Foundations of Business Analysis

Module 3: Business Analysis Techniques II

Course Outline

1	Introduction to Business Analysis and underlying competencies	2	BA techniques I	3	BA techniques II
High level introduction to Business Analysis practices and underlying competencies for students or professionals who are interested in Business Analyst career		• Strategy Analysis • Elicitation & Collaboration • Requirements Analysis & Design Definition		• Requirements Life Cycle Management • Solution Evaluation • BA Planning & Monitoring	

Learning Outcome

You'll Learn to:

- Classify the techniques used in Requirements Life Cycle Management, Solution Evaluation, and BA Planning & Monitoring according to their purpose(s)
- Interpret data models
- Create business rules from data models
- Choose examples and definitions for BA techniques

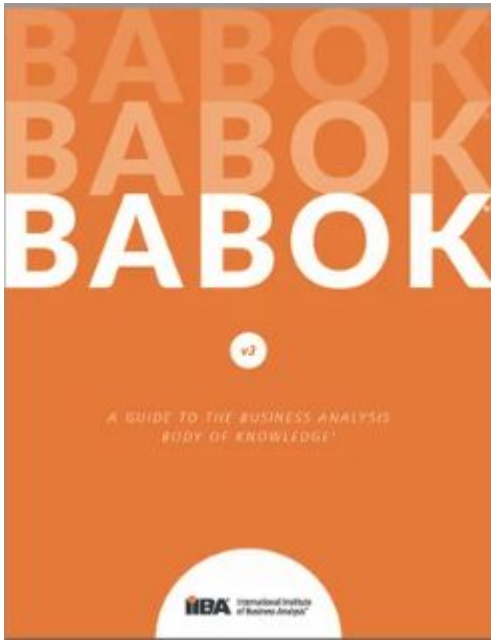
Topics for Module 3

1. Requirements Life Cycle Management Techniques
2. Solution Evaluation Techniques
3. BA Planning & Monitoring Techniques

Readings

Recommended: (BABOK® Guide) v3

Chapter 10: Techniques
Chapter 5: Requirements Life Cycle Management Page 75-78
Chapter 8: Solution Evaluation Page 163-166
Chapter 3: BA Planning & Monitoring Page 21-23



BA techniques II

Requirements Life Cycle Management

- Backlog Management 220
- Prioritization 311
- Data Flow Diagrams 250
- **Data Modelling 256**
- **Use Cases & Scenarios 35**
- Risk Analysis & Management 329

Solution Evaluation

- Acceptance & Evaluation Criteria 217
- Data Mining 253
- **Decision Analysis 261**
- Non-Functional Requirements Analysis 302
- Organizational Modelling 308
- Roles & Permissions Matrix 333
- Root Cause Analysis 335
- Process Analysis 314

BA Planning & Monitoring

- Estimation 271
- Item Tracking 294
- Lessons Learned 296
- Reviews 326
- Survey or Questionnaire 350
- Workshops 363

1 Requirements Life Cycle Management (RLCM)

- Conduct traceability activities to ensure that all requirements are aligned and delivered throughout the project phases
- Ensure that no extra functionality is allowed to be included in the scope without going through the change management process
- Ensure that sign-off is achieved prior to commencing the next stage of work

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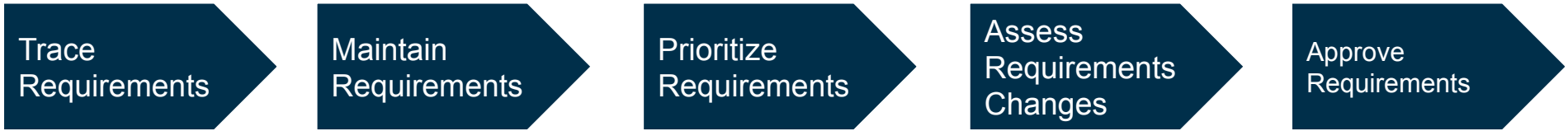


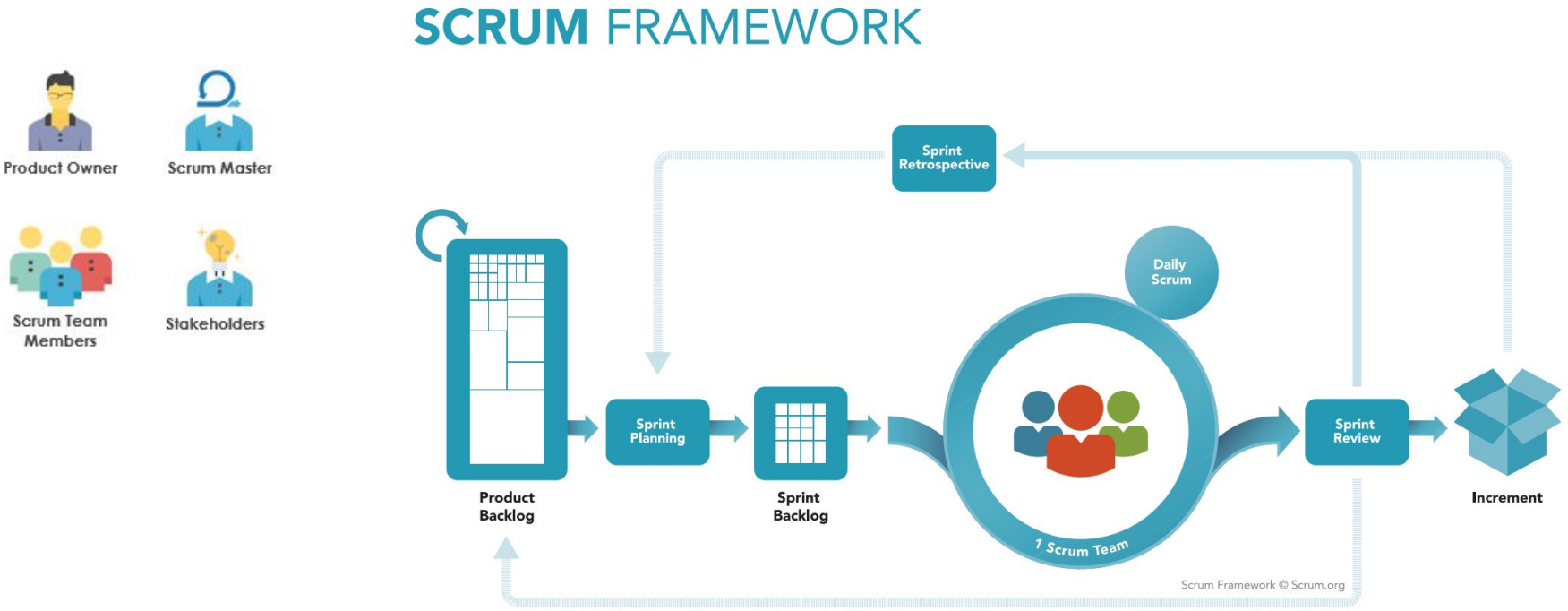
Backlog Management

- Record, track, prioritize remaining work items
- Typically used in adaptive, agile, and iterative methodologies

Examples of work Items

- Use cases
- User stories
- Functional Requirements
- Non-Functional Requirements
- Designs
- Risk Items
- Customer orders
- Change Requests
- Defects & rework

Scrum Framework



Prioritization

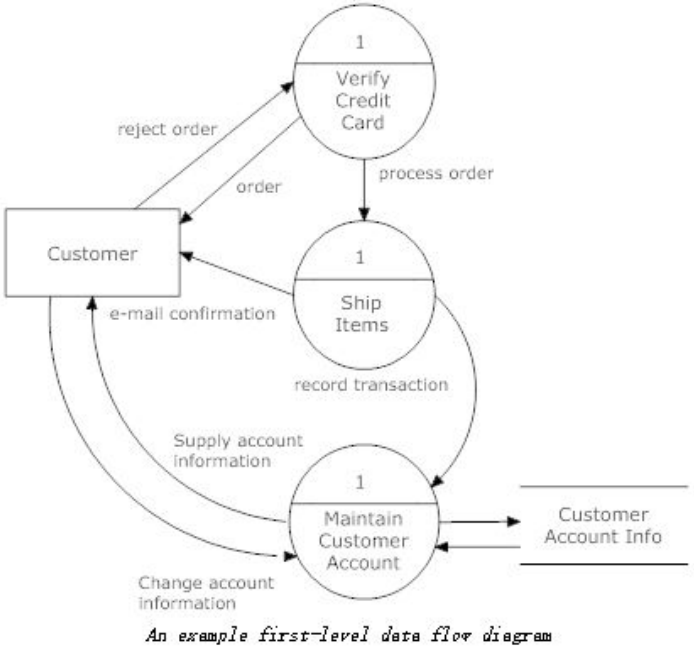
- Framework used to facilitate stakeholder decisions
- Approaches:
  - **Grouping**: Classified as High, Medium, Low
  - **Ranking**: Each item is assigned a number
  - **Time boxing/Budgeting**: Allocated based on resources
  - **Negotiation**: Stakeholder consensus

ID	Features	Business Priority	Duration(Points)	Cost	Phase/Sprint
R1	Ability to track samples (post-order)	High	4	Low	
R2	Allow QA staff to change address, phone number, email address of test labs	Med	2	Med	
R3	Print daily reports of sample status	High	3	Low	
R4	Daily alerts for late samples	Low	4	Low	
R5	Early warning for samples	High	2	Low	
R6	Confirmed customer orders sent automatically to QA	High	5	High	

Data Flow Diagrams

Illustrate:

- Information **input, processing, storage, and output** from a system
- Relationships among and between the various components of a system
- High level systems overviews, complete with boundaries and connections to other systems
- Detailed representations of system components

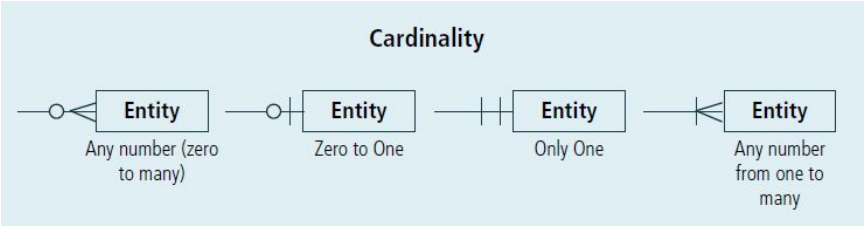


An example first-level data flow diagram

Data Modelling

• Describe the concepts relevant to a domain, the **relationships** between those concepts, and information associated to them
• Typical applications of data models include **database models**, **design of information systems**, and enabling exchange of data

Exercise: Create four business rules based on the ERD below



Use Cases & Scenarios

• Describe how an **actor interacts with a solution** to accomplish one or more of the actor's goals, or to respond to an event
• A use case may have several scenarios describing specific

Use Case	-Describing the **system behavior** or activity in response to a user request
	Each basic business goal could be translated to a use case
Actor	A **role player** outside of the system that interacts with the system
Scenario	Describes one way that an actor can accomplish a particular goal

Use Cases & Scenarios: Usage in RLCM

Key Elements

1) **Brief description**: A brief description explaining the case.
2) **Actor**: Users that are involved in Use Cases Actions.
3) **Precondition**: Conditions to be Satisfied before the case begins.
4) **Basic Flow**: 'Basic Flow' or 'Main Scenario' is the normal workflow in the system. It is the flow of transactions done by the Actors on accomplishing their goals. When the actors interact with the system, as it's the normal workflow, there won't be any error and the Actors will get the expected output.
5) **Alternate flow**: Apart from the normal workflow, a system can also have an 'Alternate workflow'. This is the less common interaction done by a user with the system.
6) **Exception flow**: The flow that prevents a user from achieving the goal.
7) **Post Conditions**: The conditions that need to be checked after the case is completed.

Example:
'Login' to a 'School Management System'.

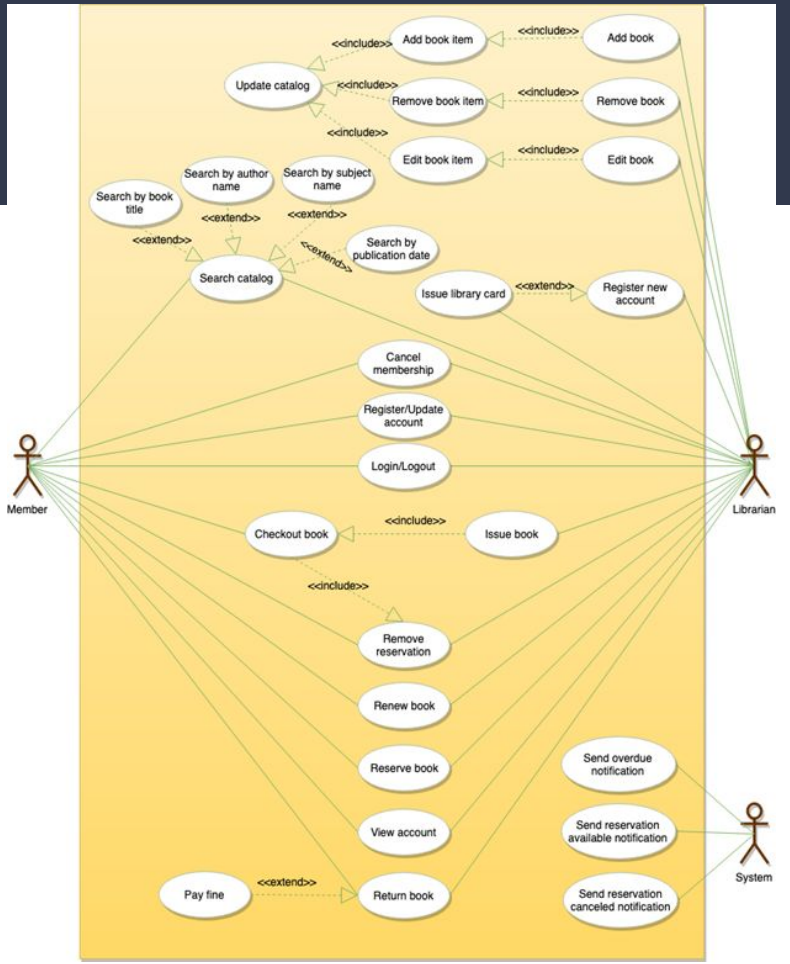
Use Case Name	**Login**
Use case Description	A user login to System to access the functionality of the system.
Actors	Parents, Students, Teacher, Admin
Pre-Condition	System must be connected to the network.
Post -Condition	After a successful login a notification mail is sent to the User mail id

Main Scenarios	**Serial No**	**Steps**
Actors/Users	1	Enter username Enter Password
	2	Validate Username and Password
	3	Allow access to System
Extensions	1a	Invalid Username System shows an error message
	2b	Invalid Password System shows an error message
	3c	Invalid Password for 4 times Application closed

Use Cases Diagram:

Here are the top use cases of the Library Management System:

- **Add/Remove/Edit book:** To add, remove or modify a book or book item.
- **Search catalog:** To search books by title, author, subject or publication date.
- **Register new account/cancel membership:** To add a new member or cancel the membership of an existing member.
- **Check-out book:** To borrow a book from the library.
- **Reserve book:** To reserve a book which is not currently available.
- **Renew a book:** To reborrow an already checked-out book.
- **Return a book:** To return a book to the library which was issued to a member.



Risk Analysis & Management

- **Risk Identification**: Identify and manage areas of uncertainty that can impact an initiative, solution, or organization

- **Analysis and Evaluation**: Brainstorm possible types of risk, estimate the potential for their occurrence and their relative impact

- **Treatment**: Prepare an actionable response to those risks that offer significant threat to the project

#	Risk Event or Condition	Consequence	Probability	Impact	Risk Level	Risk Modification Plan	Risk Owner	Residual Risk		
								Probability	Impact	Risk Level
1	If the union does not agree with changes to job descriptions	then planned staff changes will not be able to occur	Medium	Medium	Medium	Begin consultations with the union no later than next month	Marta	Low	Low	Low
2	If subject matter experts are not available for requirements elicitation	then scope and quality will be reduced, and the delivery date will be pushed back	Medium	High	High	Develop a plan for when the SME's are required, hold on-site workshops and obtain agreement from the sponsor about their participation	Deepak	Low	Medium	Low
3	If an insufficient number of customers reply to our survey	then we will not have a representative sample of customer requirements	Medium	High	High	Contract with a firm that specializes in survey management to develop and run the survey	François	Low	Medium	Low
4	If the organizational structure does not adjust to the new business processes	then the enterprise will not be able to achieve the planned efficiencies and the business need will not be met	High	High	High	The business sponsor must approve the organizational changes prior to deployment, and the changes must occur prior to deployment	Jiahui	Medium	Low	Medium

Risk Response Techniques

- **Avoid**: either the source of the risk is **removed**, or plans are adjusted to ensure that the risk does not occur.
- **Transfer**: the liability for dealing with the risk is moved to, or shared with, a third party.
- **Mitigate**: reduce the probability of the risk occurring or the possible negative consequences if the risk does occur.
- **Accept**: decide not to do anything about the risk. If the risk does occur, a **workaround** will be developed at that time.
- **Increase**: decide to take on more risk to pursue an opportunity.

2 Solution Evaluation: Techniques

- **Measure** and assess solution performance to determine if they meet the business need and deliver potential value
- Recommend **corrective actions** to enhance solution performance
- Performed to **assess and validate** prototypes, pilot and beta releases, and components of solution

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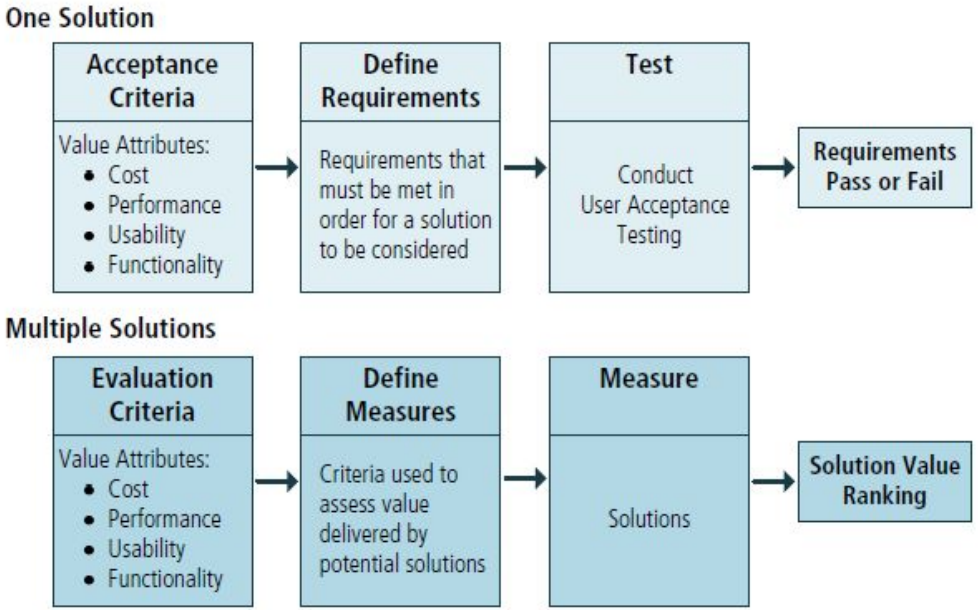
Acceptance & Evaluation Criteria

Acceptance criteria are used to define the requirements, outcomes, or conditions that must be met in order for a solution to be considered **acceptable** to key stakeholders.

Evaluation criteria are the measures used to assess a set of requirements in order to choose between **multiple solutions**.



Data Mining

- Determine **insights and patterns from data** in order to improve decision making
- An example is using trends discovered from large volumes of data to create a decision tree

Usage in Solution Evaluation

- Collect and analyze large amounts of solution performance data
- Identify **trends, common issues, and variances** from expected performance levels
- Understand **patterns and meaning** in that data.
- Identify **factors** constraining solution performance
- **Forecast** solution performance estimates

Decision Analysis

• Support **decision making** when dealing with complex, difficult, or uncertain situations
• Allows decision makers to view the **rationale** behind each choice

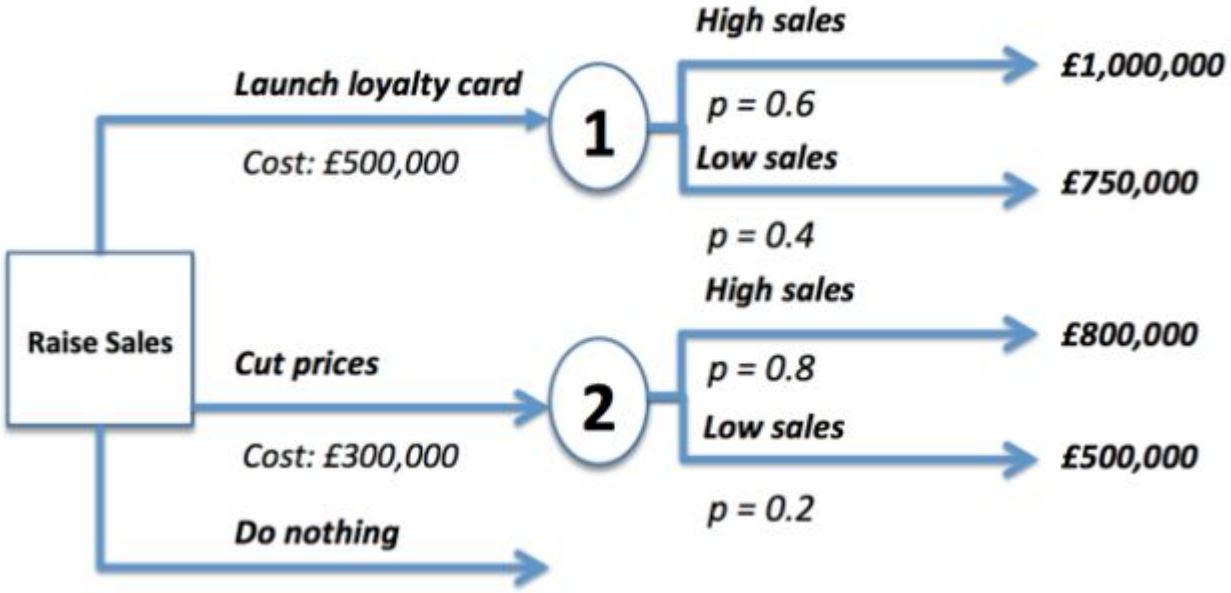
Determine methods to:
• Measure solution performance
• Acceptable levels of performance
Illustrate:
• Current business decisions
• Changes required to achieve the potential value of the change
Analyze impact and make decisions related to:
• Performance issues
• Value variances
• Functional, technical, procedural gaps

Some general decision analysis tools and techniques include
• **pro versus con considerations,**
• force field analysis,
• decision tables,
• **decision trees,**
• **comparison analysis,**
• analytical hierarchy process (AHP),
• totally-partially-not (TPN),
• multi-criteria decision analysis (MCDA), and
• computer-based simulations and algorithms.

Decision Tree : Exercise

Shop ABC is looking at options to increase their sales.The estimated impact of the 2 options on sales and their probabilities are shown as with the associated costs for each option.

Don't forget that there is always an option to decide to **do nothing**!



Non-Functional Requirements Analysis

• Examines the criteria that can used to judge the operation of a system, such as its usability and performance characteristics rather than specific behaviours (functional requirements)

Requirement Type	Description	Example
Functional	Solutions behavior	The solution will enable confirmed customer orders to be sent automatically to warehouse
Non-Functional	Conditions for the solution to remain effective	**Availability**: System can be accessed 24 hrs. a day, 7 days a week, 365 days per year **Security** Users required to change passwords every 6 weeks **Compatibility** Website should operate within the current and previous two versions of Google Chrome and Firefox

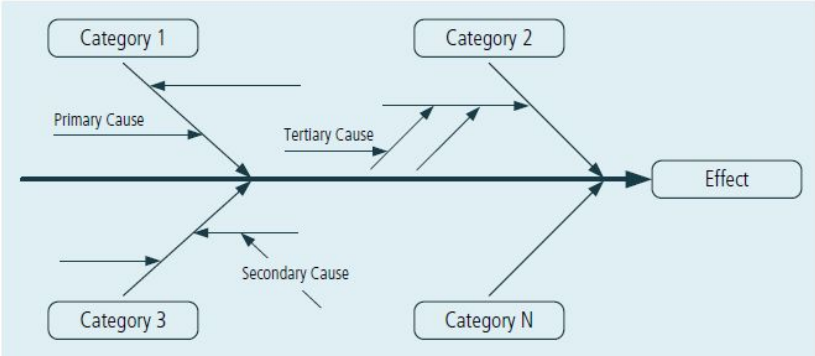
Categories of NFRs

- **Availability**
- Compatibility
- Functionality
- Maintainability
- **Performance Efficiency**
- Portability
- Reliability
- Scalability
- **Security**
- Usability
- Certification
- Compliance
- Localization
- **Service Level Agreements**
- Extensibility

Root Cause Analysis

• Determine the **underlying source(s)** of a problem
• Separate the symptoms from the true cause(s) so that they can be addressed to solve the problem

Steps
• Problem statement definition
• Data collection
• Cause identification
• Action identification



Some general Root Cause analysis tools and techniques include

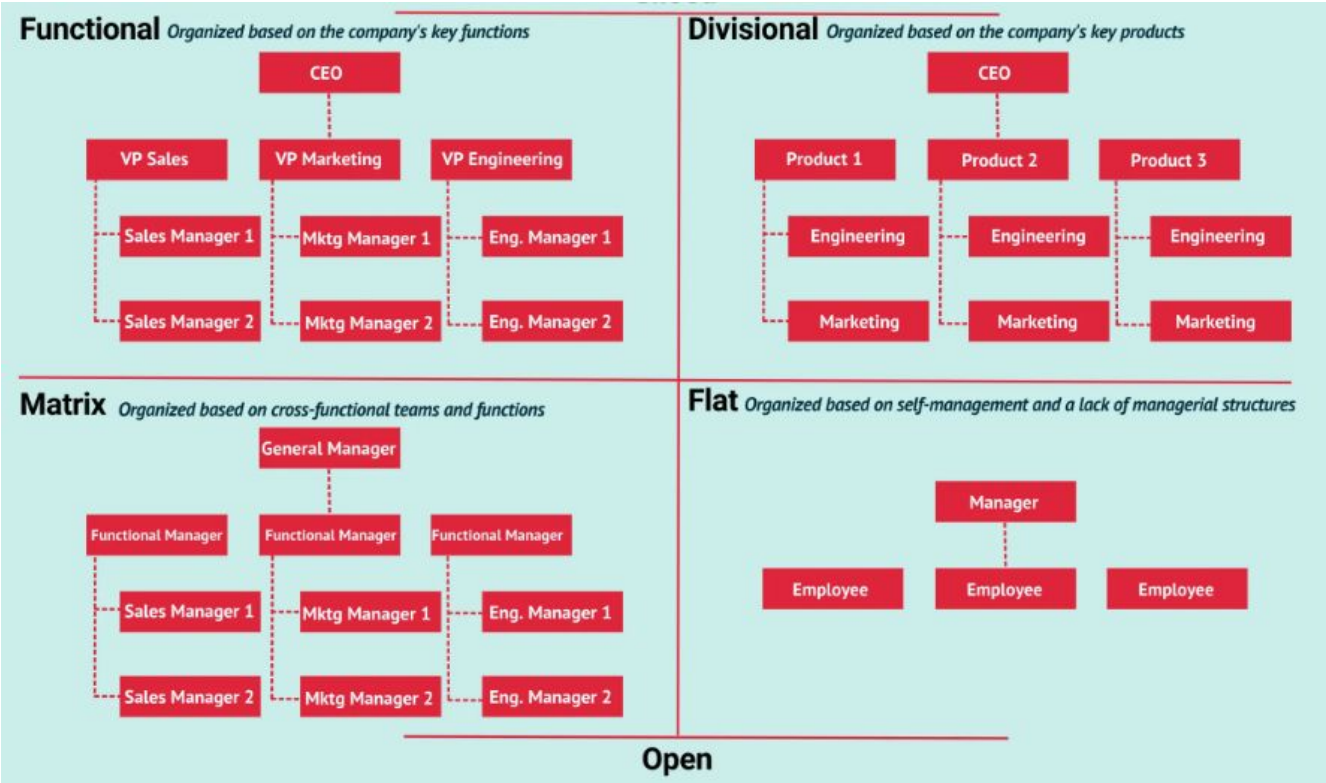
- **The Five Whys**
- **The Fishbone Diagram (a.k.a. cause and effect diagram or Ishikawa diagram)**
  a. Capture issue or problem
  b. Brainstorm categories & potential causes
  c. Analyze the results & validate the actual case
  d. Brainstorm solutions

Organizational Modelling

• Used to describe the roles, responsibilities, and **reporting structures** that exist within an organization and to align those structures with the organization’s goals
• Ensure the identification of any required **changes** to the organizational structure that may have to be addressed
• Demonstrates potential change within the organization's structure

Approach:
The organization is broken down into its functional components i.e.. Marketing, Operations, Finance, HR in order to:
• Identify which part of the organization is responsible for the planning, resourcing and delivery of what products or services to the customer (external or internal).
• Requirements are elicited from the stakeholders who are responsible for the product or service under study.

Organizational Modelling Samples



Roles & Permissions Matrix

- Ensure coverage of activities
- Discover missing roles
- Communicate results of planned change

STEPS:

1. Identifying Roles
2. Identifying Activities
3. Identifying Authorities

RACI chart definition guide

	DEFINITION	NUMBER OF TEAM MEMBERS TO ASSIGN
Responsible	Does the work to complete the task	At least 1 per task
Accountable	Delegates work and is the last one to review the task or deliverable before it's deemed complete	Limit to 1 per task
Consulted	Provides input based on either how it will impact their future project work or their domain of expertise on the deliverable itself	No max or minimum
Informed	Needs to be kept in the loop on project progress, rather than roped into the details of every deliverable	No max or minimum

Project Deliverable (or Activity)	Project Manager	Strategist	Designer	Front End Developer	Back End Developer
Design site map	C	R	A	I	I
Design wireframes	C	A	R	I	I
Create style guide	A	C	R	C	I
Code templates	A	I	C	R	C

Process Analysis

Assess a process for
- Efficiency
- Effectiveness
- Ability to identify opportunities of change
- Gaps between current and future state

Common methods
- SIPOC - originates in the Six Sigma methodology (suppliers, inputs, process,outputs, and customers)
- Value Stream Mapping(VSM) - used in Lean methodologies

3 Business Analysis Planning and Monitoring

- Specify the **deliverables** that the BA will be responsible to produce
- Identify the **time and cost** elements of BA activities for the **project plan**
- Outline how the requirements will be tracked and managed
- Ensure BA work is efficient and adds value

- Estimation 271
- Item Tracking 294
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- Reviews 326
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- Workshops 363

Estimation

Used to forecast cost and effort
- Solution benefits
- Business performance
- Potential solution value
- Operating costs
- Risk impact

Types
- Top-down
- Bottom-up
- Parametric (history to calibrate)
- Rolling Wave
- PERT-Program Evaluation & Review Technique
- Delphi (expert judgment and history)
- ROM: Rough Order of Magnitude

Item Checking

- Track issues and risks related to BA activities, performance, requirements
- Minimize or eliminate the impact of issues and stakeholder concerns to the solution
- Organized approach to tracking, management, and resolution

RAID Analysis

Key risks, assumptions, issues and dependencies

No.	description	type	criticality	next actions	owner
1	Resource bottlenecks due to team members being assigned to parallel projects	risk	medium	1. Closely monitor progress of parallel projects. 2. Look for suitable external contractor who can support during peak phases.	John Smith
2	Software does not fulfil customer requirements	risk	high	1. Create a prototype the customer can review 2. Create specification template to document customer needs	Patrick Read
3	office is closed from Dec 20 - Jan 4	assumption	medium	no work during that time	Stella M
4	customer will take care of data extraction from current IT system	assumption	high	migrate address data	Frank S
5	customer will clean up current system data	assumption	high	migrate address data	Frank S
6	current system interface does not support Windows 10	issue	critical	reconciliation with software vendor	John F
7	legal department must give approval before data migration	dependency	critical	reconciliation with legal dept.	Stella M
8					
9					
10					
11					

Items include
- Risks
- Assumptions
- Issues
- Defects
- Enhancements
- Constraints
- Conflicts

Lessons Learned

- Compile and document successes and challenges
- Identify opportunities for improvement
- Make recommendations for improving the performance of future projects or project phases

Results in changes to improve:

- BA processes
- Templates
- Deliverables
- Technique usage
- BA work efficiencies
- Stakeholder engagement
- BA Information management
- Communication

Reviews

• Subject matter experts evaluate content of a **work product** in order to:
– Remove defects
– Verify conformance
– Establish consensus
– Measure quality

• Work products include:
– Requirements
– Test plans
– Other BA artifacts

Formal Techniques include:
• Inspection
• Team Review(Formal Walkthrough)
• Technical review(Single Issue Review)

Informal Techniques include:
• Informal walkthrough
• Desk check
• Pass around
• Ad hoc

Survey or Questionnaire

• Means of **eliciting information** from many people, sometimes anonymously, in a relatively short period of time
• Can collect information about customers, products, work practices and attitudes. A survey may also be referred to as a questionnaire
• Conducted early in a project

Usage in BA Planning & Monitoring

• Identify possible business analysis activities, techniques, risks and other relevant items to help build the business analysis approach.
• Identify possible decision-making, change control, approval, or prioritization approaches and participants.
• Obtain stakeholder input into defining business analysis information management.
• Gather stakeholder feedback on satisfaction with business analysis activities and deliverables.

Workshops

- Structured way to **capture requirements**
- Used to scope, discover, define, prioritize and reach closure on requirements for the target system
- Effective method to deliver high quality requirements quickly
- Promotes trust, mutual understanding, and strong communications among stakeholders

Usage in BA Planning & Monitoring

- Build the BA plan
- Interact with **groups of stakeholders** to gain more information about stakeholder group.
- Identify possible decision-making, change control, approval, or prioritization approaches and participants
- Uncover business analysis information management needs
- Gather assessments of business analysis performance and generate ideas for improvement opportunities.

Any Questions?

Thank You!