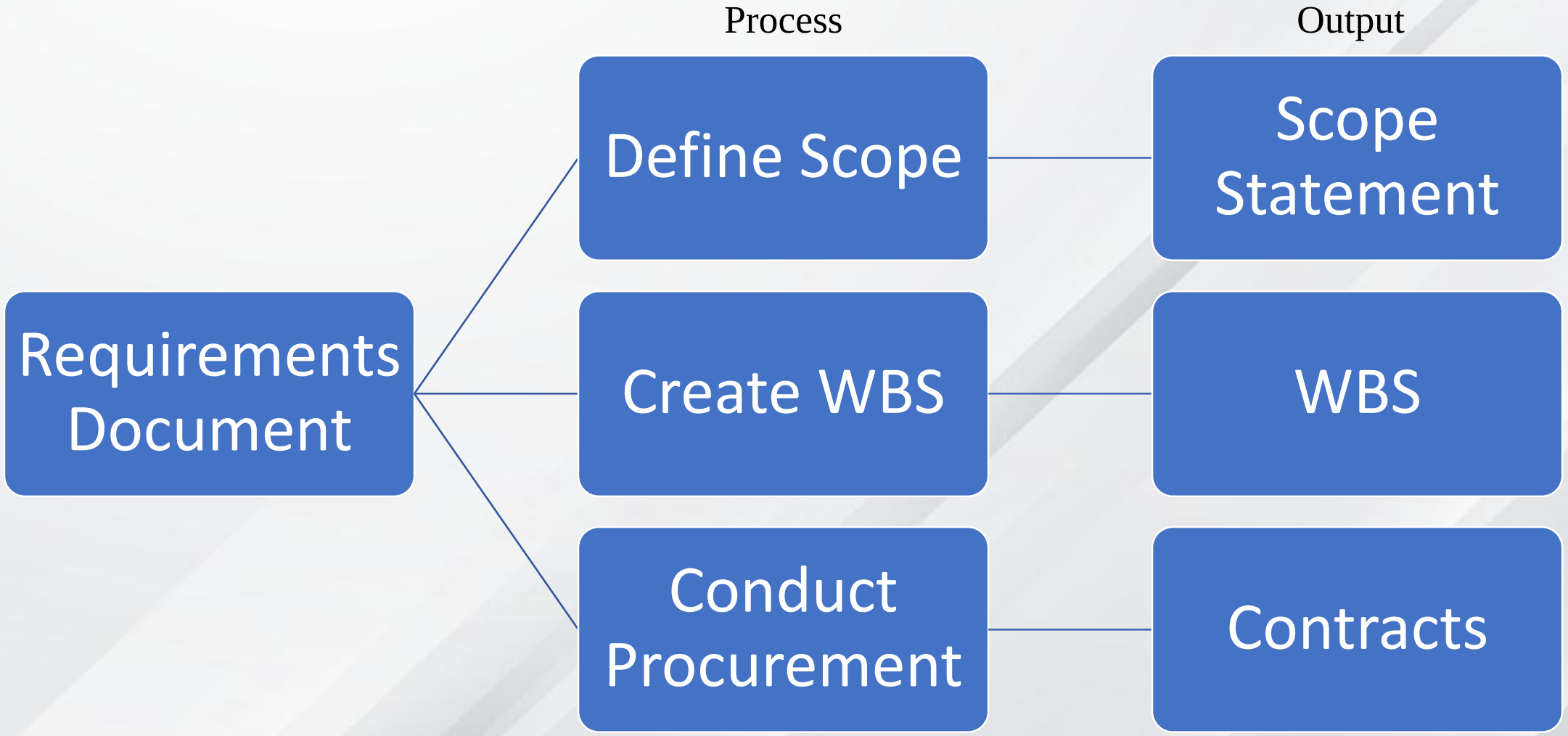
Purpose of Requirements Document

- Defines solution for business opportunity or problem in sufficient details
- Basis for validating stakeholder needs
- Input to Project Scope Definition
- Main input to technical teams (design, development, and quality)
- Basis for traceability, audit and verification

Key Attributes

Unambiguous	• Requirements should be clearly defined, ensuring measurability and testability, thereby mitigating ambiguity in interpretation.
Traceability	• Each requirement should be traceable throughout the project lifecycle, enabling seamless tracking of its implementation and verification.
Completeness	• Include all necessary requirements, leaving no critical aspects unaddressed, ensuring comprehensive coverage of project needs.
Consistency and Stakeholder Acceptance	• Exhibit internal coherence while also aligning with the expectations and preferences of key stakeholders. Consensus and buy-in from stakeholders are imperative for project success

How is Requirements Document used?



MIDOCEAN UNIVERSITY

Lecture
08

Contents of Requirements Document

Variation in Documentation Formats

- Requirements documentation formats span from simple listings, organized by stakeholder and priority, to elaborate structures including:
  - Executive summaries for high-level overviews.
  - Detailed descriptions offering in-depth insights into each requirement.
  - Supplementary attachments providing additional context or supporting documentation.
- Requirements documentation should include “To Be” Solution, and may include “As Is” situation.
- This diversity caters to varied project needs and accommodates stakeholders' preferences.
- Such versatility enhances communication and aids in comprehensive understanding of project requirements across all involved parties.

Sample Requirements Document in Agile Projects (Product Backlog)

MIDOCEAN UNIVERSITY

- A prioritized list of all the work that needs to be done to complete the project.

Id	Backlog Item	Assigned to Sprint	Status	Size (In Story Points)
1	Design		Open	
2	Coding		Open	
3	Add		Open	
4	Subtract		Open	
5	Multiply		Open	
6	Divide		Open	
7	Sin		Open	
8	Cos		Open	
9	Tan		Open	
10	Sec		Open	

Id	Backlog Item	Assigned to Sprint	Status	Size (In Story Points)
11	Csc		Open	
12	Cot		Open	
13	Polynomial		Open	
14	Rational		Open	
15	Exponential		Open	
16	Logarithmic		Open	
17	Radical		Open	
18	Mean		Open	
19	Median		Open	
20	Mode		Open	

Id	Backlog Item	Assigned to Sprint	Status	Size (In Story Points)
21	Std. Deviation		Open	
22	Variance		Open	
23	Count		Open	
24				
25				
26				
27				
28				
29				
40				
			Total	

Components of Requirements Document

MIDOCEAN UNIVERSITY

Introduction and Background

A description of the business situation and drivers for the project.

clarify project objectives and scope of the work

ensure stakeholders are aware of the business context of the requirements

Solution

"To Be" process models to set the vision for new processes

"As Is" processes (if needed)

Function Models

Diagrams showing functionality

Examples:

- Context Diagrams
- Use Case Diagrams

Data Models

Provide higher level of details

Examples:

- Entity Relationship Diagrams

Requirements Catalogue

documenting each individual requirement

important for tracing and verification

Examples:

- Requirements Catalogue

Glossary:

Provides clear definitions so that requirements can be easily read, understood, and agreed.

Clarifies terminology used.

Sample Requirements Document Table of Content

MIDOCEAN UNIVERSITY

Table of Contents

Introduction **1**
- Purpose 1
- Scope 1
- References 1

Overall Description **1**
- Accessibility Specifications 1
- Business Rules Specification 2
- Design Constraints Specification 2
- Disaster Recovery Specification 2
- Documentation Specifications 2
- Functional Specifications 2
- Graphical User Interface (GUI) Specifications 3
- Multi-divisional Specifications 3
- Performance Specifications 3
- Quality Attributes Specification 4
- Reliability Specifications 4
- Scope Integration 4
- Security Specifications 5
- System Features 5
- Usability Specifications 5

Purchased Components **5**

Estimation **5**

Approval Signatures **7**

Appendix A: Non-Functional Requirements **8**
- System Performance Reporting Requirements 8

Sample Requirements Document Table of Content

Table of Contents

1.	**EXECUTIVE SUMMARY**	**3**
1.1	PROJECT OVERVIEW	3
1.2	PURPOSE AND SCOPE OF THIS SPECIFICATION	3
2.	**PRODUCT/SERVICE DESCRIPTION**	**3**
2.1	PRODUCT CONTEXT	3
2.2	USER CHARACTERISTICS	3
2.3	ASSUMPTIONS	3
2.4	CONSTRAINTS	3
2.5	DEPENDENCIES	4
3.	**REQUIREMENTS**	**4**
3.1	FUNCTIONAL REQUIREMENTS	5
3.2	USER INTERFACE REQUIREMENTS	5
3.3	USABILITY	5
3.4	PERFORMANCE	6
3.4.1	*Capacity*	*6*
3.4.2	*Availability*	*6*
3.4.3	*Latency*	*6*
3.5	MANAGEABILITY/MAINTAINABILITY	6
3.5.1	*Monitoring*	*6*
3.5.2	*Maintenance*	*6*
3.5.3	*Operations*	*6*
3.6	SYSTEM INTERFACE/INTEGRATION	7
3.6.1	*Network and Hardware Interfaces*	*7*
3.6.2	*Systems Interfaces*	*7*
3.7	SECURITY	8
3.7.1	*Protection*	*8*
3.7.2	*Authorization and Authentication*	*8*
3.8	DATA MANAGEMENT	8
3.9	STANDARDS COMPLIANCE	8
3.10	PORTABILITY	8
4.	**USER SCENARIOS/USE CASES**	**9**
5.	**DELETED OR DEFERRED REQUIREMENTS**	**9**
6.	**REQUIREMENTS CONFIRMATION/STAKEHOLDER SIGN-OFF**	**10**
APPENDIX		**11**
APPENDIX A.	DEFINITIONS, ACRONYMS, AND ABBREVIATIONS	11
APPENDIX B.	REFERENCES	11
APPENDIX C.	REQUIREMENTS TRACEABILITY MATRIX	11
APPENDIX D.	ORGANIZING THE REQUIREMENTS	13

Business Requirement Document (BRD) vs. Business Requirements Specifications (BRS)

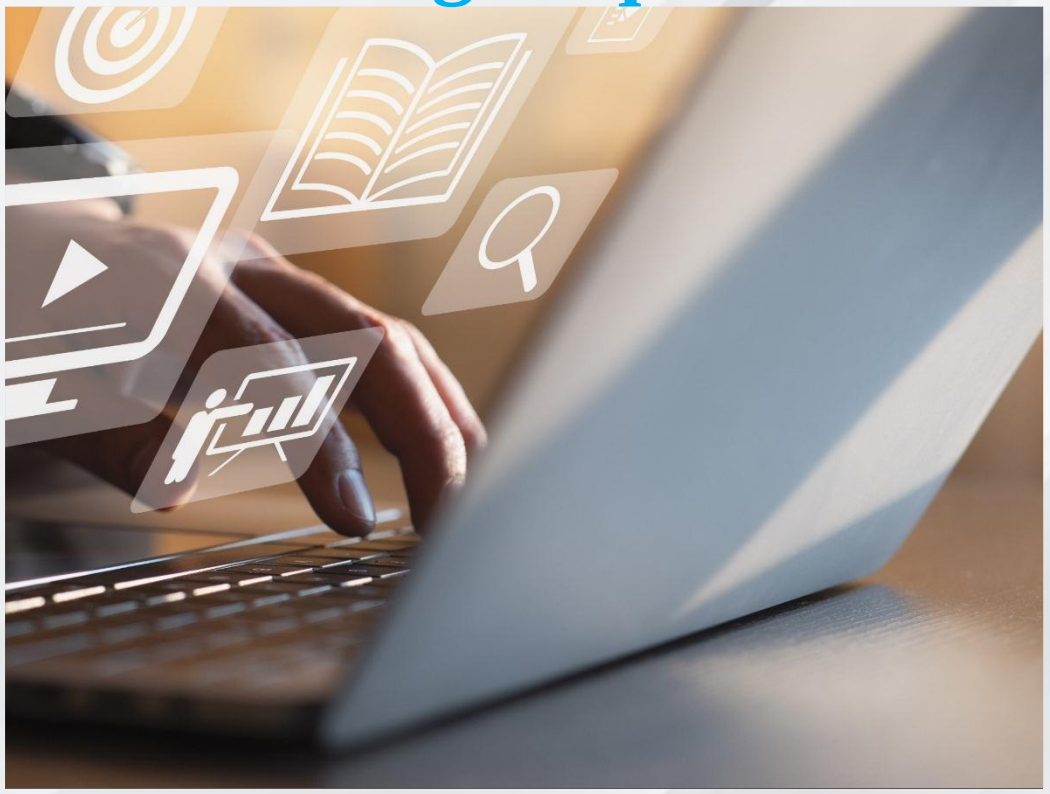
MIDOCEAN UNIVERSITY

Aspect	Business Requirements Document (BRD)	Business Requirements Specifications (BRS)
Definition	Outlines high-level business objectives, goals, and needs.	Translates high-level business needs into specific requirements.
Scope	Provides a broad overview of the business problem or opportunity.	Delves deeper into the specific functional requirements.
Audience	Stakeholders, executives, project sponsors.	Technical team (developers, designers, testers).
Content	Business objectives, current state analysis, desired future state, stakeholders, constraints, risks, assumptions.	Detailed functional requirements, user stories, use cases, acceptance criteria, data requirements.
Level of Detail	Focuses on 'what' rather than 'how'.	Provides granular view of 'how' the system should behave.

MIDOCEAN UNIVERSITY

Lecture
08

Writing, Categorizing and Prioritizing Requirements



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**

Writing Requirements

- Information should be transcribed into high-quality, well-formatted requirements to maximize their value to stakeholders and the project team.
- Well-written requirements contribute to clarity, conciseness, and reduced conflict and confusion regarding project deliverables.
- The structure and guidelines for documenting requirements depend on the selected project lifecycle.
- Requirements are typically documented in text format for developing business requirements documentation or solution requirements documents.
- For projects following Agile lifecycle, requirements are often written in the format of user stories.
- Regardless of the format, requirements can extend beyond text to include visual representations.

Requirements Format

- Condition
- Subject
- Imperative
- Active Verb
- Object
- Business rule (optional)
- Output (optional)

When the user clicks check button (condition), the system (subject) will (imperative) display (active verb) the inventory balance (object) allowing the user to buy the item (outcome).

Requirements Format Example

When the structure is finished (condition), the workers (subject) will (imperative) move (active verb) the bricks beside the building (object) allowing Building of walls (outcome).

Unambiguous Requirements

- Clear and measurable
- Avoids misunderstandings

Ambiguous	Unambiguous
the system will check the address field to be only alphanumeric and containing valid postal code.	1.2.1 The system shall validate that: 1.2.1.1. Address field is alphanumeric 1.2.1.2 Postal code is entered 1.2.1.3 Postal code is valid
If store code entered does not match store codes on file, the system will display error message	1.4.1 when store code entered, system will validate against store codes on file, and : - if store code matches, will move to next step, - If store code does not match, display “invalid store code”

Consistent Requirements

- No contradiction or redundancy.
- Consistent language throughout the document

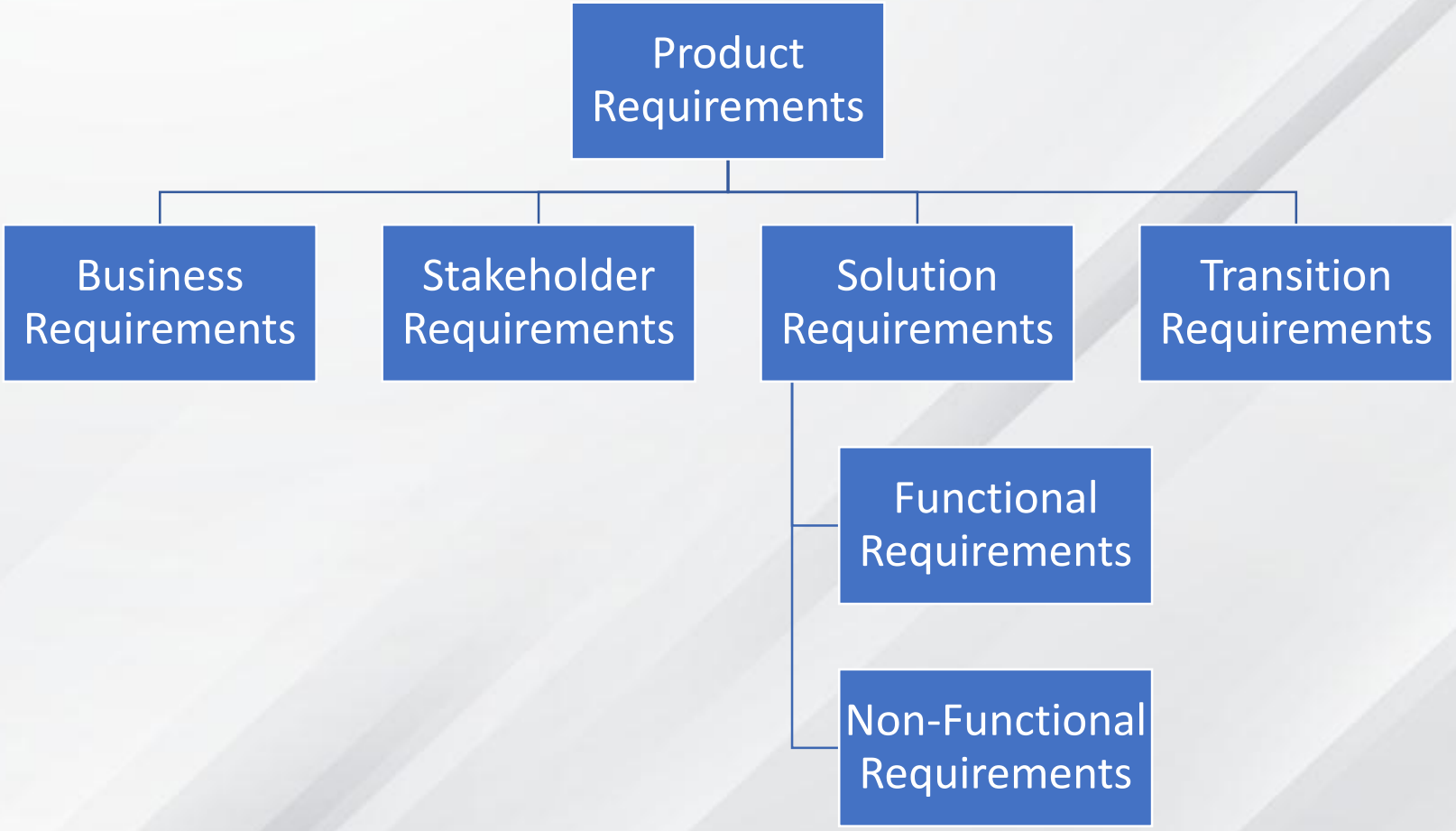
Inconsistent	Consistent
12.1.1 the Application will 17.2.3 the system should 19.1.4 the IT application will	12.1.1 the IT Application System should 17.2.3 the IT Application System should 19.1.4 the IT Application System application should

Complete and Measurable Requirements

- More Information to make it more complete.
- Being Specific and quantify information

Incomplete	Complete
The session should be terminated after some idle time.	The session should be terminated after 3 min. of idle time
The new production line capacity will be sufficient for 3 years.	The new production line capacity will be 500,000 tons which is sufficient for 3 years.

Requirements Categorization



Business Requirements

- Business Goals, objectives
- Constraints: budget, timescale, resources
- Policies
- Legal
- Branding
- Cultural
- Language
- Business Continuity

Examples:

- All Documentation in Arabic (Language)
- Need for Back up Site and installation (Business Continuity)
- Design must be approved by risk department (Policies)

Stakeholder Requirements

- Needs of a stakeholder or a group of stakeholders
- Sometimes to align with certain practice or standard followed by the stakeholder.

Examples:

- Report requested by a certain department
- Testing scenarios requested by a manager
- Certain days to work on the project for a department

Solution-Functional Requirements

- Describe features and behaviors of the solution product.

Examples:

- Features
- Procedures and Processes
- Fields and screens
- Interfaces

Solution-Non-Functional Requirements

- Describe environmental conditions or qualities required by the solution product.

Examples

- Availability
- Performance
- Security Requirements
- Access
- Backup and Recovery
- Maintenance

Transition Requirements

- Describe temporary capabilities to move from current state to future state.

Examples:

- Training of IT personnel
- Data Conversion
- Dates and times to transition

Requirements Prioritization Schema (MoSCoW)

- Defines how requirements will be prioritized.
- Defined in Business Analysis Plan
- Establishes prioritization rules
- Done in workshops through:
  - Voting
  - Delphi Technique

Must Have (Mo)

Should HAVE (S)

Could Have (C)

Won't Have (W)

MIDOCEAN UNIVERSITY

Lecture
08

Peer Review and Version Control for Requirements Document

Peer-Review

- A structured evaluation process, where peers within the project team assess completeness, clarity, consistency, and correctness.
- The aim is to identify errors, ambiguities, and discrepancies.
- Ensures alignment with project objectives and stakeholder needs.
- Leverages diverse perspectives and expertise within the team.
- Facilitates constructive feedback and refinement before finalization.

Requirements Document → **Peer Review** → **Present to Stakeholders for Validation and Approval**

Version Control

- Version control ensures systematic management of changes in requirements documentation.
- Vital for maintaining document integrity, consistency, and tracking revisions.

DOCUMENT NO.	DATE	VERSION NO.

Importance of Version Control

•Facilitates collaboration	• Enables multiple team members to work on the document simultaneously.
•Ensures traceability	• Tracks changes, allowing easy identification of who made specific edits and when.
•Mitigates risks	• Helps prevent errors, conflicts, and loss of critical information.

Best Practices for Version Control

MIDOCEAN UNIVERSITY

1

Utilize dedicated version control software/tools.

2

Establish clear naming conventions for document versions.

3

Implement a review and approval process for changes.

4

Regularly back up documents to prevent data loss.

Lecture

08

Key Points

- Requirements should be unambiguous, clear, consistent, and complete
- Requirements document as used to define Scope, WBS, and in contracts
- Various formats for Requirements Document depending on project lifecycle and needs
- Guidelines for writing, categorizing, and prioritizing requirements
- Utilize Peer-review to refine document and implement version control.

For Discussion Panel:

- Watch the video "Business Requirements Document BRD Tutorial & Template Walkthrough"
- Download and Review "Business Requirements Document Template"
- Reading, Chapter 10 "Documenting and Managing Requirements" from textbook "Business Analysis" by James Cadle, Malcolm Eva, Keith Hindle, Debra Paul, 2nd edition

Lecture
08

For Discussion Panel and Next Lecture

MIDOCEAN
UNIVERSITY

Thank You