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LIVE WEBINAR

THE BABOK® UNTANGLED SERIES

EPISODE 6

REQUIREMENTS ANALYSIS & DESIGN DEFINITION (Chapter 7)

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EPISODE 04	Business Analysis Planning and Monitoring (incl Techniques)
EPISODE 05	Elicitation & Collaboration (incl Techniques)
EPISODE 06	Requirements Analysis & Design Definition (incl Techniques)
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EPISODE 09	Business Analysis Competencies

CONTEXT OF TODAY

BABOK®

Key Concepts

Foundation of BABOK and the conceptual framework for business analysis BACCM.

Knowledge Areas

Knowledge areas represent areas of specific business analysis expertise that encompass several tasks.

Underlying Competencies

Knowledge, skills, behaviours, characteristics, and personal qualities that help perform the role of the business analyst.

Techniques

Techniques provide additional information on ways that a task may be performed.

Perspectives

Perspectives provide focus to tasks and techniques specific to the context of the initiative

1. Business Analysis Planning & Monitoring
2. Elicitation & Collaboration
3. Requirements Life Cycle Management
4. Strategy Analysis
5. Requirements Analysis & Design Definition
6. Solution Evaluation

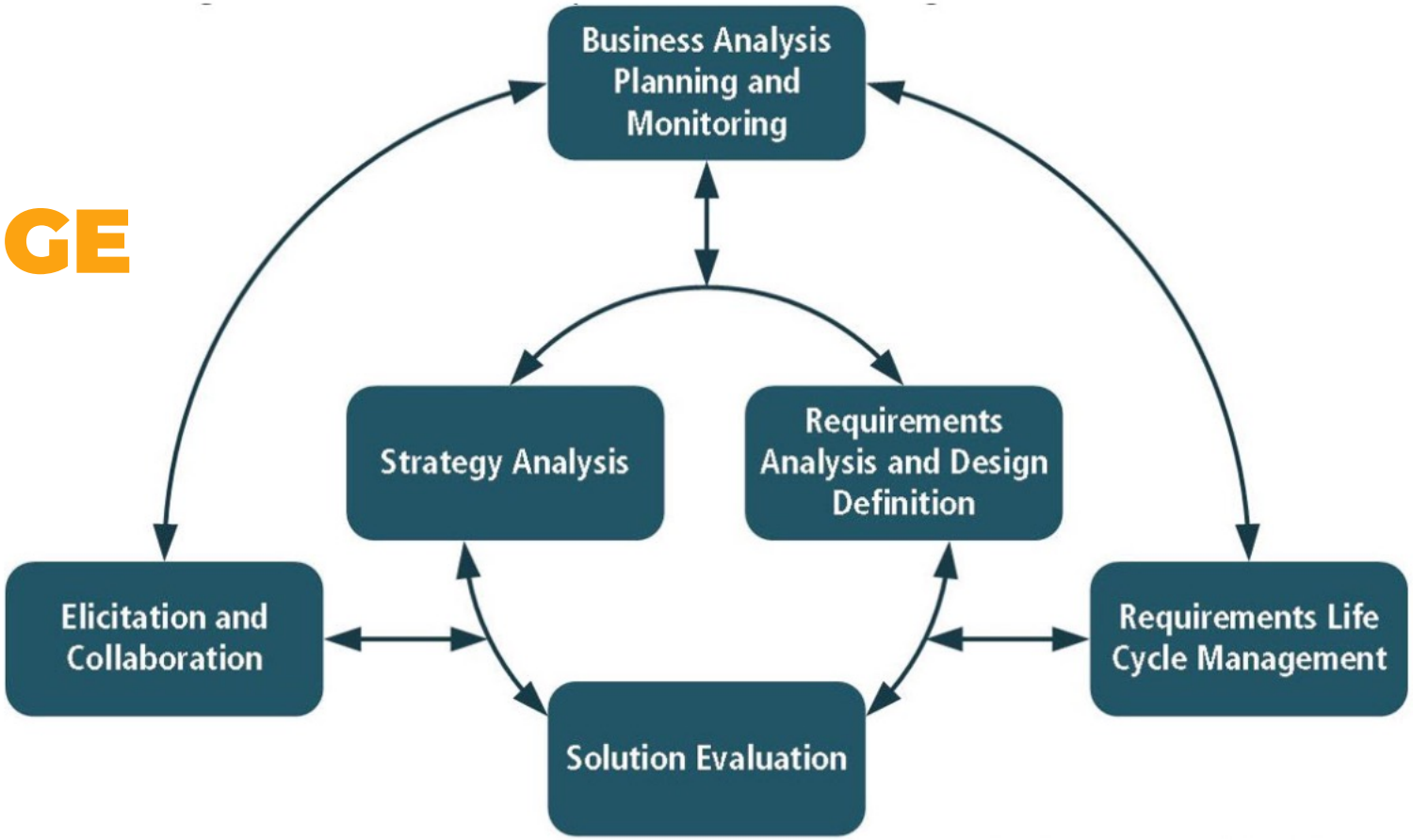
Task...

Task...

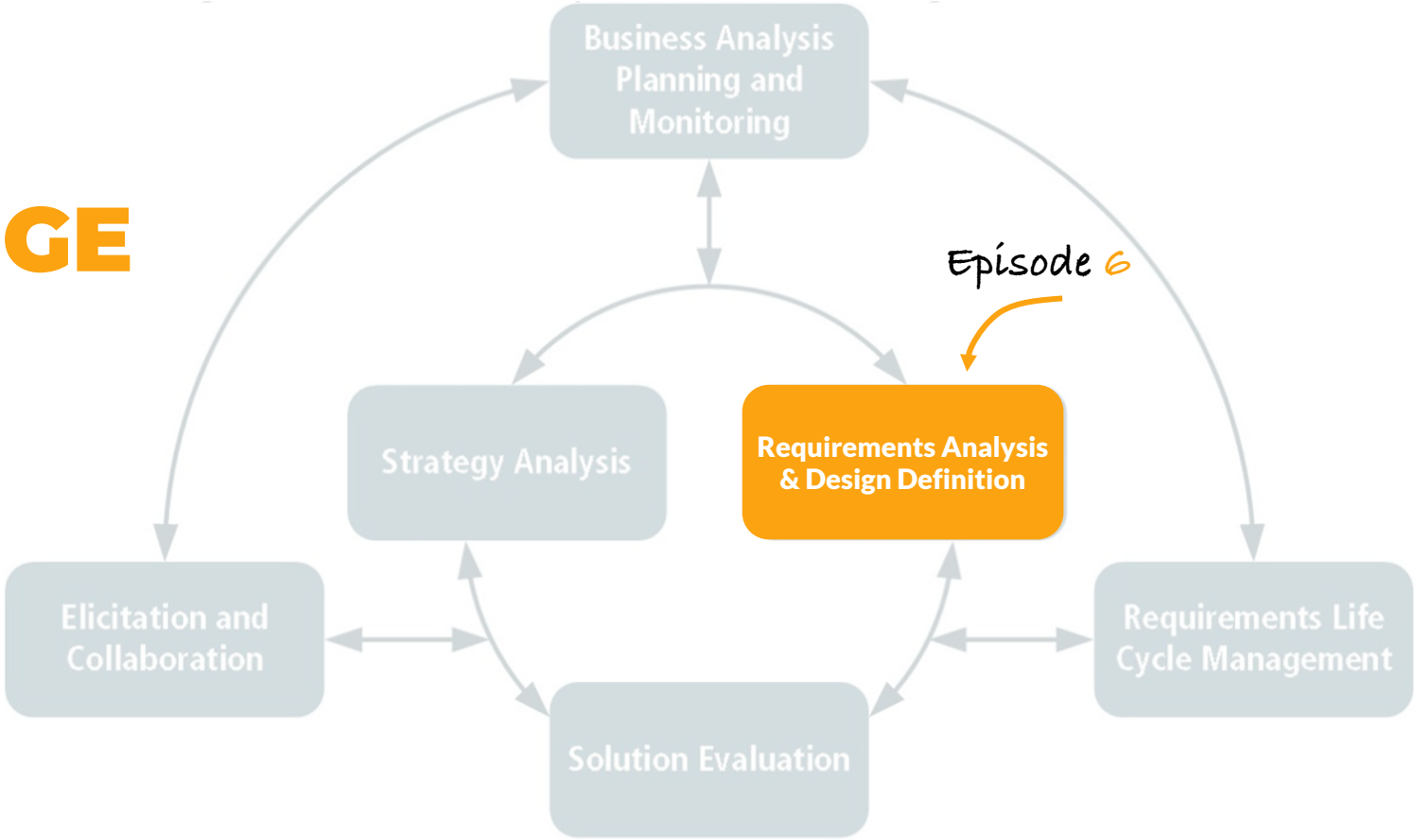
A task is a discrete piece of work that may be performed as part of business analysis.

Purpose	.. Why to perform
Description	.. What to perform
Inputs	.. Prerequisites
Elements	.. How to perform
Guidelines / Tools	.. Undertake action
Techniques	.. Using to perform
Stakeholders	.. People involved
Outputs	.. The result

BABOK KNOWLEDGE AREAS

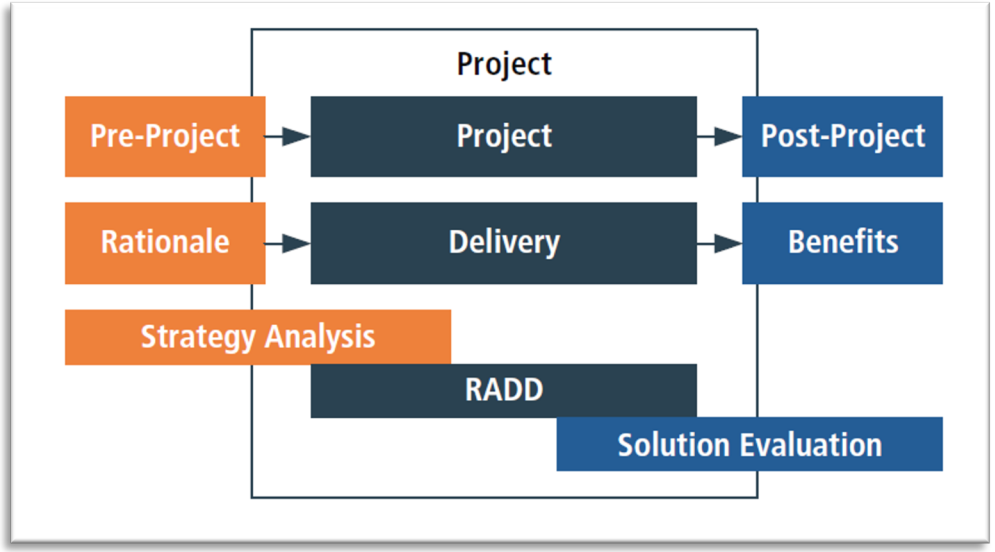


BABOK KNOWLEDGE AREAS



REQUIREMENTS ANALYSIS & DESIGN DEFINITION

7.1 Specify and Model requirements
7.2 Verify requirements
7.3 Validate requirements
7.4 Define Requirements Architecture
7.5 Define Design options
7.6 Analyze potential value and Recommend solution



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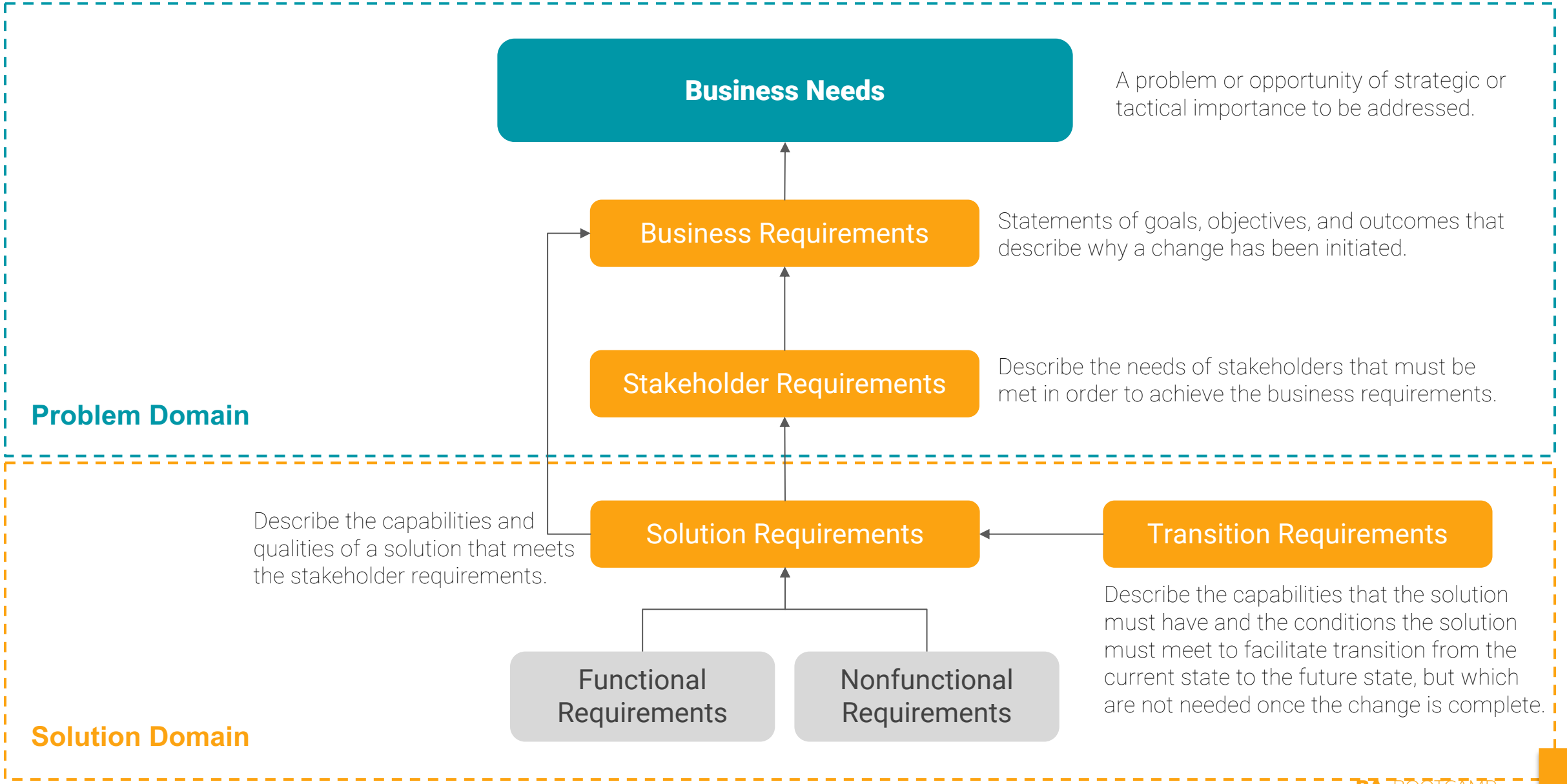
Requirements Classification Scheme



Requirements vs. Design I

Business analysts are responsible for analysis plus the definition of (part of) the design. Level of responsibility for design varies based on the perspective.

Requirement

A usable representation of a need.

Requirements focus on understanding what kind of value could be delivered if a requirement is fulfilled. The nature of the representation may be a document (or set of documents), but can vary widely depending on the circumstances.

Example

View six months sales data across multiple organizational units in a single view.

Design

A usable representation of a solution.

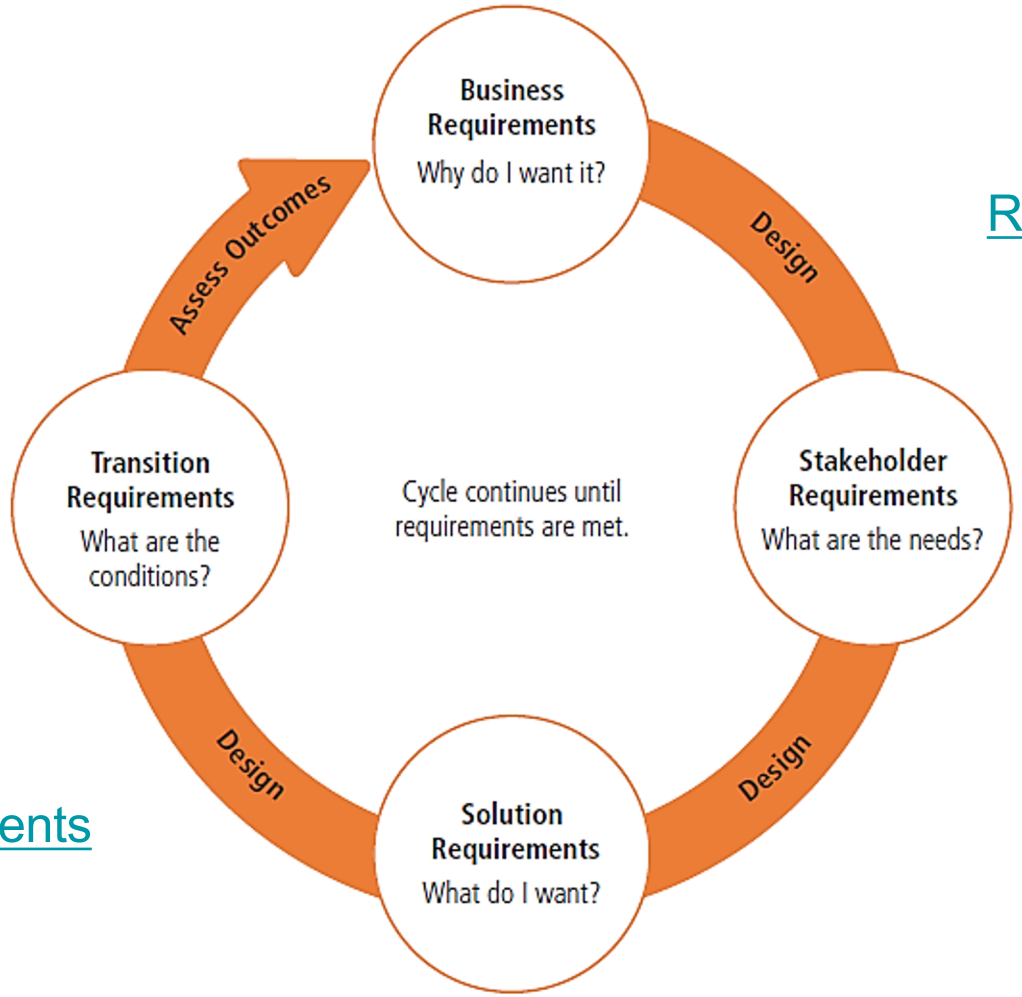
Design focuses on understanding how value might be realized by a solution if it is built. The nature of the representation may be a document (or set of documents) and can vary widely depending on the circumstances.

Example

A sketch of a dashboard.

Requirements vs. Design II

Distinction between requirements and designs is not always clear.



Requirements lead to a design

Designs lead to new requirements

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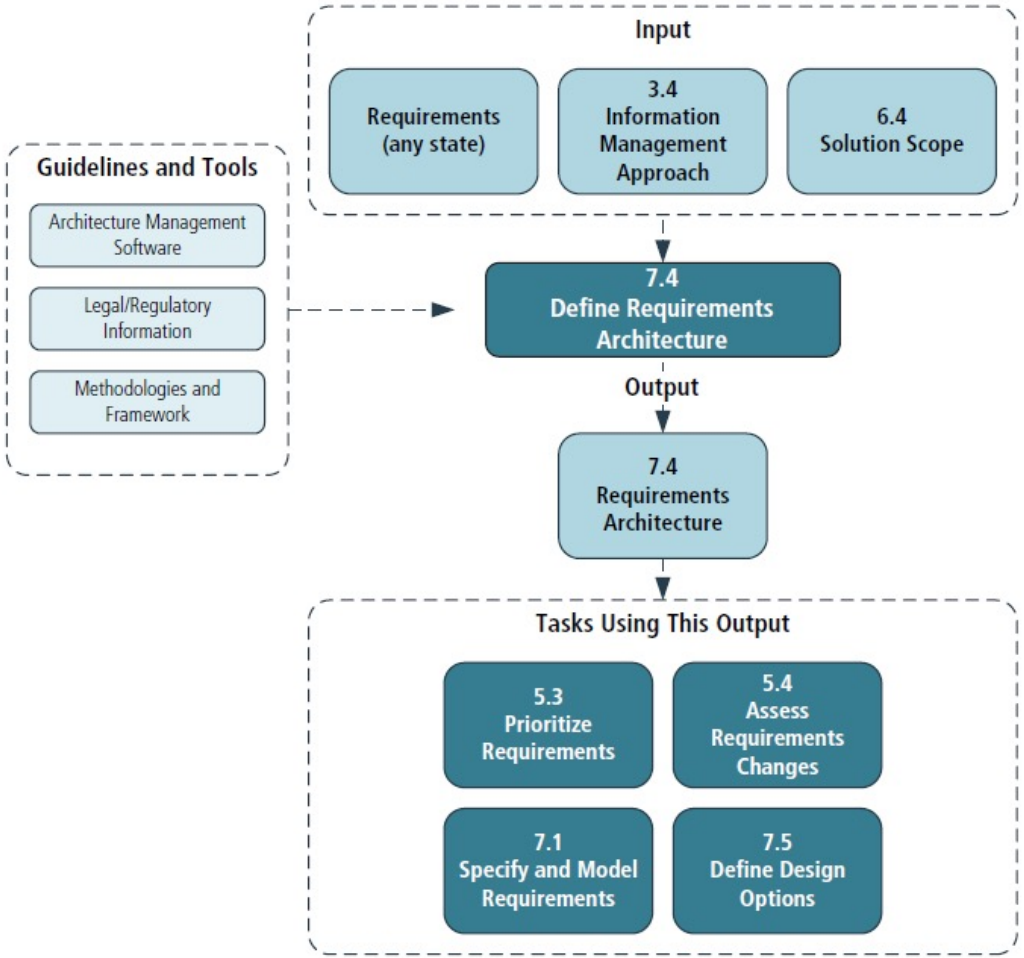
7.4

DEFINE REQUIREMENTS ARCHITECTURE

To ensure that the requirements collectively support one another to fully achieve the objectives assess business analysis work and to plan to improve processes where required.

Elements:

- Requirements Viewpoints and Views
- Template Architectures
- Completeness
- Relate and Verify Requirements Relationships
- Business Analysis Information Architecture



VIEWPOINTS & VIEWS

Requirements architecture

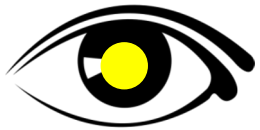
Functional Viewpoint	Behavioral Viewpoint	Data Viewpoint	Process Viewpoint	UX Viewpoint	...

- Use case diagram
- Activity diagram
- Dataflow diagram

- State chart diagram

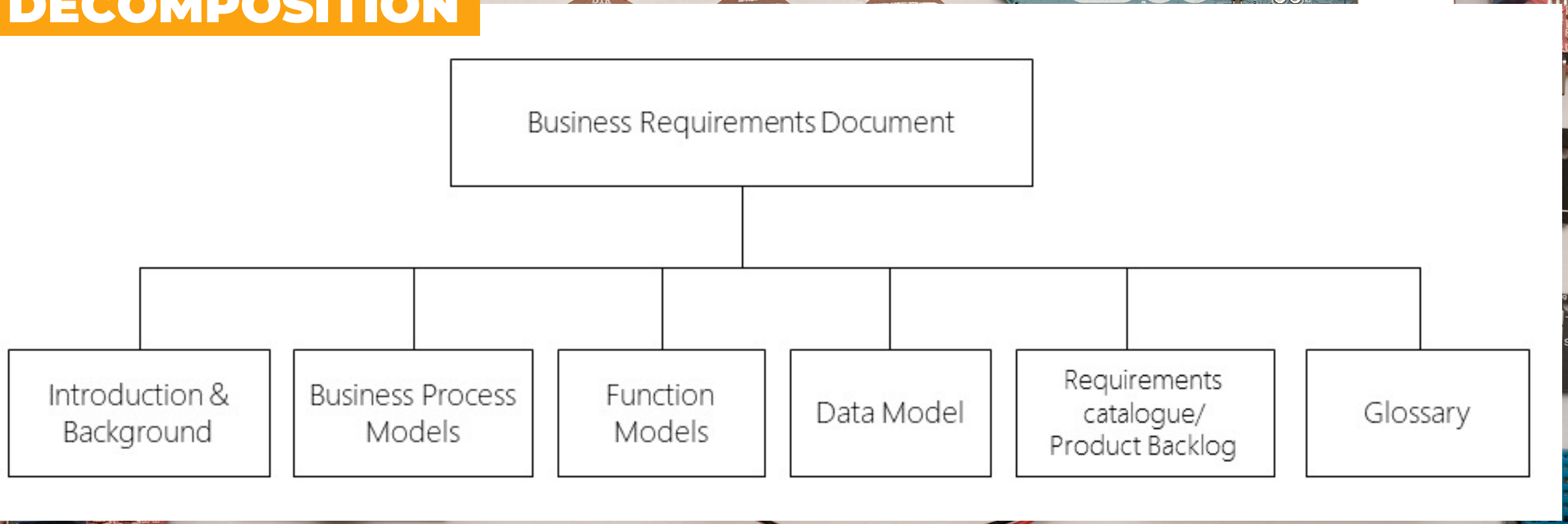
- Class diagram
- Entity relationship diagram

- BPMN diagram
- Value Stream Map



- Wireframes
- Prototype
- Usability testing

FUNCTIONAL DECOMPOSITION



Technique: Item Tracking (Requirements Catalog)

Requirement ID:	F-073
Requirement name:	Book a flight
Business area/domain:	Airline reservation system
Source:	Customer focus group
Owner:	Head of Internet Booking Services
Priority:	Must have
Stakeholders:	Airline customers, airline staff
Type of requirement:	Functional
Requirement description:	Having identified themselves as registered, customers should be able to book themselves a flight via a secure web site.
Associated non-functional requirements:	1. Access should be limited to the specific customer themselves and any authorised airline staff. 2. Ensure timely response
Acceptance criteria:	In addition to displaying the correct flight details, the system should confirm the booking by displaying a reservation reference code and take note of the date and time that the booking was made. Response time should be within 10 seconds for 95% of transactions.
Justification:	A customer focus group stated this to be a key requirement as the airline's competitors already offer this service.
Related documents:	Focus group meeting on 12th November.
Related requirements:	Take credit card payment.
Resolution:	Due for delivery in release 1 of the system.

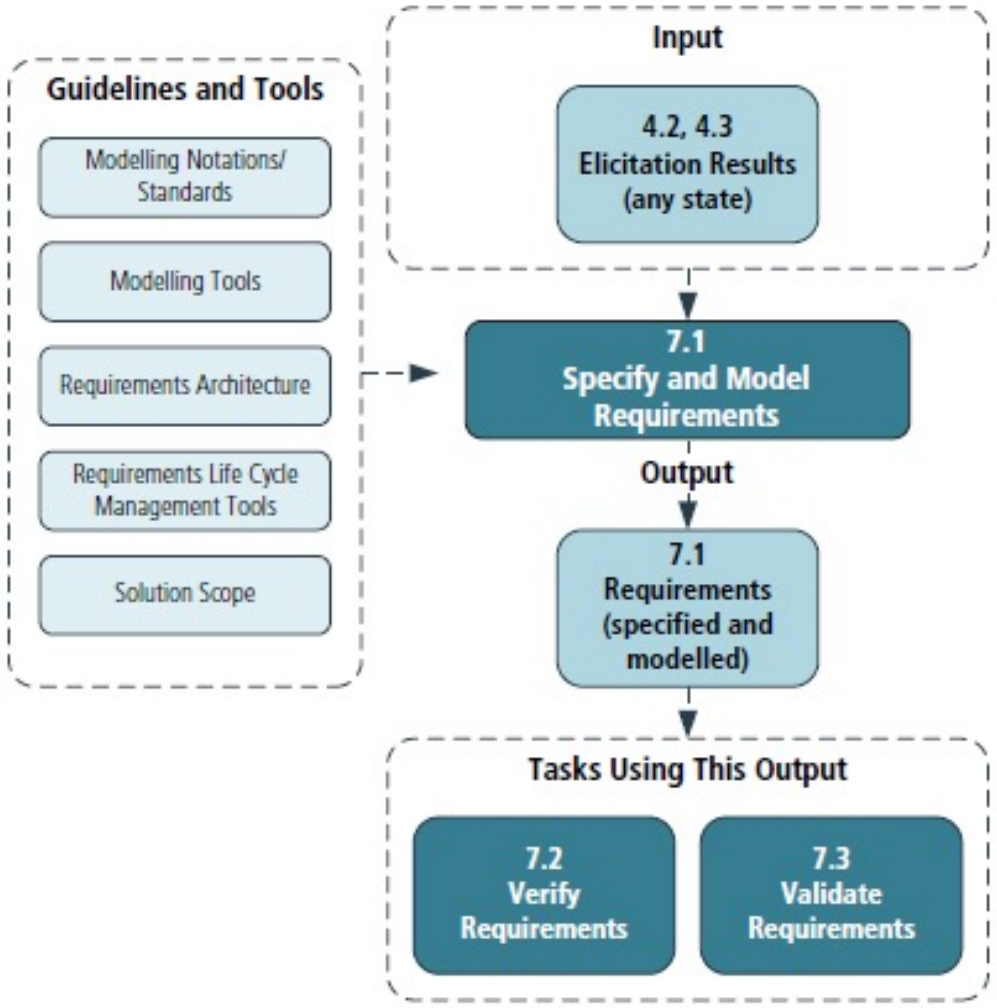
7.1

SPECIFY & MODEL REQUIREMENTS

To analyze, synthesize, and refine elicitation results into requirements and designs

Elements:

- Model Requirements
- Analyze Requirements
- Represent Requirements and Attributes
- Implement the Appropriate Levels of Abstraction



TECHNIQUES

There are many techniques you can use for this task:

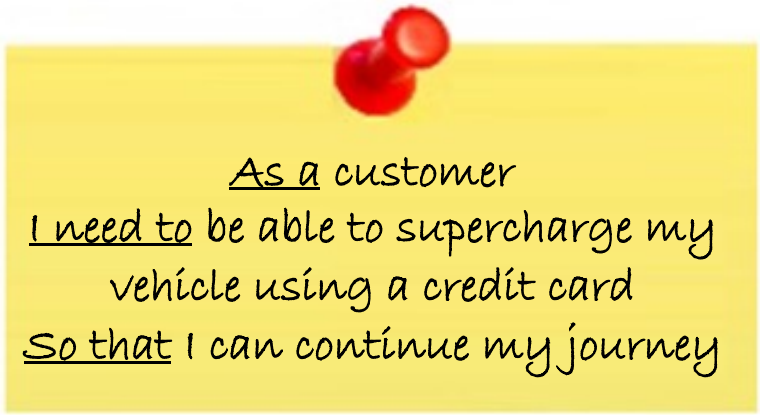
- Acceptance and Evaluation Criteria
- Business Capability Analysis
- Business Model Canvas
- Business Rules Analysis
- Concept Modelling
- Data Dictionary
- Data Flow Diagrams
- Data Modelling
- Decision Modelling
- Functional Decomposition
- Glossary
- Interface Analysis
- Non-Functional Requirements Analysis
- Organizational Modelling
- Process Modelling
- Prototyping
- Roles and Permissions Matrix
- Root Cause Analysis
- Scope Modelling
- Sequence Diagrams
- Stakeholder List, Map, or Personas
- State Modelling
- Use Cases and Scenarios
- User Stories

Technique: User Stories

Commonly used technique in Agile (Scrum) projects:

- Functionality written from a user perspective;
- Describes 'what' and not 'how';
- Product Owner discusses User Story with Team;
- Estimated by Team;
- Acceptance Criteria.

3R format:
As a <Role>
I need to <Requirement>
So that <Result>



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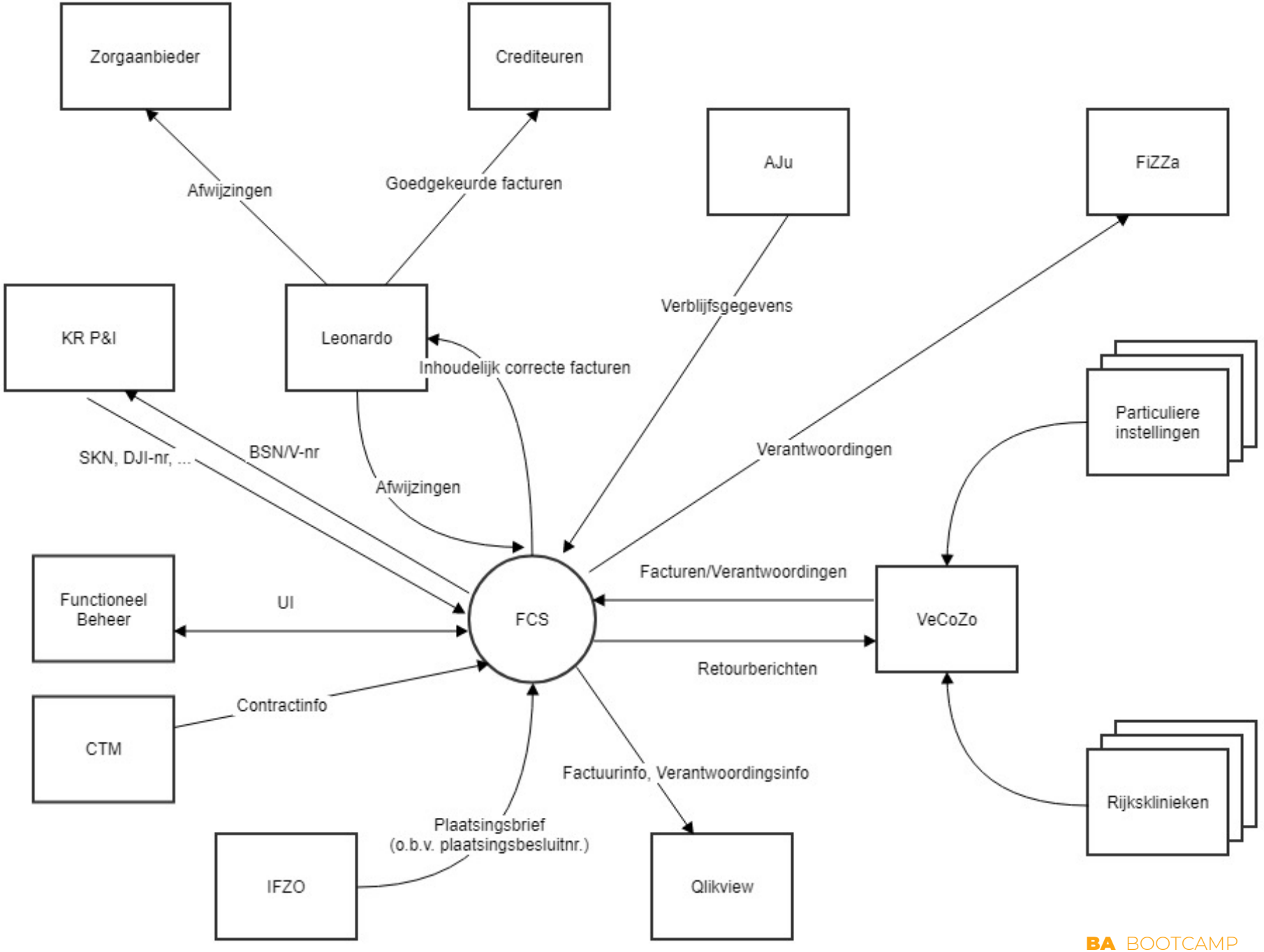
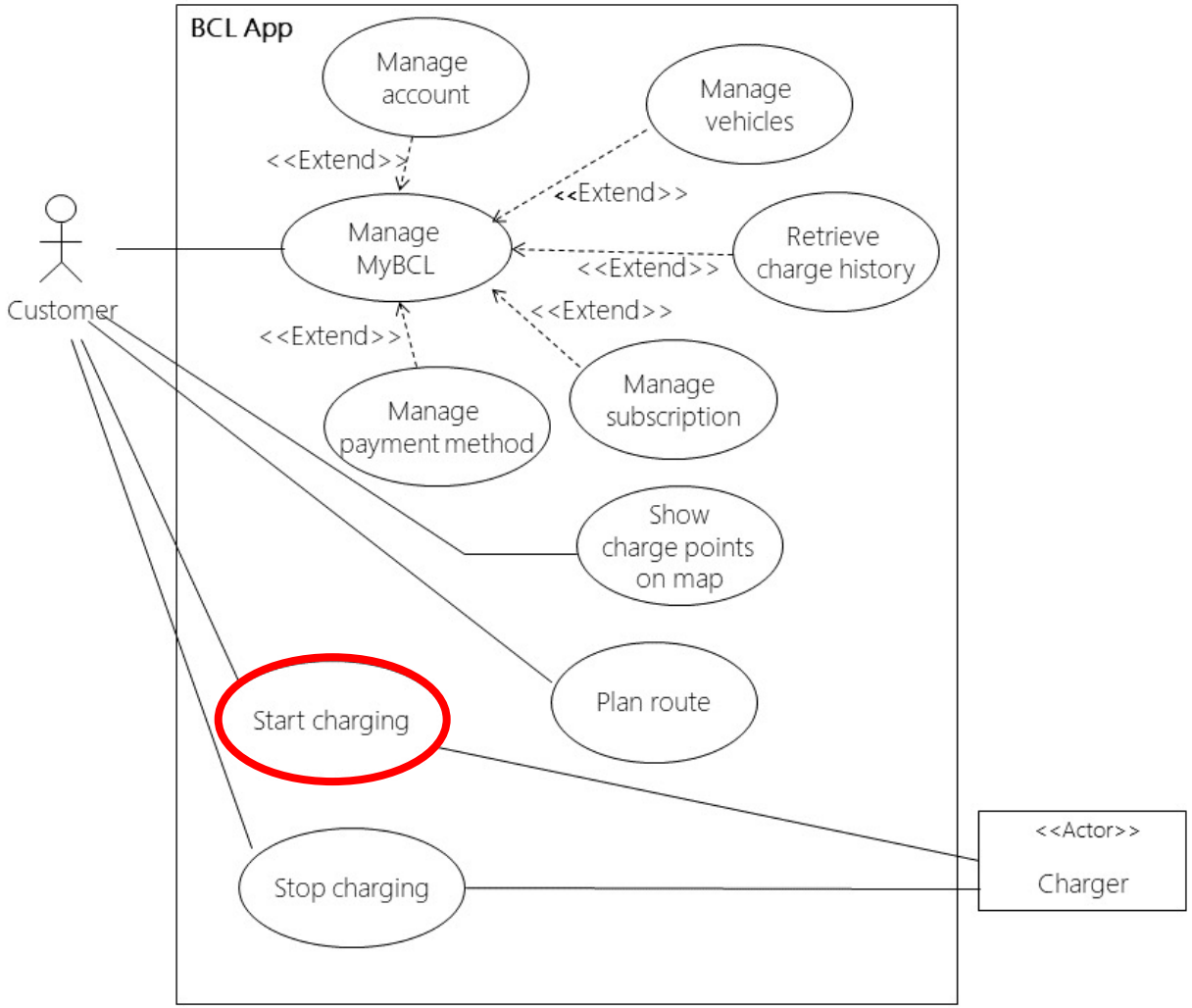
Technique: Non-functional Requirements

Non-functional category	Description
Availability	degree to which the solution is operable and accessible when required for use, often expressed in terms of percent of time the solution is available.
Compatibility	degree to which the solution operates effectively with other components in its environment, such as one process with another.
Security	aspects of a solution that protect solution content or solution components from accidental or malicious access, use, modification, destruction, or disclosure.
Maintainability	ease with which a solution or component can be modified to correct faults, improve performance or other attributes, or adapt to a changed environment.
Performance Efficiency	degree to which a solution or component performs its designated functions with minimum consumption of resources. Can be defined based on the context or period, such as high-peak, midpeak or off-peak usage.
Compliance	regulatory, financial, or legal constraints which can vary based on the context or jurisdiction. E.g. Privacy.
Usability	Ease with which a user can learn to use the solution.

Techniques:
Data flow diagram
Interface analysis
Data Dictionary



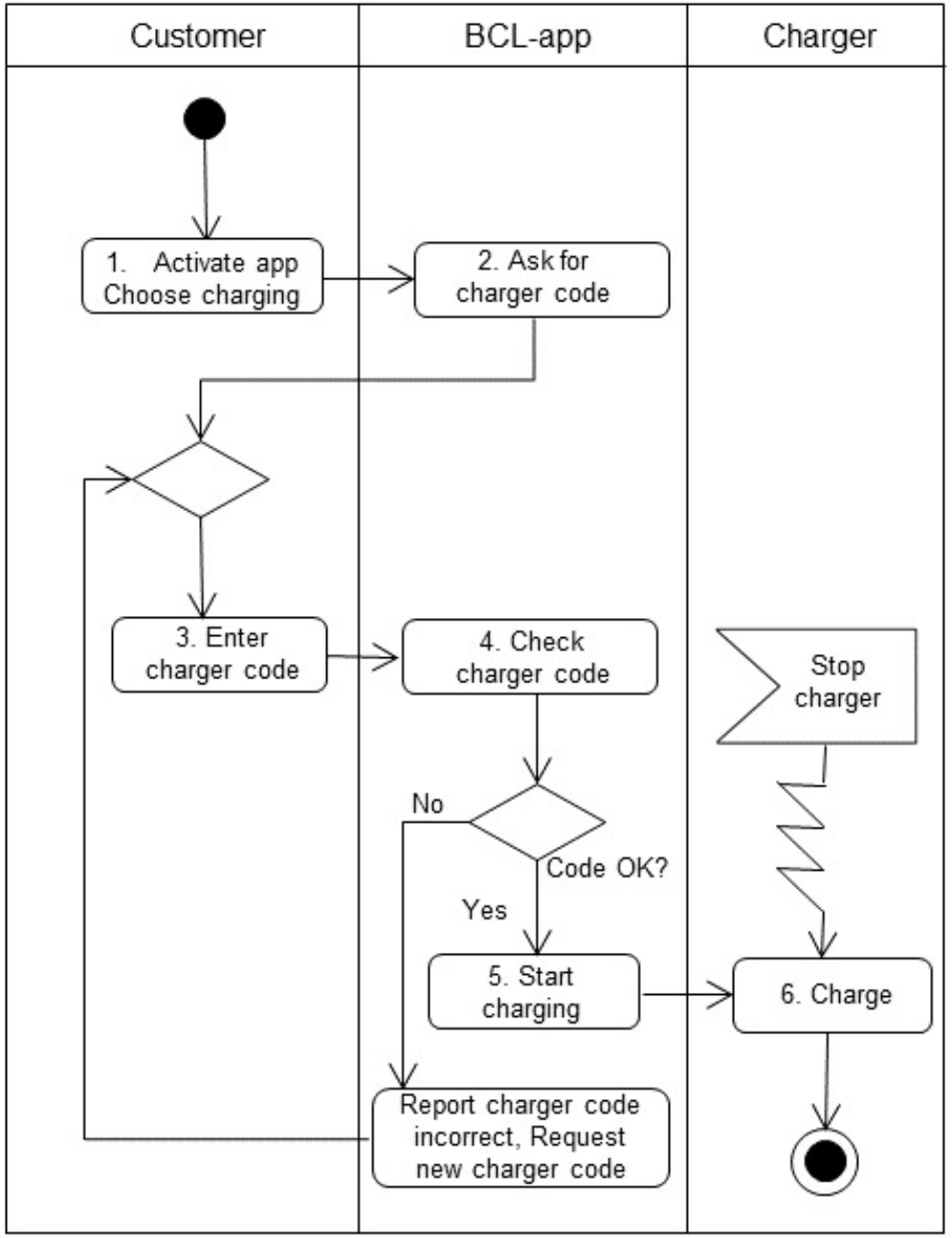
Technique: Use cases & Scenarios



1. Customer activates app
2. App is started
3. Customer selects 'Charge'
4. App asks customer to enter charger code
5. Customer enters charger code
   [f1: Charger code incorrect → Display error message: 'Charger code incorrect' and go back to step 4]
6. App makes contact with the back end system to start the charging session
   [f2: Charger problem → Display error message: 'Charger cannot be activated, choose another charger' and return to step 4]
7. App indicates that charging has started

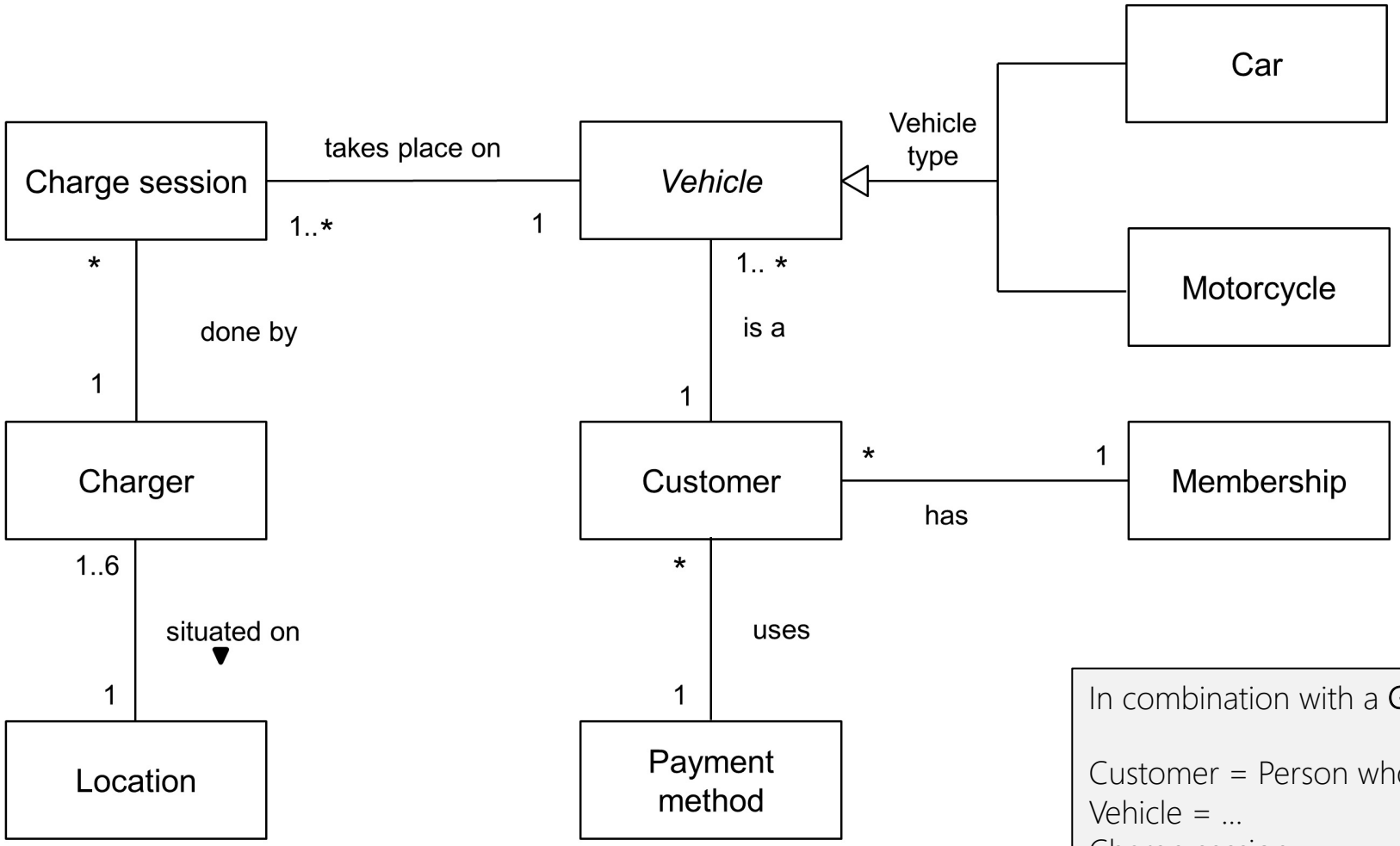
Technique:

Process Modelling



UML Activity Diagram

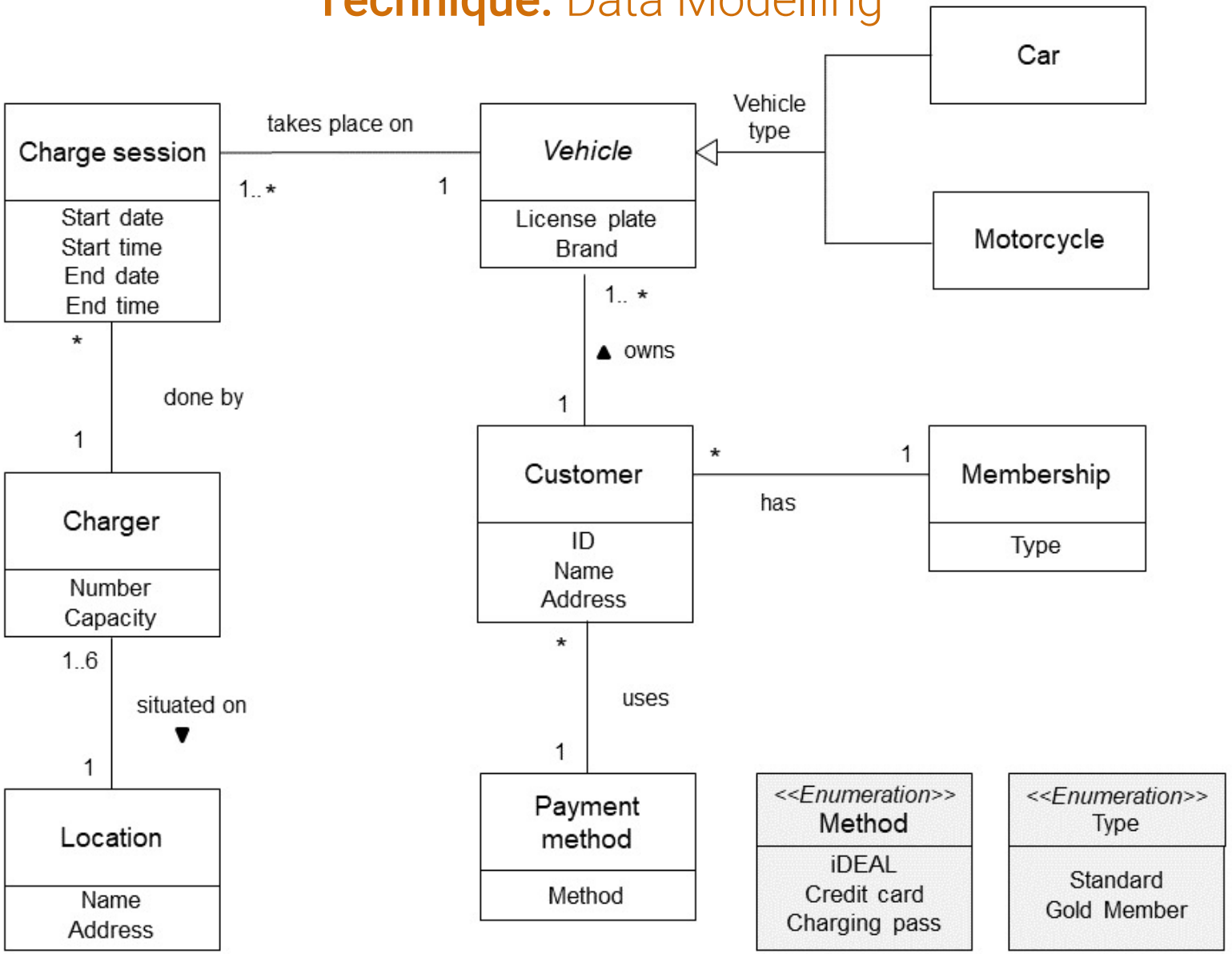
Technique: Concept Modelling & Glossary



In combination with a **Glossary**:

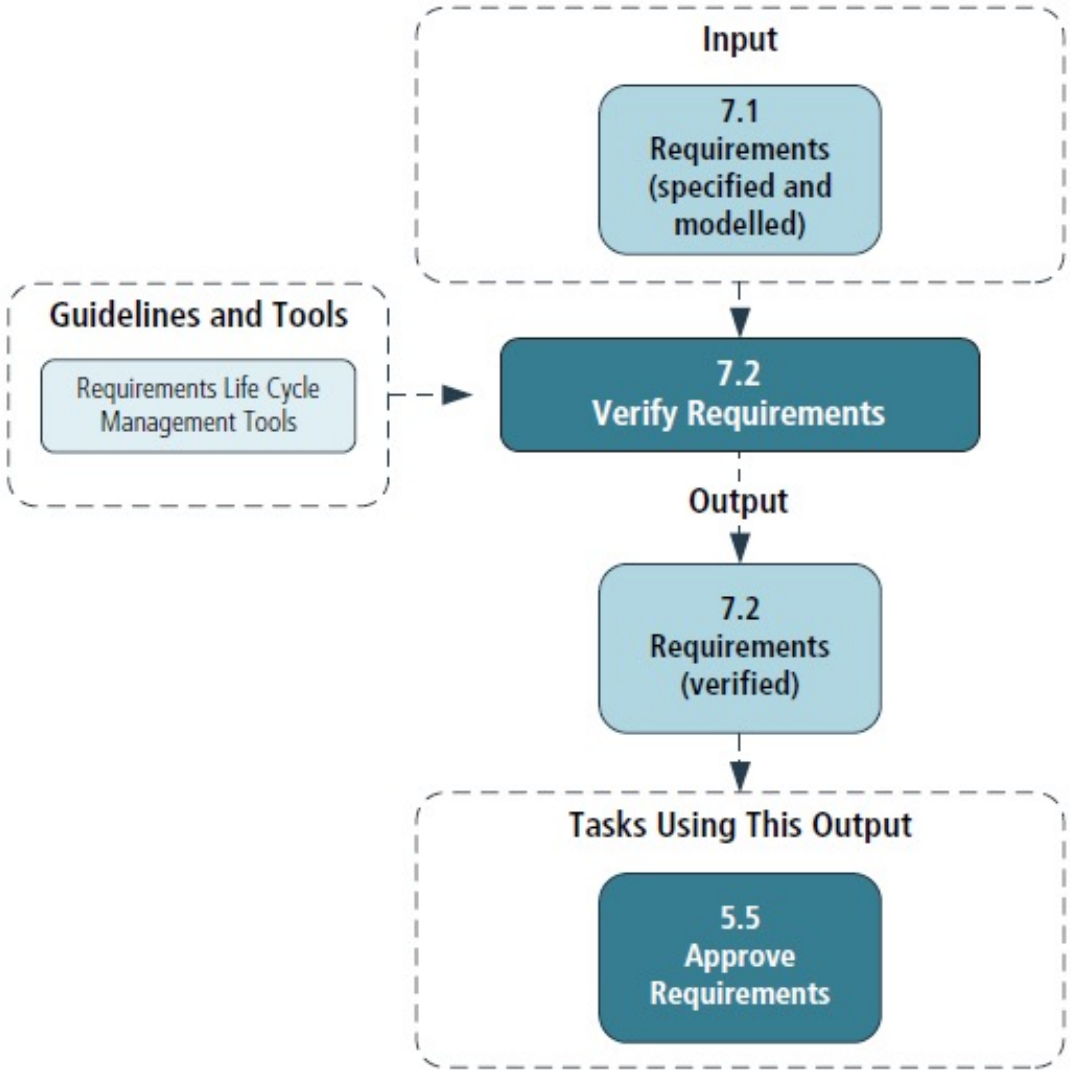
Customer = Person who ….
Vehicle = …
Charge session =
…..

Technique: Data Modelling



7.2

VERIFY REQUIREMENTS



To ensure that requirements and designs specifications and models meet quality standards and are usable for the purpose they serve.

Elements:

- Characteristics of Requirements and Designs Quality
- Verification Activities
- Checklists

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Characteristics of Requirements and Designs Quality

- **Atomic**: self-contained and capable of being understood independently of other requirements or designs.
- **Complete**: enough to guide further work and at the appropriate level of detail for work to continue. The level of completeness required differs based on perspective or methodology, as well as the point in the life cycle where the requirement is being examined or represented.
- **Consistent**: aligned with the identified needs of the stakeholders and not conflicting with other requirements.
- **Concise**: contains no extraneous and unnecessary content.
- **Feasible**: reasonable and possible within the agreed-upon risk, schedule, and budget, or considered feasible enough to investigate further through experiments or prototypes.
- **Unambiguous**: the requirement must be clearly stated in such a way to make it clear whether a solution does or does not meet the associated need.
- **Testable**: able to verify that the requirement or design has been fulfilled. Acceptable levels of verifying fulfillment depend on the level of abstraction of the requirement or design.
- **Prioritized**: ranked, grouped, or negotiated in terms of importance and value against all other requirements.
- **Understandable**: represented using common terminology of the audience.

THEORY SLIDE

Technique: Reviews

- **Inspection**: a formal technique that includes an overview of the work product, individual review, logging the defects, team consolidation of defects, and follow-up to ensure changes were made. The focus is to remove defects and create a high quality work product. While usually performed by peers, it can also be used for stakeholder reviews.
- **Formal Walkthrough** (also known as Team Review): a formal technique that uses the individual review and team consolidation activities often seen in inspection. Walkthroughs are used for peer reviews and for stakeholder reviews.
- **Single Issue Review** (also known as Technical Review): a formal technique focused on either one issue or a standard in which reviewers perform a careful examination of the work product prior to a joint review session held to resolve the matter in focus.
- **Informal Walkthrough**: an informal technique in which the business analyst runs through the work product in its draft state and solicits feedback. Reviewers may do minimal preparation before the joint review session.
- **Desk Check:** an informal technique in which a reviewer who has not been involved in the creation of the work product provides verbal or written feedback.
- **Pass Around**: an informal technique in which multiple reviewers provide verbal or written feedback. The work product may be reviewed in a common copy of the work product or passed from one person to the next.
- **Ad hoc**: an informal technique in which the business analyst seeks informal review or assistance from a peer.

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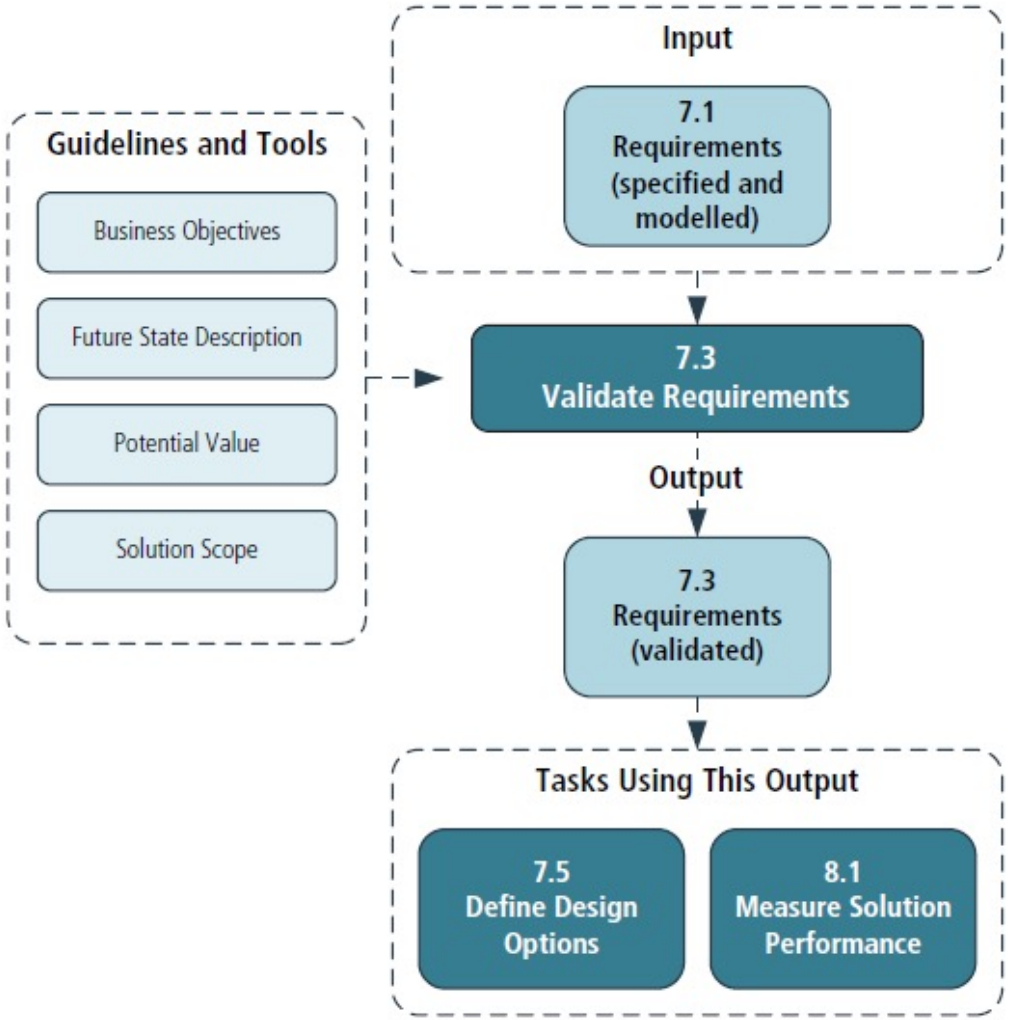
7.3

VALIDATE REQUIREMENTS

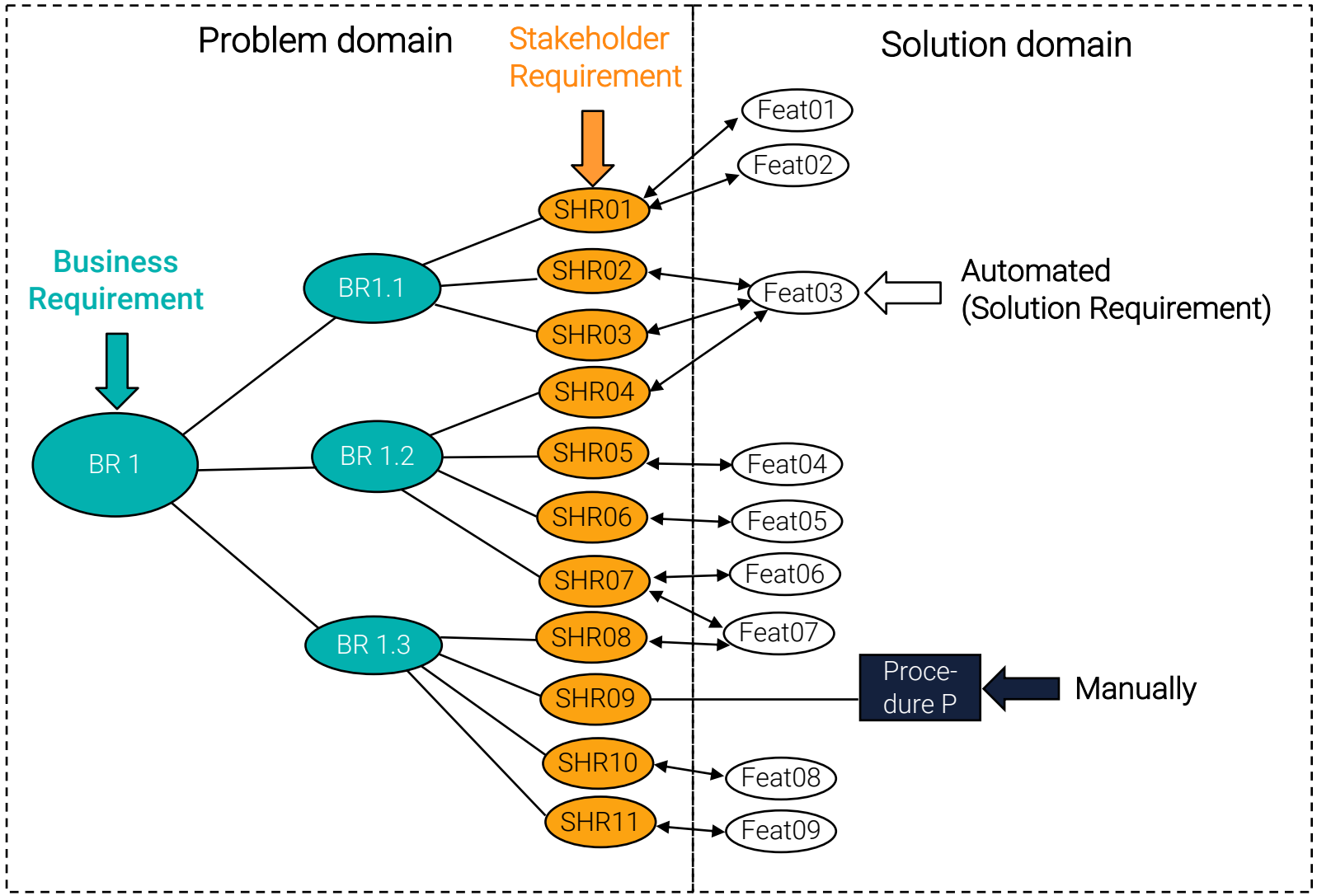
To ensure that all requirements and designs align to the business requirements and support the delivery of needed value.

Elements:

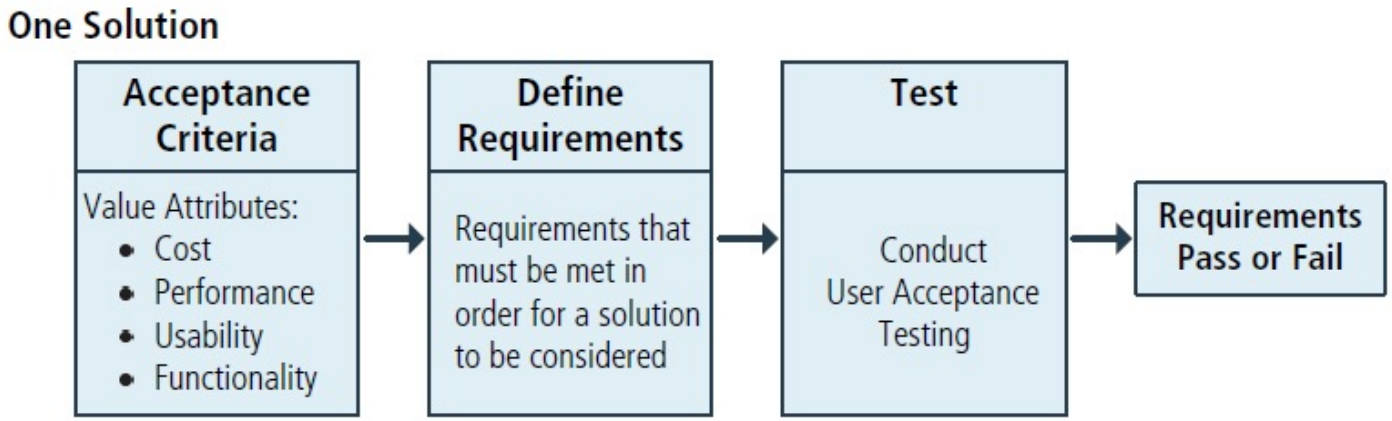
- Identify Assumptions
- Define Measurable Evaluation Criteria
- Evaluate Alignment with Solution Scope



ALIGNMENT & SOLUTION SCOPE



Technique: Acceptance & Evaluation Criteria

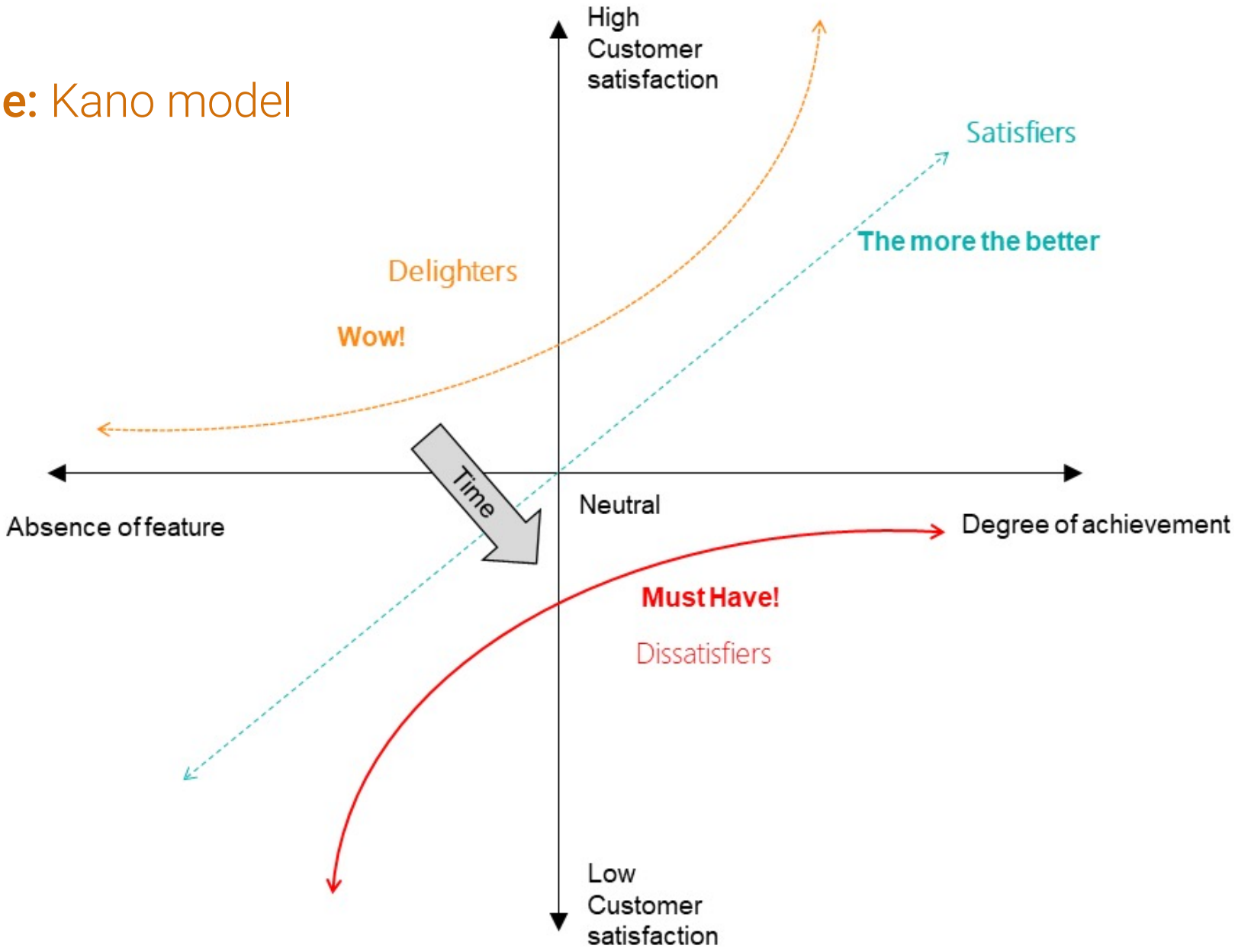


As a customer
I need to be able to supercharge my vehicle using a credit card
So that I can continue my journey

Acceptance criteria associated with this user story are:

- testing with a Visa card;
- testing with a MasterCard;
- testing with an expired Visa card.

Technique: Kano model



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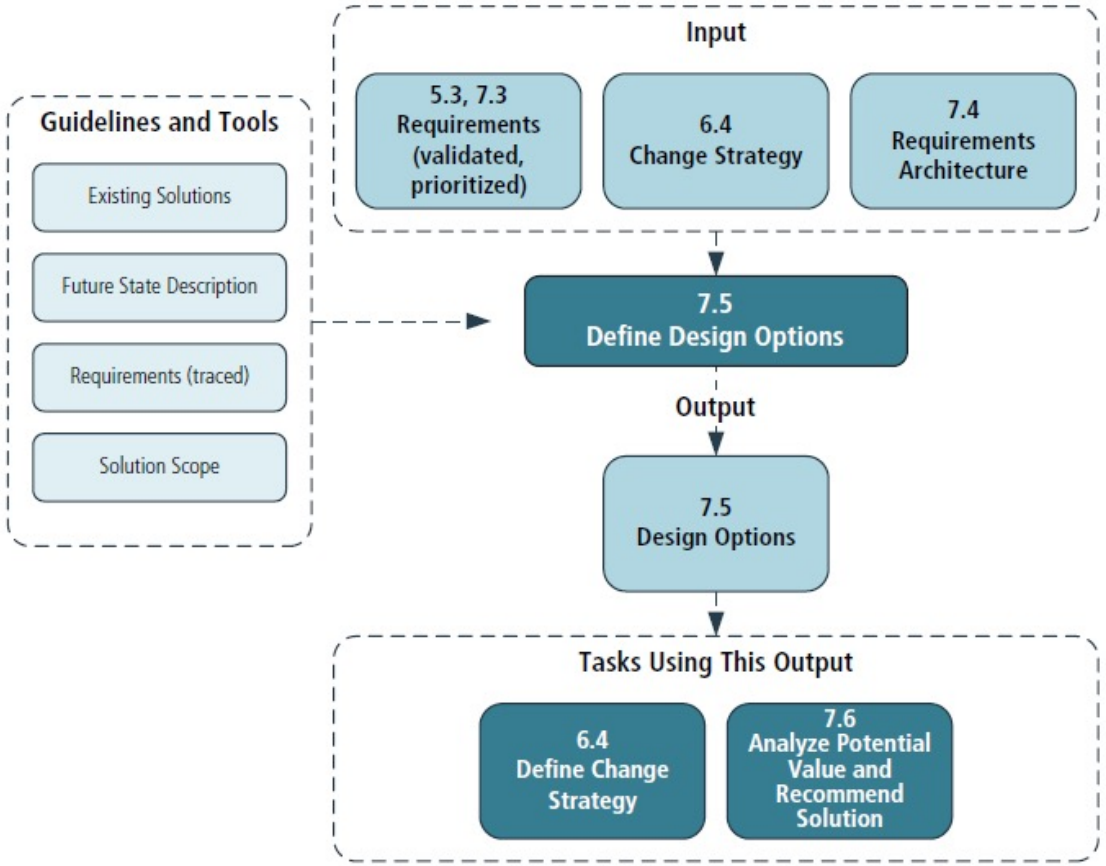
7.5

DEFINE DESIGN OPTIONS

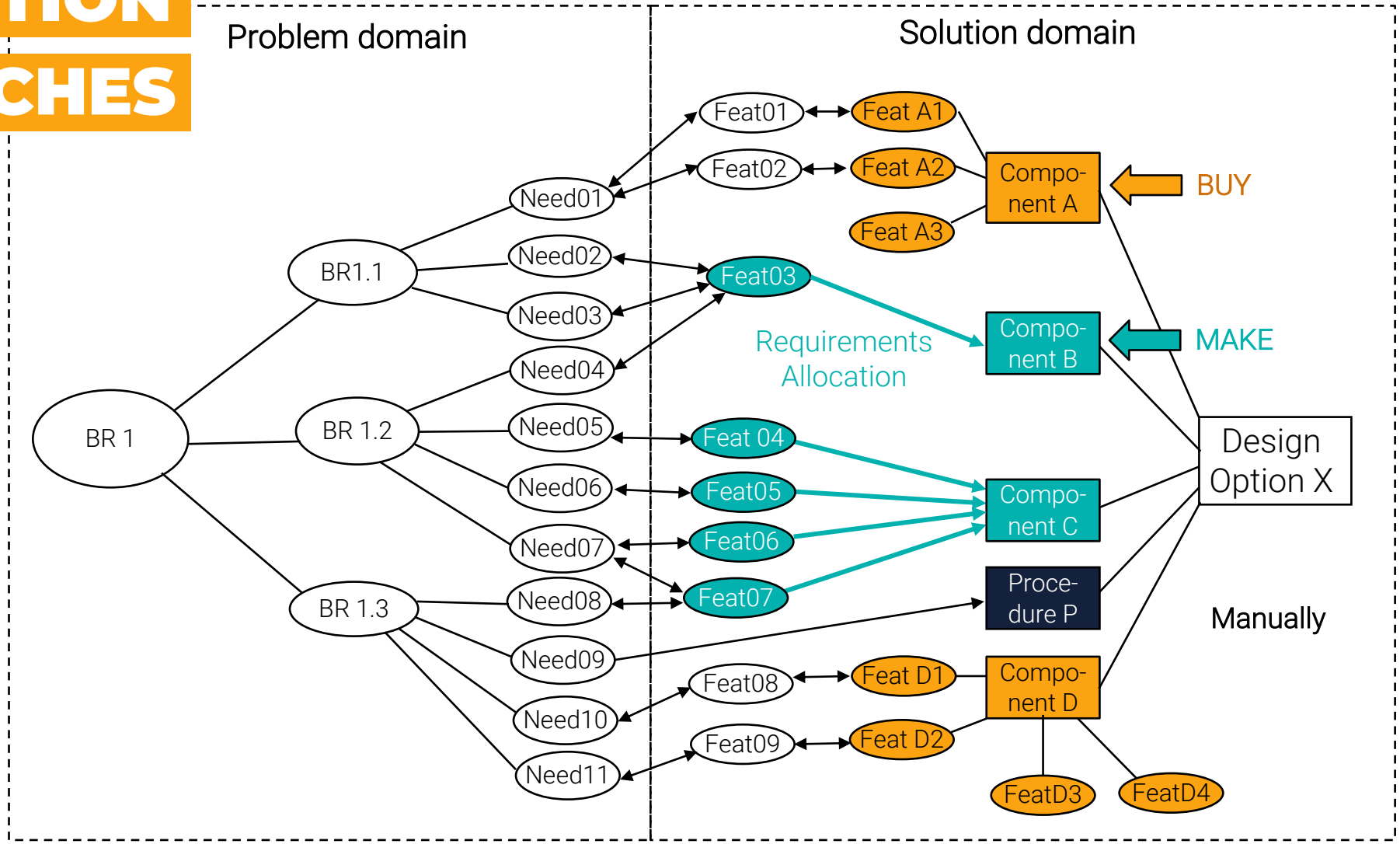
To define the solution approach, identify opportunities to improve the business, allocate requirements across solution components, and represent design options that achieve the desired future state.

Elements:

- Describe Design Options
- Requirements Allocation
- Define Solution Approaches
- Identify Improvement Opportunities



SOLUTION APPROACHES



Technique: Vendor Assessment

Purpose: estimating a supplier's ability to meet obligations with respect to the (consistent) delivery of a product or service.

Elements:

1. Knowledge & Expertise
2. Licensing and pricing models
3. Vendor's market position
4. Terms & conditions
5. Vendor experience, reputation & stability

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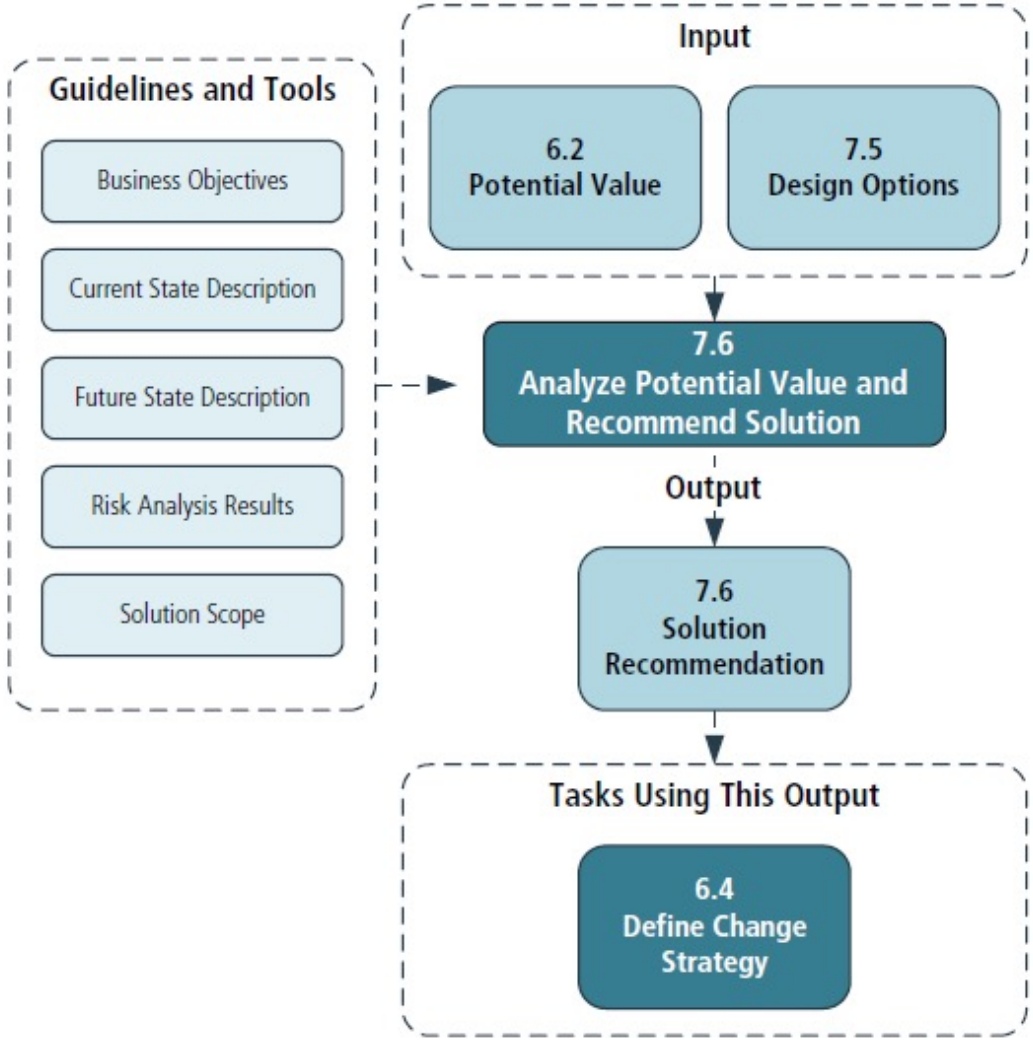
7.6

ANALYZE POTENTIAL VALUE & RECOMMEND SOLUTION

To estimate the potential value for each design option and to establish which one is most appropriate to meet the enterprise's requirements.

Elements:

- Expected Benefits
- Expected Costs
- Determine Value
- Assess Design Options and Recommend Solution



Technique: Business Case

Captures the rationale for undertaking a change. Amount of time and resources spent on the development of a solution should be proportional to the size and importance of its potential value.

Business case is used to:

- Define the need
- Determine the desired outcomes
- Assess Scope, Feasibility, Assumptions Risks & Constraints, Financial analysis
- Recommend a solution

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Technique: Financial Analysis

Calculation comparing the costs of a project to the benefits with the goal of determining whether an investment is worthwhile.

Methods:

- Cost of Change: expected cost of building or buying the solution components plus the expected cost of transitioning from the current state to the future state. This includes costs for equipment, software, personnel, etc.
- Total Cost of Ownership: cost incurred by an organization to acquire, use and manage a solution.
- Value realization: The value is usually realized over time. The planned value can be expressed on an annual basis or can be expressed as a cumulative value over a specific period.
- Cost-Benefit analysis: prediction of the expected total benefits minus the expected total costs, the net benefit (this is the planned business value).
- Financial calculations: combination of standard financial calculations from various perspectives to understand how and when different investments provide value

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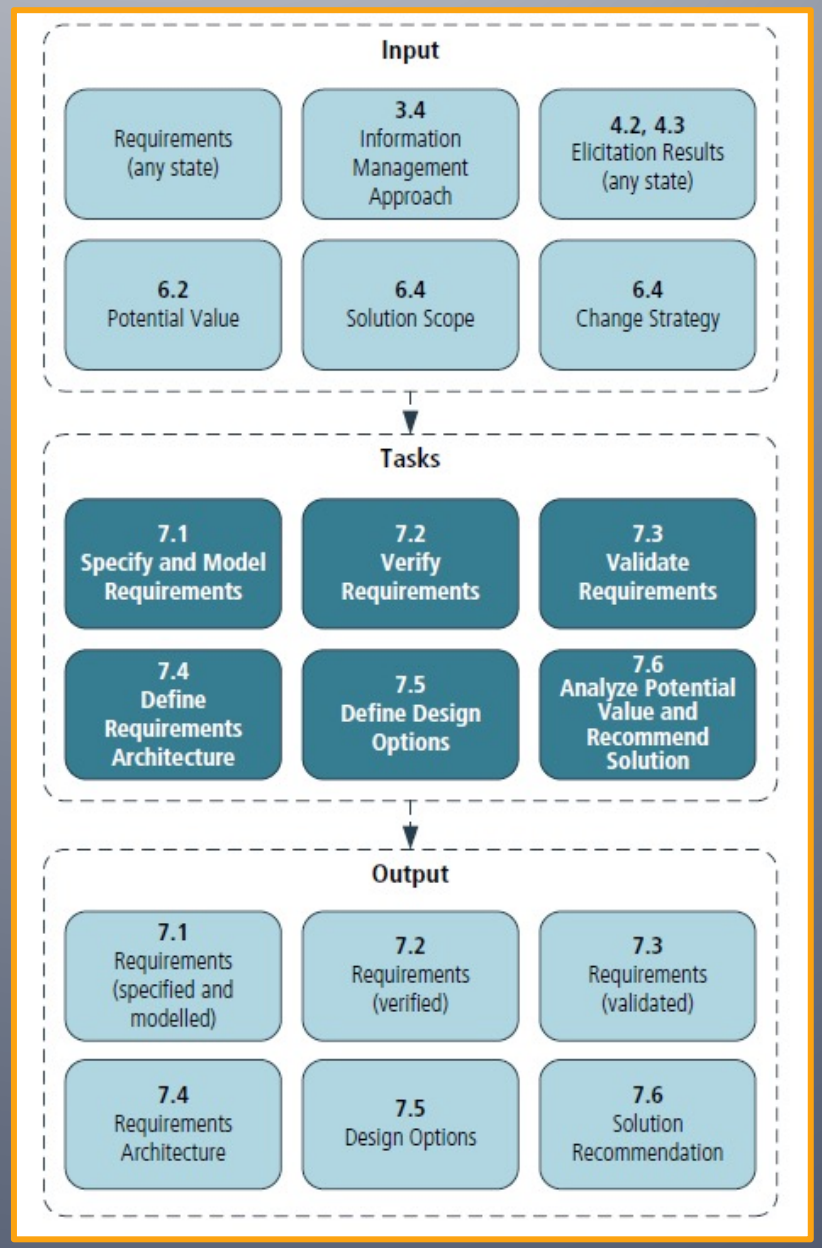
Technique: SFA-Matrix

Aspect group	Aspect	Option 1	Option 2	Option 3
Suitability	Is there a strategic 'fit'?	++	+	+/-
	Does the option fit the technology requirements?	+	+	+
	Does the option meet the needs of customers?	+	++	+
Feasibility	Is there sufficient budget available for this option?	+	+/-	-
	To what extent can the organization bear the change of this option?	++	+/-	+
	Is the option technologically feasible?	+	++	++
Acceptability	What are the risks?	-	+	++
	What is the ROI?	+	-	+
	What do our customers think?	+	++	+
	What do our employees think (Cultural 'fit')?	-	+	++

SUMMARY SESSION 6



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