CALBA

IQBBA

Certified Advanced Level Business Analyst
by A4Q

CERTIFIED ADVANCED LEVEL BUSINESS ANALYST SYLLABUS

An A4Q Certification

English

A4Q Alliance for Qualification

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Revision History

Version	Date	Remarks
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Introduction to this Syllabus

Purpose of this Document

This syllabus defines the advanced level of the training program to become an IQBBA Certified Business Analyst (CALBA).

The syllabus serves as a foundation for training providers who are seeking accreditation. All areas of this syllabus must be incorporated in the training documents. The syllabus should, however, also serve as the guideline for preparing for certification. All the areas listed here are relevant for the examination.

Scope of this Document

This syllabus covers three modules of the IQBBA advanced level:

- Strategic Analysis and Optimization
- Business Analysis Management
- Requirements Engineering and Management

These modules cover different knowledge areas dedicated to individuals working in different roles and focusing on different perspectives of Business Analysis area.

Strategic Analysis and Optimization module covers processes, tools and techniques required to establish business needs and goals of an organization, understand the current and desired way of satisfying these needs, identify the change needed and prepare solution options, together with business cases and risk analysis. This module also includes solution evaluation and optimization.

Business Analysis Management module is concerned with approaches and techniques required to successfully perform Business Analysis activities in a given environment.

Requirements Engineering and Management module covers processes for requirements elicitation, analysis and negotiation, modeling and specification, as well as activities aiming to build a framework for Requirements Engineering: information architecture, traceability, configuration management and quality assurance.

Each specific module is a basis for an examination to become a Certified Business Analyst in the given specialization.

Examination

The examination to become a Certified Business Analyst is based on this syllabus. All sections of this syllabus are subject to examination. The examination questions are not necessarily confined to an individual section. A question may refer to information in several sections.

The format of the examination is multiple choice. The structure of the exam is explained in [IQBBA AL ES].

Examinations can be taken either after having attended accredited courses, or in an open examination without priorly attending a course. You will find detailed information regarding examination on the A4Q Website (www.alliance4qualification.info/) or directly at the websites of the official examination body iSQI (www.isqi.org).

Accreditation

Providers of an IQBBA Certified Business Analyst course must be accredited. IQBBA accreditation is granted after an expert panel reviews the training provider's documentation. An accredited course is the one that is compliant with the syllabus. When an accredited course is given, an official Certified Business Analyst examination (CALBA exam) may be administered. An exam may also be administered by an independent certification body (according to ISO 17024 rules).

Internationality

This syllabus was developed by a group of international experts.

The content of this syllabus can therefore be seen as an international standard. The syllabus makes it possible to train and conduct examinations internationally on the same level.

Knowledge (K) Levels

The syllabus has been divided into three different Knowledge (K) levels. This division enables the candidate to recognize the "knowledge level" that is required for each topic.

The three K-levels used in the current syllabus are:

- K2 – understand, explain, give reasons, compare, classify, summarize
- K3 – apply in a specific context
- K4 – analyze

Level of Detail

The level of detail in this syllabus allows internationally consistent teaching and examination. In order to achieve this goal, the syllabus consists of the following items:

- General instructional objectives that describe the intention of the Advanced Level certification.
- A list of information to teach that includes a description and references to additional sources if required.
- Learning objectives for each knowledge area that describe the cognitive learning outcome, and the mind-set to be achieved.
- A list of terms that students must be able to recall and understand.
- Description of the key concepts to teach that includes sources such as accepted literature or standards.

The syllabus content is not a description of the entire knowledge area of Business Analysis; it does reflect the level of detail to be covered in Advanced Level training courses.

Organization of this Syllabus

The syllabus contains three major sections (AL modules) with different number of chapters per module. The top-level heading of each chapter shows the highest level of the learning objectives that is covered within the chapter, and specifies the minimum time to be spent for training in the chapter.

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Introduction to Advanced Level

Timing

100 minutes

Terms

Business Analysis, Business Analyst, Business Requirement, Requirement, Solution, Solution Requirement

Learning Objectives

None

Overview

The foundation level of IQBBA program is composed as follows:

- Strategy Definition
- Management of Business Analysis Process
- Requirements Engineering in Business Analysis
- Solution Evaluation and Optimization

IQBBA Advanced Level extends this scope and provides a more advanced view on these topics. The advanced level comprises of three parts:

- Module 1 – Strategic Analysis and Optimization
- Module 2 – Business Analysis Process Management
- Module 3 – Requirements Engineering and Management

Module 1 provides advanced and practical knowledge about Strategy Definition and Solution Evaluation and Optimization. This module covers tasks, methods, tools and techniques supporting internal and external analysis, stakeholder analysis and problem definition as well as the means supporting solution evaluation and optimization.

Module 2 provides deep knowledge about generic Business Analysis processes, elaborates on process management including context analysis and process performance management, as well as people management. New tools, methods and techniques to be used to support this knowledge area are provided.

Module 3 explains the context and specific activities of Requirements Management. It covers the topic of establishing processes for Requirements Development and building a framework for RM consisting of information architecture and traceability, configuration and change management, conflict management, Quality Assurance and requirements communication. In addition, process performance assessment and process improvement areas are explained. More tools, methods and techniques to be used to support this knowledge area are provided.

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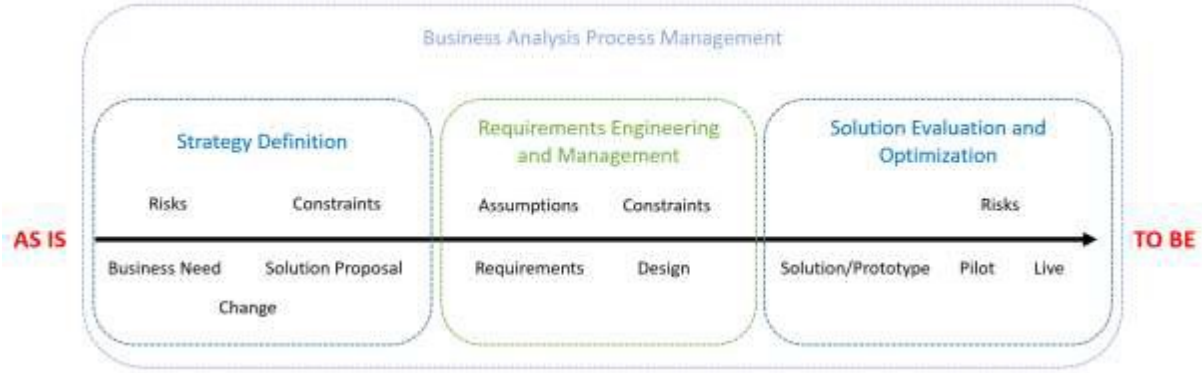

Figure 1 Overview on Business Analysis

Basic Concepts

The IQBBA Foundation level introduced some basic concepts of Business Analysis (BA). Understanding of these concepts is necessary to effectively perform the activities of BA and provide value to an organization. These concepts are:

- Assumption
- Business goal
- Business need
- Business problem
- Change
- Classification of requirements
- Constraint
- Requirement
- Solution
- Stakeholder
- Value

Module – Strategic Analysis and Optimization

1 Strategy Definition (K4)

Timing

1200 minutes

Terms

AS IS, Assumption, Benchmarking, Business case, Business goal, Business need document, Business owner, Business process, Constraint, Feasibility study, Innovation, Market analysis and research, Mission, Observation, PID, Power-interest matrix, Risk analysis, Risk identification, Scope, SIPOC, SMART, Solution proposal, Stakeholder, Stakeholder analysis, Stakeholders onion, Strategy, Survey, TO BE, Trend, Vision

Learning Objectives

The objectives identify what you will be able to do after the completion of each module.

1.1 Internal Analysis (K4)

LO-1.1.1	Use vision, mission and business goals to define required changes consistent with the strategy of an organization (K3)
LO-1.1.2	Understand the role of vision and mission in defining a business strategy of an organization (K2)
LO-1.1.3	Analyze giveninitial assumptions to evaluate its compliance with stated business goals (K4)
LO-1.1.4	Analyze business processes in order to establish areas for improvement (K4)
LO-1.1.5	Understand the concept of BPMM and its role in meeting business goals of an organization (K2)
LO-1.1.6	Apply business process modeling techniques to communicate about organization performance with stakeholders (K3)
LO-1.1.7	Analyze current performance of an organization and desired future capabilities in order to identify gaps between the current and future state of an organization (K4)
LO-1.1.8	Explain different areas of interest for gap analysis (skills, process, business function, facilities, applications and systems, technology gaps) (K2)

1.2 External Analysis (K4)

LO-1.2.1	Use market research techniques to identify potential market needs and transform them into requirements (K3)
LO-1.2.2	Explain the concept of competitive analysis and its role in defining business needs (K2)
LO-1.2.3	Analyze market research results in order to establish business needs and prepare recommendations for solution opportunities (K4)

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LO-1.2.4 Analyze feedback from customers in order to identify potential business opportunities (K4)

LO-1.2.5 Explain possible methods of collecting information and opinions from customers (K2)

1.3 Stakeholder Analysis (K4)

LO-1.3.1 Analyze internal and external environment of an organization in order to identify main stakeholders of a given business problem (K4)

LO-1.3.2 For a given scenario, identify stakeholders and perform stakeholder analysis (K3)

LO-1.3.3 Understand and compare different approaches for stakeholder analysis (K2)

1.4 Business Problem and Business Needs (K4)

LO-1.4.1 Define business needs required to solve a stated business problem (K3)

LO-1.4.2 Articulate business problem based on the internal and external analysis of an organization (K3)

LO-1.4.3 Analyze internal and external environment of an organization and define the business problem to be solved and potential business needs (K4)

1.5 Solution Proposal and Analysis (K4)

LO-1.5.1 Analyze feasibility of a given solution proposal based on collected information and assumptions (K4)

LO-1.5.2 Understand the role and content of a feasibility study (K2)

LO-1.5.3 Estimate costs and benefits of a given solution proposal (K3)

LO-1.5.4 Analyze costs, benefits and risks of a solution proposal in order to prepare a convincing business case (K4)

LO-1.5.5 Perform initial risk analysis for a given project proposal (K3)

LO-1.5.6 Understand and give examples of different cost/effort estimation approaches (K2)

LO-1.5.7 Prepare input for project initiation documentation - solution definition, including basic assumptions, business goals to be achieved and performance goals/metrics (K3)

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1.1 Internal Analysis (K3)

The main purpose of internal analysis is to understand:

- Vision and mission of an organization
- How an organization performs its functions and provides value to customers
- Possible internal problems and weaknesses, as well as opportunities

Knowing that, it is possible to evaluate the performance of an organization, define capability gaps and identify possible areas for improvement.

1.1.1 Establishing Business Model (K4)

LO-1.1.1	Use vision, mission and business goals to define required changes consistent with the strategy of an organization (K3)
LO-1.1.2	Understand the role of vision and mission in defining a business strategy of an organization (K2)
LO-1.1.3	Analyze given initiative assumptions to evaluate its compliance with stated business goals (K4)
LO-1.1.4	Analyze business processes in order to establish areas for improvement (K4)
LO-1.1.5	Understand the concept of BPMM and its role in meeting business goals of an organization (K2)
LO-1.1.6	Apply business process modeling techniques to communicate about organization performance with stakeholders (K3)

A business model of an organization is a definition of how the organization works and performs its business functions. The model encompasses following elements:

- Vision and mission
- Strategy
- Business goals
- Business processes
- Value chain

An important element of business model are stakeholders (see: 1.3 Stakeholder Analysis (K4)).

Business model can be documented in a form of a framework. Sample frameworks supporting this objective are:

- Zachman framework
- Department of Defense Architecture Framework (DoDAF)
- Nominal set of views
  - Enterprise viewpoint
  - Information viewpoint
  - Functional viewpoint
  - Physical viewpoint
  - Engineering viewpoint
  - Technology viewpoint

Vision and mission both define the future state of an organization, and strategy is a realization of a mission. Business goals, which should be built according to SMART (or SMARTER) system, define what must be satisfied to attain the vision.

All these elements influence and drive any initiative undertaken by an organization. They can be understood as a top level strategic requirements for an organization.

The functioning of an organization can be demonstrated using business process models. Such models can be created using formal notations like BPMN (Business Process Modeling Notation) or via other methods:

- Flowchart

- Flowcharts and Value Stream Mapping (VSM)
- SIPOC
- Textual description
- Value Stream Analysis
- Value Stream Mapping (VSM)

BPMN provides a standard notation for modelling business processes in a form that is understandable for both business users and technical staff. BPMN allows to model processes in different forms: internal (private) processes and collaborative (public) processes, and distinguishes activities of different process participants (pools and swim lanes). BPMN models can serve as an input to process automation technologies.

Modeling elements of BPMN notation are provided in Appendix 4.1 Subset of BPMN 2.0

Some results of internal analysis may be presented in a form of Business Model Canvas or BMM (Business Motivation Model).

Internal analysis of an organization should cover business capability analysis, which basically provides information about what the business is able (capable) to do. The analysis can serve to assess organization's performance, identify business risk and plan and prioritize initiatives, especially in terms of time, effort and money.

1.1.2 Defining Capability Gaps (K4)

LO-1.1.7	Analyze current performance of an organization and desired future capabilities in order to identify gaps between the current and future state of an organization (K4)
LO-1.1.8	Explain different areas of interest for gap analysis (skills, process, business function, facilities, applications and systems, technology gaps) (K2)

Analysis of the current state (AS IS) and the target future state (TO BE) leads to identification of capability gaps. These gaps can be understood as changes (needs) required to transform the organization from the current state to the future state.

Sample outcomes of capability gap assessment may refer to organizational changes in:

- Business processes, functions or operations
- Facilities
- Features of applications and systems
- Products or services provided by an organization
- Skills and knowledge
- Technology

SWOT analysis supports the capabilities assessment of an organization in terms of stated objectives.

1.2 External Analysis (K4)

1.2.1 Market Research and Analysis (K4)

LO-1.2.1	Use market research techniques to identify potential market needs and transform them into requirements (K3)
LO-1.2.2	Explain the concept of competitive analysis and its role in defining business needs (K2)
LO-1.2.3	Analyze market research results in order to establish business needs and prepare recommendations for solution opportunities (K4)

Market research and analysis are structured activities allowing to:

- Collect information about markets or customers
- Determine if there is a need or demand for a product or service
- Identify current and future market trends
- Investigate market conditions
- Understand competitors and their offer

Techniques for market research and analysis:

- Qualitative and quantitative research
- Questionnaires and surveys
- Individual in-depth interviews
- Innovation game
- Observation
- Customer analysis (Segmentation of target customers)
- Competitor array
- Competitor profiling
- Media scanning
- PEST analysis
- Porter's five forces analysis
- Using technical solutions for collecting data

An important part of market research and analysis is competitive analysis – an assessment of the strengths and weaknesses of current and potential competitors. Competitive analysis is a key element of theorganization's strategy.

1.2.2 Establishing Customer' Needs (K4)

LO-1.2.4	Analyze feedback from customers in order to identify potential business opportunities (K4)
LO-1.2.5	Explain possible methods of collecting information and opinions from customers (K2)

The first step to collect customer needs is to understand the customers themselves. Analysis of customers should consider the following aspects:

- Tasks and operations performed
- Goals in given context
- Background
- Experience with similar products/services/technology
- Working environment
- Demographical information

I CAT method can be used to collect and analyze customer data. I CAT stands for:

- Identify
- Collect

- Analyze
- Translate

An important part of customer analysis is understanding the process performed by customers in the given environment. This will help to establish proper business needs and identify means allowing to meet customer satisfaction.

Tools and techniques supporting analysis of customer tasks:

- Mapping the customer process
- Customer journey
- Persona or other methods of profiling

Possible methods and techniques of collecting feedback from customers:

- Direct feedback
- Interviews and surveys, including interviewing competitors' customers
- Observation
- Complaints
- CSat – customer satisfaction metrics
- Voice of customer surveys
- Analysis of needs, wants and demands

Kano model can be used to classify collected needs in terms of their importance and impact on customers' satisfaction.

1.3 Stakeholder Analysis (K4)

LO-1.3.1	Analyze internal and external environment of an organization in order to identify main stakeholders of a given business problem (K4)
LO-1.3.2	For a given scenario, identify stakeholders and perform stakeholder analysis (K3)
LO-1.3.3	Understand and compare different approaches for stakeholder analysis (K2)

IQBBA Advanced Level uses the following definition of a stakeholder: „A stakeholder in an organization is (by definition) any group or individual who can affect or is affected by the achievement of the organization's objectives“ [Freeman].

Stakeholders are one of the main sources of requirements and needs for any initiative or a business problem. Identification and analysis of stakeholders is an important part of both strategy definition, and project/program planning and realization.

Identification of stakeholders can be conducted using various techniques and approaches [IQBBA FL], supported by additional methods:

- Brainstorming
- Interviews
- Stakeholder Map
- Personas

Managing stakeholders requires not only identification of stakeholders, but also their analysis. Analysis of stakeholders should include:

- Stakeholders classification
  - De Mascia approach:
    - Key stakeholders
    - Primary stakeholders
    - Secondary stakeholders
    - Tertiary stakeholders
  - Philips approach:
    - Normative stakeholders
    - Derivative stakeholders
- Stakeholders mapping
  - Sample approaches:
    - Cameron et al. – ranking based on needs and the relative importance of stakeholders [Cameron]
    - Fletcher et al. – mapping stakeholder expectations based on value hierarchies and KPI (key performance indicators) [Fletcher]
    - Mitchell et al. (Stakeholder Salience) – classification based on power to influence, the legitimacy of each stakeholder's relationship with the organization, and the urgency of the stakeholder's claim on the organization [Mittchel]
  - Techniques:
    - Mendelow's power-interest grid
    - Murray-Webster and Simon's three-dimensional grid
    - Onion Diagram
    - Variants of stakeholders matrix representing dimensions e.g.:
      - Power (high, medium, low)
      - Influence (high or low)
      - Interest/Need (high, medium, low)
      - Support/Attitude (positive, neutral, negative)

Typical outcomes of stakeholder analysis include information about:

- Stakeholders‘ interests, potential risks and misunderstandings
- Stakeholders‘ relations and dependencies
- Attributes and characteristics of main stakeholder groups
- Factors and mechanisms to influence stakeholders
- Stakeholders with negative attitude and their adverse effects on the project

1.4 Business Problem and Business Needs (K4)

LO-1.4.1	Define business needs required to solve a stated business problem (K3)
LO-1.4.2	Articulate business problem based on the internal and external analysis of an organization (K3)
LO-1.4.3	Analyze internal and external environment of an organization and define business problem to be solved and potential business needs (K4)

Business problem is an issue existing in organization or its department that has to be solved to allow the organization to achieve stated goals. Business needs are problems or opportunities of strategic importance [BABOK] that have to be analyzed and addressed by a Business Analyst in order to recommend solutions that meet specific business goals as well as the expectations of key stakeholders.

Typical business needs relate to new market or technical opportunity, feedback from customers, business stakeholders' insights, information about competitors etc.

Business needs can be identified at various levels:

- Strategic level – top-down approach, identification of strategic goals to be achieved
- Function or process level – bottom-up, identification of a problem related to the current performance of a function or process
- Management level – stakeholder driven approach, identification of a problem related to the information needs of given stakeholders (decision-making purposes) or missing functions or processes required to meet business goals

In addition to that, business needs may come from external drivers like competition, regulatory requirements, standards, customer demands or technology.

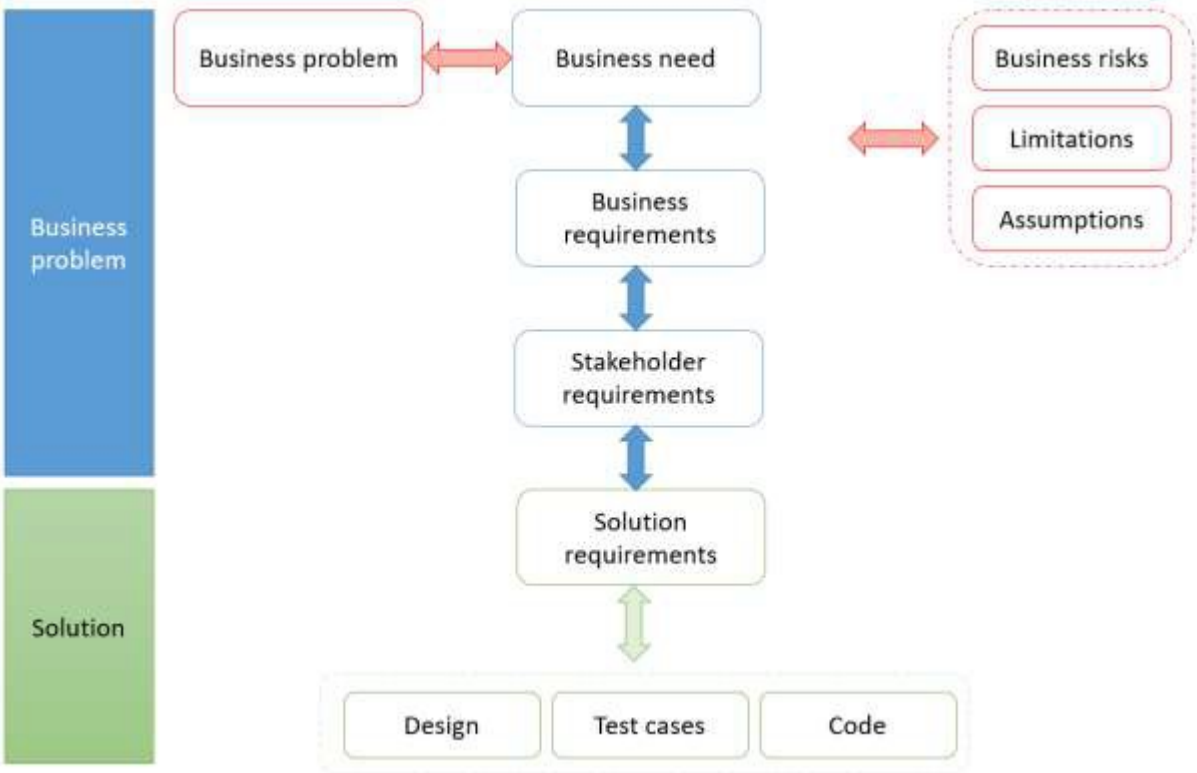

Figure 2 Traceability between business artifacts and solution artifacts

1.5 Solution Proposal and Analysis (K4)

LO-1.5.1	Analyze feasibility of a given solution proposal based on collected information and assumptions (K4)
LO-1.5.2	Understand the role and content of a feasibility study (K2)
LO-1.5.3	Estimate costs and benefits for a given solution proposal (K3)
LO-1.5.4	Analyze costs, benefits and risks of a solution proposal in order to prepare a convincing business case (K4)
LO-1.5.5	Perform initial risk analysis for a given project proposal (K3)
LO-1.5.6	Understand and give examples of different cost/effort estimation approaches (K2)
LO-1.5.7	Prepare input for project initiation documentation - solution definition, including basic assumptions, business goals to be achieved and performance goals/metrics (K3)

Solution proposal and analysis includes following elements:

- Feasibility analysis
- Cost and benefit estimation
- Risk analysis

Feasibility study allows to analyze and compare different solution options to understand how each option adds value to the business and what risks are related to specific alternatives. The following aspects should be analyzed for a solution option:

- Technical capabilities, constraints, risks
- Organizational impacts
- Economical aspects

A common method supporting creating feasibility study is TELOS. It refers to the five areas of feasibility:

- Technical
- Economic
- Legal
- Operational
- Scheduling

Feasibility analysis may be supported by proof of concept.

Solutions that are proved to be feasible are developed as part of a project or initiative. A project should be justified by a business case. Business case provides a justification for initiating a project or initiative, specifically in terms of costs and value added to the business.

Creating a business case requires:

- Cost and effort estimation
- Benefit estimation
- Risk analysis

Cost and effort estimation is based on given information and assumptions, which should be documented as part of the estimation. Typical input information for an estimation:

- Requirements (scope)
- Technical and business limitations and assumptions
- Technology used
- Skills and competencies of people involved

Typical approaches to estimation:

- Expert judgement
- Analogous estimating

- Parametric estimating
- Bottom-up estimating
- Three-point estimating
- Reserve analysis

The accuracy of estimation may be influenced by the following factors:

- Experience with similar projects/problems
- Planning horizon
- People factors

Benefit estimation should refer to stated business goals and desired outcomes of an undertaken. Both financial and non-financial benefits should be considered.

Sample benefits are:

- Increased market share
- Improved company reputation
- Increased customer return rate
- Increased customer satisfaction
- Reduced customer complaints
- Higher sales numbers for products/services
- Meeting regulatory requirements and/or standard

A business case, based on feasibility study and project/initiative analysis should demonstrate positive ROI (Return of Investment). In some cases an organization decides to accept and realize project demonstrating negative ROI. This is a common situation in case of changes in business context, like regulatory changes, which must be implemented to allow proper functioning of the organization.

When analyzing new solution proposal, risk analysis should be conducted. It is an important part of both feasibility study, and business case. Both technical, organizational and business risks should be considered and properly addressed.

Risk analysis is a part of risk management process consisting of following elements [ISO 31000]:

- Establishing the context
- Risk assessment
  - Risk identification
  - Risk analysis
  - Risk evaluation
- Risk treatment
- Risk monitoring and review

Sample risk treatment approaches [ISO 31000]:

- Avoiding the risk by deciding not to start or continue with the activity that gives rise to the risk
- Accepting or increasing the risk in order to pursue an opportunity
- Removing the risk source
- Changing the likelihood
- Changing the consequences
- Sharing the risk with another party or parties (including contracts and risk financing)
- Retaining the risk by informed decision

In case a project/initiative is evaluated as valuable for an organization, a project may be initiated. The role of a Business Analyst is to help prepare input information for Project Initiation Documentation (PID) [PRINCE2].

CALBA - Syllabus
PID should cover following information:

- Goals
- Deliverables
- Project Scope
- Budget
- Project Resources
- Risk Management
- Change Control

An option may be also building PID from a set of other documents, including:

- Business case
- Communication plan
- Project plan
- Risk register (risk log)
- Quality plan

2 Solution Evaluation and Optimization (K3)

Timing

285 minutes

Terms

Beta release, Evaluation, Optimization

Learning Objectives

The objectives identify what you will be able to do following the completion of each module.

2.1 Solution Evaluation (K4)

LO-3.1.1	Analyze performance of a solution in order to check compliance with stated business goals (K4)
LO-3.1.2	Understand and give examples of different evaluation approaches and areas of interest - evaluation of prototype, beta release, and operational solution (K2)
LO-3.2.3	Understand the scope of solution evaluation and give proper examples - solution performance, solution limitations, organization readiness (K2)
LO-3.2.4	Prepare an evaluation plan for a given solution (K3)

2.2 Solution Optimization (K3)

LO-3.2.1	Use solution evaluation results to identify optimization opportunities (K3)
LO-3.2.2	Explain possible methods and techniques supporting solution optimization (BPMM, software supporting operations, etc.) (K2)
LO-3.2.3	For a given scenario, recommend actions allowing to increase value provided by a solution (K3)

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2.1 Solution Evaluation (K4)

LO-3.1.1	Analyze performance of a solution in order to check compliance with stated business goals (K4)
LO-3.1.2	Understand and give examples of different evaluation approaches and areas of interest - evaluation of prototype, beta release, and operational solution (K2)
LO-3.2.3	Understand the scope of solution evaluation and give proper examples - solution performance, solution limitations, organization readiness (K2)
LO-3.2.4	Prepare an evaluation plan for a given solution (K3)

The main purpose of solution evaluation activities is to ensure that capabilities provided by the solution proposal facilitate the stated business need(s), and satisfy business, stakeholder and solution requirements.

Evaluation of the solution option typically involves the following elements:

- Measurement and analysis of solution performance
- Establishing solution and organization limitations
- Identification of necessary corrective actions

Solution evaluation can be done using several approaches:

- Evaluation of prototype
- Evaluation of alpha/beta release
- Evaluation of operational solution

The evaluation should be done from both internal point of view (e.g. organization perspective), and external (e.g. customers and clients point of view).

Sample techniques supporting solution evaluation:

- Acceptance and evaluation criteria (often based on business requirements)
- Benchmarking
- Market analysis
- Data Mining
- Metrics
- Key Performance Indicators
- Risk analysis and mitigation
- Kano model

2.2 Solution Optimization (K3)

LO-3.2.1	Use solution evaluation results to identify optimization opportunities (K3)
LO-3.2.2	Explain possible methods and techniques supporting solution optimization (BPMM, software supporting operations, etc.) (K2)
LO-3.2.3	For a given scenario, recommend actions allowing to increase value provided by a solution (K3)

Solution evaluation results can be used to identify improvement areas in a solution or process.

Sample solution improvement areas:

- Insufficient performance
- Insufficient usability
- Poor integration or communication with other solutions
- Missing functionality

Depending of the type and nature of the problem, different approaches for improvement may be applied:

- Organizational change
  - Process optimization (often based on business process simulation with BPMN models), including eliminating waste
  - Business Process Improvement (BPI)
  - Introducing tools and software supporting operations
  - Improving access to information/resources
- Solution optimization or re-design
  - Eliminating redundancy
  - Improving functionality or quality attributes (usability, performance, reliability etc.)

Typical outcomes of optimization efforts are suggestions for improvements (changes), which can become new business needs.

3 Tools and Techniques (K4)

Timing

120 minutes

Terms

None

Learning Objectives

The objectives identify what you will be able to do following the completion of each module.

3.1 Tools and Techniques for Strategy Analysis (K4)

LO-4.1.1 Select a proper set of tools and techniques supporting internal and external analysis for a given organization/initiative (K3)

LO-4.1.2. Analyze current usage of tools and techniques used in an organization/initiative to evaluate their effectiveness in supporting specific strategy analysis activities (K4)

3.2. Tools and Techniques for Strategy Analysis (K4)

LO-4.1.1 Select a proper set of tools and techniques supporting internal and external analysis for a given organization/initiative (K3)

LO-4.1.2. Analyze current usage of tools and techniques used in an organization/initiative to evaluate their effectiveness in supporting specific strategy analysis activities (K4)

Methods and tools for enterprise architecture:

- Zachman framework
- Department of Defense Architecture Framework (DoDAF)
- Nominal set of views

Typical tools and techniques supporting strategy analysis:

- Benchmarking
- Business Capability Analysis
- Business Capability Analysis
- Business Case
- Business Model Canvas
- BMM (Business Motivation Model)
- Critical to Success (CTS) tree
- Feasibility analysis
- I CAT
- MOST
- MoP® (Management of Portfolios) [MoP]

CALBA Syllabus

- MoV® (Value Management) [MoV]
- PEST
- POPIT model
- Porter's five forces analysis
- Process modeling
- Root Cause Analysis
- Stakeholders mapping
- SWOT
- TELOS
- Value Chain Analysis
- VRIO

Additionally, some techniques, methods and tools used in Requirements Engineering or taken from other disciplines (see: 1.2.4 Interdisciplinary Knowledge (K3)) can be used as well.

Common notations for business modeling:

- BPMN (Business Process Modeling Notation)
- Role Activity Diagramming (RAD)
- Systematic Technique for Role and Interaction Modelling (STRIM)

4 Appendix

4.1 Subset of BPMN 2.0

BPMN basic element categories:

- flow object
- connecting objects
- swim lanes
- artifacts

For each of these categories, the following sections present the exact subset of graphical elements that apply to this syllabus; to be used for the purpose of K3 and K4 level learning objectives (from 1.1 Internal Analysis (K3)).

Flow objects

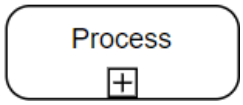
Events:

Start	
Intermediate	
End	

Types of events:

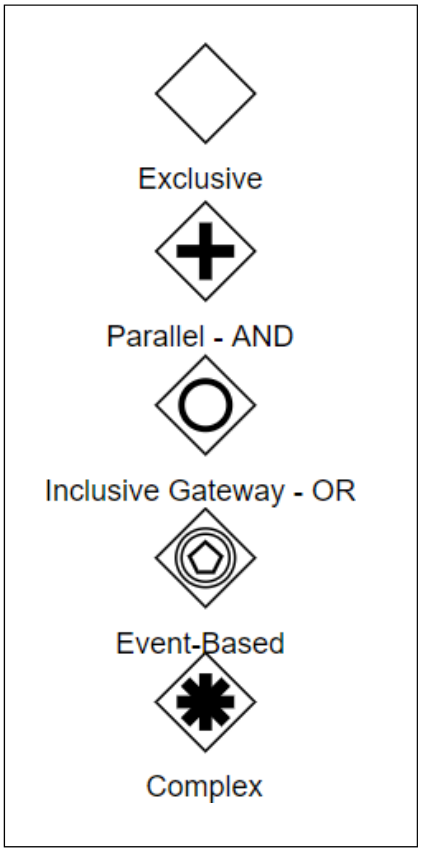
Non-interrupting	
Interrupting	

Activities:

Task	
Sub process	

Types of tasks considered in the syllabus: abstract, service, send, receive, user, manual, business rule, script tasks.

Gateways:



Connecting objects

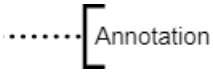
Sequence flow, message flow

Sequence flow	
Message flow	

Swim lanes:

Pool	Lane

Artifacts:

Data object	Annotation
	

For the use of this subset of BPMN graphical elements, syntactic, semantic and pragmatic rules are those defined within the BPMN 2.0 standard [BPMN 2.0].

Module – Business Analysis Management

1 Generic Business Analysis Process (K4)

Timing

600 minutes

Terms

Approach, Artifact, Communication, Communication model, Communication plan, Design, Elicitation, Information management, RACI, Requirements life cycle, Specification

Learning Objectives

The objectives identify what you will be able to do following the completion of each module.

1.1 Business Analysis Generic Process (K3)

LO-1.1.1	Understand Business Analysis generic process and its specific activities (K2)
LO-1.1.2	Create a framework for Business Analysis process for a given organization (K3)
LO-1.1.3	Understand how different Business Analysis products support specific Business Analysis activities (K2)
LO-1.1.4	Create templates/blueprints of generic Business Analysis products required for a given organization (K3)
LO-1.1.5	Create a communication plan for the needs of Business Analysis process in a given organization (K3)
LO-1.1.6	Understand scope of communication in Business Analysis and provide examples (K2)
LO-1.1.7	Understand the role and outputs of different processes supporting Business Analysis (configuration and change management, risk management, release management, product portfolio management) (K2)
LO-1.1.8	Plan implementation of processes supporting Business Analysis (K3)

1.2 Context of Business Analysis Process (K4)

LO-1.2.1	Understand the nature of different development approaches and their impact on Business Analysis process (K2)
LO-1.2.2	Explain the relationship between Business Analysis and solution development/maintenance

LO-1.2.3	Analyze current or planned development environment to identify needs for Business Analysis process (K4)
LO-1.2.4	Understand the role of Business Analysis for introducing change to an organization (K2)
LO-1.2.5	Analyze current environment for business operations in order to implement Business Analysis processes supporting business performance (K4)
LO-1.2.6	Understand the concept of organization maturity and its impact on Business Analysis processes (K2)
LO-1.2.7	Analyze capabilities of an organization in order to specify needs and limitations of planned Business Analysis process (K4)
LO-1.2.8	Identify interdisciplinary skills and knowledge helping to improve efficiency of Business Analysis process in the context of a given organization (K3)

1.1 BA Generic Process (K3)

1.1.1 Business Analysis Activities and Work Products (K3)

LO-1.1.1	Understand Business Analysis generic process and its specific activities (K2)
LO-1.1.2	Create a framework for Business Analysis process for a given organization (K3)
LO-1.1.3	Understand how different BA products support specific Business Analysis activities (K2)
LO-1.1.3	Create templates/blueprints of generic Business Analysis products required for a given organization (K3)

The Foundation Level of IQBBA introduced a generic BA framework consisting of the following knowledge areas:

- Strategy definition
- Management of Business Analysis process
- Requirements Engineering in Business Analysis
- Solution evaluation and optimization

The above knowledge areas are supported by specific methods, tools and techniques and require specific skills and competencies. Activities belonging to the knowledge areas are listed in Table 1 Knowledge areas with corresponding activities and sample work products.

Different organizations typically use their own variants of Business Analysis process, where specific activities are performed in different ways depending on the context and current needs.

The table below expresses a list of activities performed within each BA knowledge area and relevant work products.

Knowledge area	Activity	Sample work product
Strategy definition	• Internal analysis • External analysis • Stakeholder analysis • Business need definition • Solution proposal and analysis	Business model List of stakeholders Definition of business processes Market research results Opportunities Capability gaps Business needs Business requirements Solution options List of business risks Business constraints Business case Feasibility study
Management of Business Analysis processes	• Business Analysis process definition (for organization, program, project or other form of	Business Analysis approach Business Analysis delivery plan Communication plan

	change development or implementation works etc.) • Communication planning • Work products management • Tools and techniques selection	Business Analysis assets (templates, etc.) Quality gates for requirements and/or solution design

Requirements Engineering in Business Analysis	• Requirement Management
	  ○ Requirements communication
	  ○ Requirements tracing
	  ○ Requirements configuration and change management
	  ○ Requirements quality assurance
	• Requirements Development
	  ○ Requirements elicitation including stakeholders and/or product requirements development
	  ○ Requirements analysis and specification
	  ○ Solution modeling
	  ○ Requirements validation and verification
		Stakeholder requirements
		Solution/product requirements
		Solution constraints and assumptions
		Requirements conflicts
		Solution design options
		Solution models
		Solution specification
		RTM (Requirements Traceability Matrix)
		Requirements configuration
		V&V reports
		Changes and issues

Solution evaluation and optimization	• Assessing the solution options (proposals) • Evaluating performance of the solution • Solution/business process optimization	Solution performance assessment Organization performance evaluation Suggestions for improvements Changes and issues Improvement plan

Table 1 Knowledge areas with corresponding activities and sample work products

BA artifacts may be created using different templates and approaches. Sample sources and guidelines regarding the required form and content of BA documentation:

- Development methods and frameworks:
  - Scrum
  - Safe
  - RUP (Rational Unified Process)
  - BDD (Behavior Driven Development)
- Business Analysis or Requirements Engineering standards and certification schemes:
  - BSC IS Business Analyst L4*
  - PMI The PMI Guide to Business Analysis
  - IREB The *Certified Professional for Requirements Engineering* (CPRE)
  - IIBA A Guide to the Business Analysis Body of Knowledge
  - IEEE 29148-2011 - ISO/IEC/IEEE International Standard - Systems and software engineering -- Life cycle processes --Requirements engineering
  - ISO/IEC 25000:2014 Systems and software engineering -- Systems and software Quality Requirements and Evaluation (SQuaRE) -- Guide to SquaRE
- Web sources [ModernAnalyst] [BA Times]

1.1.2 Communication (K3)

LO-1.1.5	Create a communication plan for the needs of Business Analysis process in a given organization (K3)
LO-1.1.6	Understand scope of communication in Business Analysis and provide examples (K2)

Communication is one of the most important elements of successful Business Analysis and development works. Key Business Analysis activities and work products should be communicated with the relevant stakeholders. The communication should cover all knowledge areas and specific activities and should be adjusted to the needs and expectations of target audience.

Scope of communication:

- Communication with stakeholders
- Communication with delivery team
- External communication

Types of communication:

- Based on style, purpose and target audience:
  - Formal
  - Informal
- Based on communication channels:
  - Non-verbal
  - Verbal
    - Oral
      - Face-to-face
      - Distance
    - Written

A common way of structuring Business Analysis communication is a communication plan.

The communication plan explains rules of communication with the key stakeholders and typically covers the following information:

- Subject of communication (work product, task etc.)
- Stakeholders involved (audience)
- Frequency of communication

- Medium of communication (mail, chat, teleconferences, direct communication, documentation etc.)
- Person responsible for communication
- Responsibilities in communication (expressed e.g. in the form of RACI matrix)

Sample techniques and tools supporting effective communication:

- Rules for internal and external communication
- Glossary
- Domain models
- Requirements/solution models and documentation
- Workshops
- Structured walkthrough
- Product/increment demo

Common problems in communication:

- People issues – poor communication between specific individuals or groups
- Unclear roles and responsibilities
- Lack of appropriate knowledge or shared understanding
- Inappropriate, incomplete or inaccurate documentation
- Lack of a systematic communication process and rules
- Poor management of assets and resources

Communication models, like Shannon-Weaver Model or Sender-Message-Channel-Receiver (SMCR) Model can be used to support communication planning in Business Analysis.

1.1.3 Related Processes (K3)

LO-1.1.7	Understand the role and outputs of different processes supporting Business Analysis (configuration and change management, risk management, release management, product portfolio management) (K2)
LO-1.1.8	Plan implementation of processes supporting Business Analysis (K3)

Processes supporting Business Analysis:

- Business and solution architecture
- Configuration and change management
- Marketing
- Product management
- Product portfolio management
- Project management
- Release management
- Risk management
- Solution design

Other disciplines supporting quality control and quality assurance:

- Validation and verification (including testing)
-
- Quality management

1.2 Context of BA Process (K4)

1.2.1 Solution Development and Maintenance (K4)

The main approaches to solution development and maintenance:

LO-1.2.1	Understand the nature of different development approaches and their impact on Business Analysis process (K2)
LO-1.2.2	Explain the relationship between Business Analysis and solution development/maintenance (K2)
LO-1.2.3	Analyze current or planned development environment to identify needs for Business Analysis process (K4)

- Agile
- Traditional (waterfall)
- Spiral
- DevOps

In some cases „process meta-models“ are used to support product development/maintenance. Sample process models include:

- ISO/IEC/IEEE 12207:2017 Systems and software engineering -- Software life cycle processes
- The ISO 9000 family of quality management systems standards
- The Capability Maturity Model Integration (CMMI)
- ISO/IEC 15504 Information technology — Process assessment (Software Process Improvement Capability Determination (SPICE))

Application of a specific approach depends on many factors including:

- Risk
- Budget
- Time to market
- Organization limitations
- Communication requirements
- Availability of key stakeholders
- Required formality of the process and work products

Business Analysis activities should be integrated into the development/maintenance process model selected.

1.2.2 Introducing Change to Business Operations (K4)

LO-1.2.4	Understand the role of Business Analysis for introducing change to an organization (K2)
LO-1.2.5	Analyze current environment for business operations in order to implement Business Analysis processes supporting business performance (K4)

One of the main objectives of Business Analysis is enabling change bringing value to an organization. The change can be defined as transformation from a current state to an envisioned or desired future state.

Typically changes are realized through projects, programs and other types of development/maintenance effort. When planning and managing such efforts it is necessary to consider the impact of a change on business operations. Business Analysis is a key mean of ensuring this objective is met.

Drivers of change can be classified into external and internal forces. Sample change drivers are:

- Technology advancement
- Globalization
- Innovation
- Shorter time to market

The role of a Business Analyst is to:

- Help to define business goals and needs
- Define changes needed to add value to the business
- Propose solutions allowing to introduce the change
- Help to initiate change projects/programs and support their realization
- Support business users when introducing the change

Managing change in organization can be supported by several frameworks or models like OPM3® (OPM Organizational Project Management Maturity Model) or other recognized industry models. One of important elements of managing change is a Change Life Cycle. Sample Change Life Cycle Framework can be found in [PMI MC].

1.2.3 Organization Maturity (K4)

LO-1.2.6	Understand the concept of organization maturity and its impact on Business Analysis processes (K2)
LO-1.2.7	Analyze capabilities of an organization in order to specify needs and limitations of planned Business Analysis process (K4)

The maturity of an organization can be defined as the extent to which an organization has consistently established, deployed and followed processes that are documented, controlled, and continually improved. Operations of mature organizations are more predictable and controlled, transparent and easy to analyze and improve, if necessary. Improving maturity of an organization can be supported by different approaches and techniques (see: 2.2.1 Process Improvement (K3)). One of most common approach for systematic improvement is applying maturity models or domain standards.

Business Analysis, as one of the processes performed within an organization should be covered by the maturity model or framework used. Some models refer to Business Analysis activities as one of their process areas (e.g. Requirements Development and Requirements Management process areas in CMMI®).

Organization maturity may impact the following aspects of Business Analysis:

- General approach to BA
- Available resources and assets
- Formality of processes and their outcomes
- Number and type of activities
- Number and type of work products
- Organization of processes
- Skills of people involved in BA
- Stakeholders involvement

Sample models supporting the increase of organizational maturity:

- ITIL - IT Service Management and ISO/IEC TR 20000-11 Information technology — Service management — Part 11: Guidance on the relationship between ISO/IEC 20000-1:2011 and service management frameworks: ITIL® [ITIL] [ISO 20000]
- CMMI® (Capability Maturity Model Integration) developed as a quality standard of organizational process improvement and software development by the Software Engineering Institute (SEI) of Carnegie Mellon University. The model defines five maturity levels:
  - Level 1 Initial
  - Level 2 Managed
  - Level 3 Defined
  - Level 4 Quantitatively Managed
  - Level 5 Optimizing

1.2.4 Interdisciplinary Knowledge (K3)

LO-1.2.8	Identify interdisciplinary skills and knowledge helping to improve efficiency of Business Analysis process in the context of a given organization (K3)

Standard Business Analysis activities, tools and techniques can be supported by means coming from other disciplines. Such disciplines may be [IIBA Competency] [BABOK] [Brown]:

- UX and usability
- Service design
- Digital design
- Design thinking
- Innovation
- Marketing and sales
- Solution design and prototyping
- People management
- Negotiation and persuasion

Some of additional tools and methods valuable for Business Analysis:

- Customer journey
- Storytelling
- Trial and error
- Empathy map
- Exploratory research
- Belbin' team roles
- W5H
- FUD (**F**ear, **U**ncertainty, **D**oubt)
- Elevator pitch

2 Business Analysis Process Management (K4)

Timing

720 minutes

Terms

Assessment, Configuration management, Decision Tree Analysis, FMEA, Information management, Maturity, Maturity model, Risk management

Learning Objectives

The objectives identify what you will be able to do following the completion of each module.

2.1 Business Analysis Process Management (K4)

LO-2.1.1	Plan Business Analysis process including roles, activities, performance metrics, products for a given context (K3)
LO-2.1.2	Analyze the stakeholders, circumstances, and needs of an organization/initiative, including the development lifecycle model, and identify the optimal Business Analysis activities (K4)
LO-2.1.3	For a given project, analyze project risks and select appropriate risk management options (i.e., mitigation, contingency, transference, and/or acceptance) (K4)
LO-2.1.4	For a given project, create an estimate for all Business Analysis process activities, using all applicable estimation techniques (K3)
LO-2.1.5	Understand the concept and benefits of a pilot project (K2)
LO-2.1.6	Introduce Business Analysis process in a given organization/initiative (K3)
LO-2.1.7	Describe and compare typical Business Analysis related metrics (K2)
LO-2.1.8	Analyze results of conducted Business Analysis activities in order to evaluate compliance with the plan (K4)
LO-2.1.9	Communicate Business Analysis work progress and results to the stakeholders (K3)
LO-2.1.10	Analyze given metrics and project information in order to evaluate progress and status of Business Analysis works (K4)
LO-2.1.11	Lead a retrospective to identify good practices and propose improvement actions (K3)
LO-2.1.12	Explain the role, main activities and outputs of project closure (K2)

2.2 Process Performance Management (K4)

LO-2.2.1	Analyze performance of a Business Analysis process operating in a given situation to evaluate effectiveness and propose corrective actions if needed (K4)
LO-2.2.2	Plan for improvements increasing the efficiency of Business Analysis process (K3)
LO-2.2.3	Summarize the background, scope and objectives of the BPMM model (K2)
LO-2.2.4	Define a Business Analysis process improvement plan using the IDEAL model (K3)

2.1 Business Analysis Process Management (K4)

2.1.1 Business Analysis Process Planning (K4)

LO-2.1.1	Plan Business Analysis process including roles, activities, performance metrics, products for a given context (K3)
LO-2.1.2	Analyze the stakeholders, circumstances, and needs of an organization/initiative, including the development lifecycle model, and identify the optimal Business Analysis activities (K4)
LO-2.1.3	For a given project, analyze project risks and select appropriate risk management options (i.e., mitigation, contingency, transference, and/or acceptance) (K4)
LO-2.1.4	For a given project, create an estimate for all Business Analysis process activities, using all applicable estimation techniques (K3)

Business Analysis planning should cover the following aspects:

- Approach
  - Activities and tasks
  - Dependencies
  - Work products and approval methods
  - Assets
- Communication
- Configuration management
- Effort estimation
- Information management
- Improvement efforts
- Monitoring of performance
- Risk management
- Stakeholder's involvement

Business Analysis approach should consider development/maintenance model used. Common classification of such models divides product development life cycles into:

- Traditional
- Agile

As a result, there are two basic approaches to Business Analysis:

- Predictive (plan-driven approach)
- Adaptive (change-driven approach)

Development/maintenance approach may influence the following elements of Business Analysis approach:

- Adaptation for changes
- Communication
- Formality
- Level of documentation
- Work organization
- Responsibilities of BA

When planning the approach, risk analysis and management (see: 1.5 Solution Proposal and Analysis (K4)) and effort estimation (see: 1.5 Solution Proposal and Analysis (K4)) techniques should be also selected.

When performing risk analysis, identification and analysis of quality risks, as well as project risks should be conducted.

Sample risk analysis methods and techniques supporting Business Analysis are:

- Decision Tree Analysis
- Delphi method
- FMEA (Failure Mode and Effect Analysis) and its variant for safety critical area FMECA (Failure Mode, Effects, and Criticality Analysis)

Factors influencing Business Analysis approach:

- Risk related to the change
- Required level of formality
- Regulations impacting the organization
- Distribution and availability of stakeholders
- Requirements related to the information produced by Business Analysis

2.1.2 Business Analysis Process Realization and Monitoring (K4)

LO-2.1.5	Understand the concept and benefits of a pilot project (K2)
LO-2.1.6	Introduce Business Analysis process in a given organization/initiative (K3)
LO-2.1.7	Describe and compare typical Business Analysis related metrics (K2)
LO-2.1.8	Analyze results of conducted Business Analysis activities in order to evaluate compliance with the plan (K4)

Business Analysis process, once defined, should be introduced into an organization. A recommended practice is to introduce the process in a form of a pilot project, to reduce the risk of negative side effects and unpredicted impacts on the ongoing operations and projects performed within an organization.

The pilot project typically has the following objectives:

- Practice the new process/solution in real work environment
- Establish good practices related to the realization of the process
- Learning about possible risks and issues related to the introduction of the changed process/solution
- Collecting feedback from users and process operators

Introduction of the process should include some metrics allowing to measure process performance and compliance with the agreed plan.

Standard classification of metrics:

- Project metrics
- Process metrics
- Product metrics
- People metrics

People metrics should be used with special care and they are typically derived from project, progress and product metrics.

In a single initiative, typically a limited set of usable metrics is selected.

Typical metrics used in Business Analysis:

- Deviation from estimates
- Effectiveness of retrospective/lessons learned
- Level of meeting the quality criteria of requirements
- Number and severity of issues found in BA artifacts
- Number of change requests (not resulted by a business change)
- Organizational/domain standards followed
- Percentage of requirements prioritized

- Stakeholder satisfaction
- Traceability between BA artifacts and other artifacts

Metrics are collected based on ongoing Business Analysis activities and their outcomes. Collection of metrics should be automated if possible, to avoid manual tasks.

2.1.3 Reporting on Business Analysis (K4)

LO-2.1.9	Communicate with stakeholders of Business Analysis works progress and results to the stakeholders (K3)
LO-2.1.10	Analyze given metrics and project information in order to evaluate progress and status of Business Analysis works (K4)

Reporting is an important element of process management. Its basic objective is to provide stakeholders with information about work progress and outcomes to facilitate decision making and improve communication.

There are two main types of reports: status report and progress report [PMI].

Progress and status reporting typically address the following aspects:

- Costs
- Deviations from a plan
- New risks
- Outstanding tasks
- Realization of goals
- Resources
- Schedule
- Status of existing risks
- Work completed and not completed

Status and progress reporting should be done in a systematic way, according to the Business Analysis approach and communication plan.

Reporting can be supported by different methods:

- Kanban boards
- Daily meetings
- Formal project review meeting
- Summary report

2.1.4 Business Analysis Project Closure (K3)

LO-2.1.11	Lead a retrospective to identify good practices and propose improvement actions (K3)
LO-2.1.12	Explain the role, main activities and outputs of a project closure (K2)

Project closure is the final stage of any project representing the formal completion of a project. Business Analysis activities, when performed within a project, program or other type of time-bounded initiative can be considered a sub-project of a larger effort and should be therefore initiated, performed and closed as any other project.

Typical activities of Business Analysis project closure:

- Closing all tasks and activities
- Completing work products and handing over the deliverables to relevant stakeholders
- Communication of Business Analysis outcomes and deliverables to interested parties
- Releasing staff and equipment
- Running retrospective and collecting lessons learned

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2.2 Process Performance Management (K4)

2.2.1 Performance Assessment (K4)

LO-2.2.1	Analyze performance of a Business Analysis process operating in a given situation to evaluate effectiveness and propose corrective actions if needed (K4)

Business Analysis process, as other processes and operations performed within an organization, should be constantly monitored and improved. To improve the process, an assessment (evaluation of the process performance) should be conducted. The assessment can be performed in the following ways:

- Collecting feedback and insights from users and process participants
- Evaluation using checklists
- External or internal audit
- Process review or inspection checking compliance with agreed process/framework
- Using outputs from retrospective meetings (lessons learned)

Metrics supporting Business Analysis process assessment are typically chosen from the set of metrics used for process monitoring (see: 2.1.2 Business Analysis Process Realization and Monitoring (K4)).

2.2.2 Process Improvement (K3)

LO-2.2.2	Plan for improvements increasing the efficiency of Business Analysis process (K3)
LO-2.2.3	Summarize the background, scope and objectives of the BPMM model (K2)
LO-2.2.4	Define a Business Analysis process improvement plan using the IDEAL model (K3)

Sample process improvement approaches:

- PDCA (Deming cycle, Plan-Do-Check-Act)
- IDEAL model
- Applying domain practices and standards
- Introducing appropriate tools and techniques improving efficiency of operations
- Maturity models

IDEAL, a model developed by SEI at Carnegie Mellon University is one of more common and easy to use improvement models. It presumes five steps of improvement:

- Initiating
- Diagnosing
- Establishing
- Acting
- Learning

Standards and models that can be used for process improvement: 4.1.2 Methodologies and Frameworks (K4).

2.2.2.1.1.1 A common solution for process improvement are maturity models. They allow to improve process performance (including quality) in organized and structured way, providing standardized frameworks for process assessment and improvement. Sample models supporting increasing organizational maturity in the area of Business Analysis include:

- BAMM™ (Business Analysis Maturity Model) developed by Assist Knowledge Development Limited with three stages of improvement:
  - System Improvement
  - Process Improvement
  - Business Improvement

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- BA Practice Maturity Model [Hass] with the following levels:
  - Level 1 BA Awareness
  - Level 2 BA Framework
  - Level 3 Business Alignment
  - Level 4 Business Technology Optimization
- Business Process Maturity Model (BPMM) is a standard model maintained by OMG (Object Management Group). The model is intended for people involved in improving an organization's business process related to products and services dedicated for internal or external use. BPMM is based on the concept of maturity levels. It contains 5 maturity levels covering 30 process areas.
  - Level 1: Initial - “Fire-fighting management”
  - Level 2: Managed - “Work unit management”
  - Level 3: Standardized - “Process management”
  - Level 4: Predictable - “Capability management”
  - Level 5: Innovating - “Change management”

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3 People Management (K4)

Timing

180 minutes

Terms

Competence, Competency model, Individual skills, Skills assessment, Team dynamics, Tuckman model

Learning Objectives

The objectives identify what you will be able to do following the completion of each module.

3.1 Individual Skills and Team Management (K4)

LO-3.1.1	Understand BA competencies needed to build a successful Business Analysis team - domain and business knowledge, Business Analysis state of art, approaches to solution development, communication and interpersonal skills (K2)
LO-3.1.2	Understand BA competency model and provide examples of its application (K2)
LO-3.1.3	Summarize methods of skills development for different areas of Business Analysis competency (K2)
LO-3.1.4	Using a skills assessment spreadsheet, analyze the strengths and weaknesses of team members related to domain and business knowledge, Business Analysis state of art, approaches to solution development, communication and interpersonal skills (K4)
LO-3.1.5	Understand the concept of team dynamics model and know its application and consequences for effectiveness of a Business Analysis team (K2)
LO-3.1.6	Analyze needs of a given Business Analysis process and plan for a team covering identified competency requirements (K4)

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3.1 Individual Skills and Team Management (K4)

3.1.1 Skills (K4)

LO-3.1.1	Understand BA competencies needed to build a successful Business Analysis team - domain and business knowledge, Business Analysis state of art, approaches to solution development, communication and interpersonal skills (K2)
LO-3.1.2	Understand Business Analysis competency model and provide examples of its application (K2)
LO-3.1.3	Summarize methods of skills development for different areas of Business Analysis competency (K2)
LO-3.1.4	Using a skills assessment spreadsheet, analyze the strengths and weaknesses of team members related to domain and business knowledge, Business Analysis state of art, approaches to solution development, communication and interpersonal skills (K4)

Core skills of a business analyst include:

- Adaptability
- Analytical thinking
- Communication skills (in all forms of communication)
- Conflict resolution
- Domain knowledge
- Facilitation skills
- Influencing
- Leadership
- Learning
- Methods, techniques and approaches
- Negotiation and mediation
- Precision in articulating ideas
- Problem solving
- Self-organization
- Solution knowledge
- Systems thinking
- Teaching
- Time management
- Tools and technology

There are many methods of assessing skills of an individual. Some of them:

- Assessment sheet
- Business games
- Feedback from colleagues/customers
- Observation
- Self-assessment
- Test (exam)
- Working with practical exercises

Methods of developing competency and skills:

- BA certifications
- BA publications
- Career paths
- Company COE (Center of Excellence)
- External or internal training
- Mentoring and coaching
- Self-learning

One of methods of guiding and developing Business Analysis skills is a competency model. Such a model typically contains a list of skills grouped into categories with key characteristics/competencies expected from a person on a given level of expertise.

Sample levels of expertise:

- Associate/Junior BA
- Regular BA
- Senior BA

Sample categories of competencies:

- Interpersonal
- Business
- Technical

Another tool supporting building competency is the People Capability Maturity Model developed by SEI (CMU/SEI-2001-MM-001).

3.1.2 Team Building (K4)

LO-3.1.5	Understand the concept of team dynamics model and know its application and consequences for effectiveness of a Business Analysis team (K2)
LO-3.1.6	Analyze needs of a given BA process and plan for a team covering identified competency requirements (K4)

Very often, a business analyst is a member of a team (especially in Agile methods) or actively participates in team activities, on both customer, and solution vendor side. Therefore understanding basic principles of team building and team dynamics may be useful for improving teamwork and efficiency of Business Analysis activities.

Effective teams are built from individuals representing different knowledge, background, experience and personality. Such combination brings great opportunities, but creates a risk as well. Not all people are able or willing to work together without proper motivation or work environment. One of typical challenges in creating a successful team is focusing on technical skills and neglecting interpersonal and soft skills.

Models and approaches helping to understand different personality types and assign appropriate role to an individual:

- Belbin Team Role Inventory
- DISC assessment evaluating four behavioral aspects of a person: Dominance, Influence, Steadiness and Conscientiousness
- Myers–Briggs Type Indicator
- Team Management Systems (TMS)

Basic principles of building an effective team:

- Clear definition of roles and responsibilities
- Setting clear goals and tasks
- Management responsibility
- Building a team based on good interpersonal relations

Different models, methods and approaches may help to understand team dynamics and possible issues related to teamwork. One of the most known models is Tuckman's stages of group development that defines four phases [Tuckman]:

- Forming
- Storming
- Norming
- Performing

According to Tuckman, all these stages are necessary for the team to grow, deal with challenges and problems, analyze problems and solutions, plan work, and produce good deliverables.

Other models helping to understand team dynamics are:

- Tubbs' systems model
- Fisher's theory of decision emergence in groups
- McGrath's Time, Interaction, and Performance (TIP) theory
- Wheelan's integrated model of group development
- Morgan, Salas & Glickman's TEAM model

In some cases a business analys acts also a facilitator or leader of a team. To successfully lead and empower a team, some leadership strategies helping to facilitate team development should be used. Sample leadership strategies working well with Tuckman’s model are:

- Coordinating
- Coaching
- Empowering
- Supporting

4 Tools and Techniques for BA Process Management (K3)

Timing

240 minutes

Terms

None

Learning Objectives

The objectives identify what you will be able to do following the completion of each module.

4.1 Tools and Techniques (K4)

LO-4.1.1	Select a proper set of tools supporting Business Analysis activities for a given organization/initiative (K3)
LO-4.1.2	Select a proper set of techniques supporting specific Business Analysis activities and compliant with overall Business Analysis strategy of the organization (K2)
LO-4.1.3	Analyze current usage of tools and techniques used in an organization/initiative to evaluate their effectiveness in supporting specific Business Analysis activities (K4)
LO-4.1.4	Use available methodologies and frameworks for Business Analysis processes to identify possible options for designing custom Business Analysis process (K3)

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4.1 Tools and Techniques (K4)

4.1.1 Tools and Techniques (K4)

LO-4.1.1	Select a proper set of tools supporting Business Analysis activities for a given organization/initiative (K3)
LO-4.1.2	Select a proper set of techniques supporting specific Business Analysis activities and compliant with overall BA strategy of the organization (K3)
LO-4.1.3	Analyze current usage of tools and techniques used in an organization/initiative to evaluate their effectiveness in supporting specific Business Analysis activities (K4)

Tools supporting Business Analysis activities:

- Communication and team collaboration tools
- Creativity tools
- Documentation tools
- Knowledge base tools
- Problem analysis and solving tools
- Problem/solution modeling tools
- Team building tools

Some of specific techniques:

- 5 Why
- Entity Relationship Diagrams
- Gap analysis
- Interview
- Ishikawa diagram
- Mind maps
- MoSCoW
- Process modeling
- Prototyping
- SMART
- SWOT
- Survey
- Use cases
- Workshops

Additional techniques supporting strategy analysis: in section: 3.1 Tools and Techniques for Strategy Analysis (K4)

Notations for business modeling:

- BMM™ (Business Motivation Model)
- BPMN™ (Business Process Model And Notation)
- DMN™ (Decision Model and Notation)
- Role Activity Diagramming (RAD)
- VDML™ (Value Delivery Modeling Language)

4.1.2 Methodologies and Frameworks (K4)

LO-4.1.4	Use available methodologies and frameworks for Business Analysis processes to identify possible options for designing custom Business Analysis process (K3)

Frameworks and methods of organization of Business Analysis process:

- BA Practice Maturity Model (K. Hass)

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- BPMM (Business Process Maturity Model)
- CMMI®
- IEEE 29148-2011
- IIBA framework (BAF)
- IQBBA generic process model
- McKinsey 7S Model

Factors to consider when adapting a standard framework within an organization:

- Available resources and funding
- Custom process requirements
- Organization limitations (business, technical and people-related)
- Organization and process maturity
- Regulations and standards to be followed
- Required level of automation of activities
- Skills and competencies of BA team
- Solution development/maintenance approach/method
- Technology and tools used

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Module – Requirements Engineering and Management

1 Requirements Engineering and Management (K4)

Timing

570 minutes

Terms

Elicitation, Model, Modeling, Notation, Prioritization, Requirements Analysis, Requirements Engineering, Requirements Management, Validation & Verification

Learning Objectives

The objectives identify what you will be able to do following the completion of each module.

Requirements Management in Context (K2)

LO-1.1.1 Understand how RM appears in a product lifecycle (K2)

Establishing Processes for Requirements Development (K4)

LO-1.2.1 Explain the different elicitation techniques by providing examples (K2)

LO-1.2.2 Analyze given scenario and select the most suitable approach to elicitation allowing to collect required information (K4)

LO-1.2.3 Analyze a set of requirements and related assumptions and limitations in order to propose a solution design (K4)

LO-1.2.4 Plan and implement a procedure for selecting design options for a given business problem (K3)

LO-1.2.5 Create a requirements model for a given scenario (K3)

LO-1.2.6 Analyze given scenario and select the most suitable approach to requirements analysis and modelling (K4)

LO-1.2.7 Apply different techniques for the prioritization of requirements (K3)

LO-1.2.8 Use available templates to specify requirements K3)

LO-1.2.9 Plan and implement a documentation scheme for a given initiative/scenario (K3)

LO-1.2.10 Understand the role of Validation & Verification in requirements development (K2)

LO-1.2.11 Plan and implement Validation & Verification activities for a given scenario (K3)

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1.1 Requirements Management in Context (K2)

LO-1.1.1	Understand how RM appears in a product lifecycle (K2)

Requirements Engineering (RE) covers a set of activities allowing to collect, structure, document and manage requirements. There activities are classified under Requirements Development (RD) and Requirements Management (RM) disciplines.

- Requirements Development
  - Requirements elicitation
  - Requirements analysis and modeling
  - Requirements specification
  - Requirements verification and validation
- Requirements Management
  - Managing information architecture
  - Requirements communication
  - Requirements traceability
  - Configuration and change management
  - Solution scope management
  - Quality Assurance

The Requirements Engineering process is a planned and structured set of the activities listed above. The organization and realization of the Requirements Engineering process depends on different factors, such as the organization culture and maturity, or the development process model used.

Requirements Management is defined as follows: “interdisciplinary function that mediates between the domains of the acquirer (domain of the problem) and supplier (domain of the solution) to establish and maintain the requirements to be met by the system, software or service of interest.” [ISO 29148]. RM provides a working framework for the requirements development process and additional managing and supporting activities needed to manage requirements successfully.

The Requirements Management process operates in a larger context and has strong relations with other processes including product management, project management, analysis and design, configuration management, testing, release management and maintenance.

1.2 Establishing Processes for Requirements Development (K4)

1.2.1 Requirements Elicitation (K4)

LO-1.2.1	Explain the different elicitation techniques by providing examples (K2)
LO-1.2.2	Analyze given scenario and select the most suitable approach to elicitation allowing to collect required information (K4)

Requirements elicitation aims to collect requirements and other important information from possible sources. Typical sources of requirements are explained in [IQBBA FL].

Elicitation may be conducted in three ways [BABOK]:

- Collaborative
- Research
- Experiments

Elicitation should be properly prepared, conducted and communicated with key stakeholders. In case larger or more complex projects or problems have to be solved, elicitation may be planned as separate sub-project.

Common elicitation techniques:

- Analysis of existing business documents and business model (see: 1.1.1 Establishing Business Model (K4))
- Apprenticing
- Consultancy (elicitation driven by representative of end user, SME etc.)
- Field observation
- Interviews
- Persona and user story
- Questionnaires
- Reuse of requirements/specifications
- Self-recording
- Use cases
- User scenarios
- Workshops with stakeholders

Additional supporting techniques:

- Brainstorming
- Business rules analysis
- Collaborative games
- Concept, process and data modeling
- Focus groups
- Mind mapping

The techniques listed above have different goals and ways of application. Selecting an elicitation technique should be adjusted to a given context. Following aspects should be considered when choosing a technique:

- Level of detail of information to be collected
- Organizational maturity
- Purpose of elicitation
- Required formality
- Risk of missing requirements/environment information
- Stakeholders' availability and location
- Stakeholders' preferences

An important part of elicitation is documentation of results, including open issues and risks.

1.2.2 Analysis, Modeling and Specification (K4)

LO-1.2.3	Analyze a set of requirements and related assumptions and limitations in order to propose a solution design (K4)
LO-1.2.4	Plan and implement a procedure for selecting design options for a given business problem (K3)
LO-1.2.5	Create a requirements model for a given scenario (K3)
LO-1.2.6	Analyze given scenario and select the most suitable approach to requirements analysis and modelling (K4)
LO-1.2.7	Apply different techniques for the prioritization of requirements (K3)
LO-1.2.8	Use available templates to specify requirements K3)
LO-1.2.9	Plan and implement a documentation scheme for a given initiative/scenario (K3)

One of the main goals of requirements analysis is creating a solution design. The design is based on collected requirements, limitations and assumptions, and should allow to satisfy stated business needs.

Analysis covers the following aspects:

- Understanding or defining relationships between requirements
- Managing priorities
- Performing effort estimation or confirming already conducted estimation
- Identification of possible requirements conflicts
- Examining different solution options, their pros and cons

Typical relationships between requirements:

- Requires
- Needed by
- Child of
- Parent of
- Relate to
- Duplicates
- Derived from
- Dependent on

Techniques for prioritization:

- 100-point method (100P)
- Cost value approach
- MoSCoW
- Kano model
- Planning game (planning poker)
- Scales method
- Wieger's estimation matrix

Estimation may be conducted using different approaches (see: 1.5 Solution Proposal and Analysis (K4)). Sample estimation techniques:

- Analogy
- Planning poker
- The Bucket System
- Affinity Mapping
- Use Case Points Analysis (UCP analysis)
- Function Points Analysis (FPA)

There are different methods and approaches to conduct problem/solution analysis. Typical methods are:

- Architectural analysis
- Context analysis
- Data analysis
- Data stream analysis
- Decision analysis
- Object-oriented analysis

A common practice is creating models of the solution. Different models and diagrams are used to support specific analysis method.

Benefits of using modeling:

- Models are simplified abstraction of reality – they are therefore easier to understand
- Better clarity and transparency of information
- Ability to create different perspectives on requirements (different models)

A common solution is applying modeling views, allowing to model the solution from defined perspectives. Sample modeling perspectives:

- Actor and role perspective
- Behavioral perspective
- Communication perspective
- Functional modeling perspective
- Object perspective
- Rule perspective
- Structural modeling perspective

In addition, problem or solution models are often organized into views. Such views may refer to a system, or an organization. Sample views are:

- System view
  - Three-schema approach
  - 4+1 view model of architecture [Kruchten]
- Organization view (see: 1.1.1 Establishing Business Model (K4))

An important aspect of requirements analysis is solution scope management. Traceability information should be used to support managing the scope.

Requirements analysis results in developing different solution design options. Such options should be evaluated and decision made based on the evaluation and higher level business documents (like business case, business needs etc.).

A design option that proves its value and is agreed as preferred option will be developed into the final solution. The chosen design option should be documented in a form of solution specification.

Results of analysis and modeling are usually documented in the form of a specification. There are two basic types of a specification: requirements and solution specification. Requirements specification aims to clarify the business problem area and scope while solution specification describes the solution from specific point of view.

Common types of documentation produced as part of requirements analysis and modeling:

- Data specification
- Functional specification
- Interface specification
- System requirements specification
- Use case specification

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1.2.3 Validation & Verification (K3)

LO-1.2.10	Understand the role of Validation & Verification in requirements development (K2)
LO-1.2.11	Plan and implement Validation & Verification activities for a given scenario (K3)

Requirements are basis for solution development [IQBBA FL]. Therefore, their quality is extremely important for the success of the whole initiative. Validation and verification (V&V) are common methods for ensuring quality of requirements.

CMMI explains V&V as follows [after CMMI][IEEE 610]:

- Validation – the process of evaluating a product during or at the end of the development process to determine whether it satisfies specified requirements.
- Verification – the process of evaluating a product to determine whether the outcomes of a given development phase satisfy the conditions imposed at the start of that phase.

Typical V&V methods and techniques:

- Check (inspection) against quality criteria and/or acceptance criteria
- Quality gates (eg. Definition of Ready (DoR), Definition of Done (DoD))
- Review methods (walkthrough, technical review, audit, inspection etc.)
- Solution prototyping and demo (with the aim of collecting feedback from stakeholders)
- Simulation
- Independent Verification and Validation (IVSVV) for safety critical solutions

Common quality criteria:

- For requirements [IQBBA FL]
- For models:
  - Syntax quality
  - Semantic quality
  - Pragmatic quality

V&V activities planned for a specific initiative may be documented in a form of V&V plan. Such plan typically contains:

- Assumptions, limitations, risks related to the product
- Problem statement
- Product requirements and acceptance criteria
- Schedule and budget
- Tasks and activities for conceptual, data, design, implementation, final product V&V
- V&V methodology
- V&V participants
- V&V risks and issues

Efficient V&V requires configuration management in place.

2 Requirement Management Processes (K4)

Timing

540 minutes

Terms

Change, Change Management, Configuration, Configuration Management, Conflict, Conflict Management, Conflict Mode Instrument, Information Architecture, RTM, Solution Scope, Traceability, Quality Assurance

Learning Objectives

The objectives identify what you will be able to do following the completion of each module.

2.1 Requirement Management Processes (K4)

LO-2.1.1	Plan and implement information architecture covering all requirements artefacts and work products required in given context (K3)
LO-2.1.2	Analyze given scenario in order to establish effective structure for traceability (K4)
LO-2.1.3	Understand the role of configuration management in effective Requirements Management (K2)
LO-2.1.4	Plan and implement configuration management procedure for Requirements Engineering artefacts and work products required in given context (K3)
LO-2.1.5	Perform change impact analysis for a given requirement/model using traceability information (K3)
LO-2.1.6	Understand sources and reasons of conflict and provide proper examples (K2)
LO-2.1.7	Use conflict management model to propose possible methods/approaches for conflict resolution (K3)
LO-2.1.8	Summarize possible Quality Assurance tools and techniques applicable in Requirements Management area (K2)
LO-2.1.9	Plan and implement Quality Assurance activities supporting Requirements Management (K3)
LO-2.1.10	Explain available techniques for the management and communication of requirements by providing example (K2)
LO-2.1.11	Plan and implement communication procedures for a given scenario (K3)
LO-2.1.12	Analyze given scenario in order to establish effective requirements communication approach (K4)
LO-2.1.13	Use available techniques to manage solution scope (K3)

2.1 Requirement Management Processes (K4)

2.1.1 Information Architecture and Traceability (K4)

LO-2.1.1	Plan and implement information architecture covering all requirements artefacts and work products required in given context (K3)
LO-2.1.2	Analyze given scenario in order to establish effective structure for traceability (K4)

Information architecture (IA) (also referred to as structure of information) allows to organize and manage content of information so that it can be easier accessed, understood and used by target audience.

Establishing an effective architecture of information requires considering target users, business and technical context, content of the information to be communicated, rules and principles applicable to information collecting, storage and communication.

Information architecture for Requirements Engineering should cover the following:

- Different levels of requirements and higher level business artifacts (business needs, business goals, business process models)
- Structure and rules for requirements documentation (attributes, form of specification)
- Levels of analysis and modeling (including views and perspectives together with relations between specific elements of views)
- Traceability between requirements and other artifacts

Benefits of establishing information architecture:

- Visibility and accessibility of information
- Clear structure of information
- Consistent naming and labeling conventions
- Clear rules regarding access to information
- Clear communication methods for accessing, browsing and navigation through information

Traceability is an important element of Requirements Management. It allows to define and manage relationships between requirements and other artifacts so that coverage and proof of realization can be analyzed. In addition, traceability is a tool necessary for change impact analysis.

Types of traceability:

- Forward traceability
- Backwards/reverse traceability

Creating traceability relationships can be done either manually or with tool support. Common visualizations for traceability information are:

- Graphs (traceability graphs)
- Hyperlinks
- Lists
- Matrices (e.g. RTM – Requirements Traceability Matrix)
- Static text

Traceability may be established as a structured framework using the following procedure:

- Defining purpose, stakeholders and scope of traceability
- Establishing which artifacts needs to be traced
- Selecting traceability methods
- Creating traceability information
- Communicating traceability information
- Maintaining traceability information

2.1.2 Configuration and Change Management (K3)

LO-2.1.3	Understand the role of configuration management in effective Requirements Management (K2)
LO-2.1.4	Plan and implement configuration management procedure for Requirements Engineering artefacts and work products required in given context (K3)
LO-2.1.5	Perform change impact analysis for a given requirement/model using traceability information (K3)

Configuration management is an important element of Business Analysis and Requirements Engineering approach. Requirements and other Business Analysis artifacts are evolving during the solution development, therefore ability to control their versions (configurations) is crucial.

Configuration management (CM) process is explained in [IQBBA FL].

In the context of Requirements Engineering and Business Analysis, configuration management allows to ensure all requirements and other important artifacts are identified (including the required set of attributes), their versions are established and baselined, controlled and maintained, changes are tracked, and the relationships to all relevant artifacts are established so that traceability can be maintained throughout the realization or maintenance process.

In case of a change in an artifact's attributes a change management process is triggered. The main purpose of this process is to ensure changes are properly analyzed, decided and implemented. Change analysis includes impact analysis, which in best case is based on traceability information. Impact analysis can be done also on the basis on experience and knowledge about the solution architecture, but in this case there is a risk of missing important impact information.

Typical procedure for impact analysis:

- Analysis of the change request in order to establish and understand all possible consequences of implementing the change
- Identification of all elements, models, artifacts, documents that might be impacted by the change
- Identification of all tasks and activities needed to implement the change and effort estimation
- Documenting results in an agreed form

Change impact analysis may be documented as part of the change request report.

2.1.3 Conflict Management (K3)

LO-1.2.6	Understand sources and reasons of conflict and provide proper examples (K2)
LO-2.1.7	Use conflict management model to propose possible methods/approaches for conflict resolution (K3)

Conflict management is one of the most important aspects of Requirements Management. In general, conflict can be defined as a situation when some values, perspectives or opinions are contradictory in nature and haven't been aligned or agreed upon yet. Requirements conflicts are a common challenge to be addressed by business analysts.

Some common causes of a conflict are the following:

- Requirements coming from different stakeholders are contradictory
- Stakeholders do not agree on requirements priorities
- Stakeholders do not agree on the implementation of the requirements

Types of conflicts applicable to requirements:

- Interest conflicts
- Information conflicts
- Relationship conflicts
- Structural conflicts
- Value conflicts

Conflict management process consists of the following steps:

- Conflict identification
- Conflict analysis and assessment
- Conflict resolution

Conflict resolution strategies according to Thomas-Kilmann Conflict Mode Instrument (TKI):

- Accommodation
- Avoidance
- Collaboration
- Compromise
- Competition

Results of conflict resolution should be communicated to involved stakeholder. Conflicts may be managed in informal way, or using formal process and documentation (e.g. issue log).

2.1.4 Quality Assurance (K3)

LO-2.1.8	Summarize possible Quality Assurance tools and techniques applicable in Requirements Management area (K2)
LO-2.1.9	Plan and implement Quality Assurance activities supporting Requirements Management (K3)

Quality Assurance (QA) allows to ensure the required level of quality of the product or service. In the context of Requirements Engineering and management, QA provides processes, methods and techniques allowing to make sure that requirements, requirements documentation, models and other artifacts meet defined quality criteria.

Quality Assurance should be built based on quality requirements and goals. Such requirements should be defined for both the solution (e.g. usability, performance, security or reliability) and the initiative (e.g. produced documentation, level of process formality) and are often referred to as acceptance criteria.

Some of QA methods and techniques are defined in [IQBBA FL]. In addition, V&V activities should be implemented as part of the QA approach (see: 1.2.3 Validation & Verification (K3)).

Planned Quality Assurance activities should be documented in the form of QA plan. Such plan typically contains the following information:

- Quality objectives
- Management of the process
  - Organization
  - Resources
  - Roles and responsibilities
  - Team composition
- Standards and guidelines to be followed
- Audits and reviews
  - Artifacts under review
  - Review plan and schedule
  - Roles and responsibilities
  - Problem management
  - Tools and techniques
  - Documentation of results
- Verification and validation of requirements
  - Quality criteria
  - Validation sessions
- Testing and product/solution evaluation
- Configuration management
- Risk management

2.1.5 Requirements Communication (K4)

LO-2.1.10	Explain available techniques for the management and communication of requirements by providing example (K2)
LO-2.1.11	Plan and implement communication procedures for a given scenario (K3)
LO-2.1.12	Analyze given scenario in order to establish effective requirements communication approach (K4)

Communication plays a key role in the work of business analysts. All BA artifacts and work products are shared with relevant stakeholders, there is also an ongoing communication between people involved in Business Analysis and Requirements Engineering works.

Types, scope and principles of communication in Requirements Engineering is similar to communication in Business Analysis (see: 1.1.2 Communication (K3)).

Typical activities of requirements communication are explained in [IQBBA FL].

Tools and techniques used for communication:

- Demo to understand and validate product increments
- Meetings and workshops to discuss, validate and agree on requirements
- Reviews and walkthroughs to collect feedback on the quality of work product

Requirements elicitation and documentation techniques can also support effective communication between business analyst and stakeholders

- Mind mapping and other visual forms of presenting information
- Prototyping
- Requirements and solution models
- Storytelling and storyboarding
- Use cases and scenarios

2.1.6 Managing Solution Scope (K3)

LO-2.1.13	Use available techniques to manage solution scope (K3)

Solution scope can be defined as all the characteristics, features, and functions of the planned product or service. Solution scope is derived from business and stakeholder requirements. These requirements are detailed into solution requirements, which define the scope of the solution. The accuracy of the scope definition is dependent from the quality of input information – requirements and assumptions. From the strategic point of view, solution scope defines the focus and allows to keep elicitation activities under control [Parker].

Solution scope is defined by solution context and solution boundary [after IREB FL]. The solution boundary separates the solution to be developed from its environment, therefore it defines the initial boundary of the solution scope.

In some cases the solution scope cannot be defined with 100% accuracy. There might be a “grey zone” related to the boundary. The grey zone may be considered as a product and project risk as it represents some level of uncertainty of goals and features of the planned solution.

Techniques and tools supporting managing solution scope:

- Configuration baseline
- Context modeling (e.g. context diagram, DFD – Data Flow Diagram)
- Decomposition
- Ecosystem Map
- Feature Tree
- Interface analysis
- MoSCoW and other prioritization techniques

- Traceability and coverage analysis
- Use case models
- WBS (Work Breakdown Structure)

3 Process Performance Assessment and Improvement (K4)

Timing

150 minutes

Terms

Assessment, Improvement, KPI, RCA

Learning Objectives

The objectives identify what you will be able to do following the completion of each module.

3.1 Process Performance Assessment (K3)

LO-3.1.1 Understand the role and possible methods for process performance assessment (K2)

LO-3.1.2 Use defined KPIs to evaluate the process performance (K3)

3.2 Process Improvement (K4)

LO-3.2.1 Analyze process improvement opportunities for a given scenario (K4)

LO-3.2.2 Explain different process improvement methods and tools (K2)

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3.1 Process Performance Assessment (K3)

LO-3.1.1	Understand the role and possible methods for process performance assessment (K2)
LO-3.1.2	Use defined KPI to evaluate the process performance (K3)

Requirements Engineering and management process should be systematically evaluated and improved.

Standard classification of metrics (see: 2.1.2 Business Analysis Process Realization and Monitoring (K4)).

Sample metrics (KPI) supporting RM process performance evaluation:

- Requirements traceability
- Requirements stability
- Requirements quality (based e.g. on quality criteria)
- Model quality
- Requirements specification
- Defect metrics (e.g. defects found in requirements specification)
- Project metrics (e.g. planned vs actual effort, planned vs actual cost)

RM process performance assessment can be done using similar tools as for Business Analysis (see: 2.2.1 Performance Assessment (K4)).

3.2 Process Improvement (K4)

LO-3.2.1	Analyze process improvement opportunities for a given scenario (K4)
LO-3.2.2	Explain different process improvement methods and tools (K2)

Process improvement approaches for Requirements Engineering are similar to those used in Business Analysis (see: 2.2.1 Process Improvement (K3)).

Standards supporting process improvement in the area of Requirements Engineering:

- Capability Maturity Model Integration (CMMI) with two process areas dedicated to RE: Requirements Development and Requirements Management
- ISO 9001 with its practices and Sections (especially 7 Product realization and 8 Measurement, analysis and improvement)
- TickIT and TickITplus with a dedicated process Requirements Analysis

Other means for improvement:

- Applying standards and domain good practices
- Education and trainings
- Establishing and introducing an organizational approach to RE
- Introducing QA process for RE
- Knowledge sharing
- Selecting proper tools and techniques supporting RE
- Using Deming Cycle (PDCA)
- Using RCA, lessons learned and retrospective to eliminate problems

4 Tools and Techniques for Requirements Management (K4)

Timing

255 minutes

Terms

None

Learning Objectives

The objectives identify what you will be able to do following the completion of each module.

4.1 Tools and Techniques (K4)

LO-2.1.1	Select a proper set of tools supporting Requirements Engineering and Management activities for a given organization/initiative (K3)
LO-2.1.2	Select a proper set of techniques supporting specific Requirements Management activities and compliant with overall Requirements Engineering approach in an organization (K3)
LO-2.1.3	Analyze current usage of tools and techniques used in an organization/initiative to evaluate their effectiveness in supporting specific Requirements Engineering and Management activities (K4)
LO-2.1.4	Understand the role and benefits of using notations in Requirements Engineering and Management (K2)
LO-2.1.5	Analyze needs of a given organization/initiative to select proper set of notations supporting Requirements Engineering and Management activities (K4)

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4.1 Tools and Techniques (K4)

4.1.1 Tools

LO-2.1.1	Select a proper set of tools supporting Requirements Engineering and Management activities for a given organization/initiative (K3)
LO-2.1.2	Select a proper set of techniques supporting specific Requirements Management activities and compliant with overall Requirements Engineering approach in an organization (K3)
LO-2.1.3	Analyze current usage of tools and techniques used in an organization/initiative to evaluate their effectiveness in supporting specific Requirements Engineering and Management activities (K4)

Tools supporting Requirements Engineering can be classified as [IQBBA FL]:

- Requirements Management tools
- Requirements and solution modeling tools
- Solution prototyping tools

Requirements Management tools typically provide the following functions:

- Recording and storage of requirements in a shared repository
- Creating different views on requirements
- Tracking status of requirements
- Configuration and version management for requirements
- Establishing and maintaining traceability
- Generating metrics for requirements
- Generating documentation based on the content of the repository

RM tools should communicate with other tools used in an organization to support solution delivery process.

Tool selection should be driven by the following aspects:

- Size and complexity of the solution
- Type of the project/initiative
- Complexity of requirements
- Stability of requirements
- Development/maintenance approach
- Requirements regarding functionality of the tool
- Product and project risks
- Skills and experience of the solution delivery team

4.1.2 Techniques

Techniques supporting Requirements Management activities include:

- Documentation techniques (see: 1.2.2 Analysis, Modeling and Specification (K4))
- Information elicitation techniques (see: 1.2.1 Requirements Elicitation (K4))
- Communication and team collaboration techniques (see: 2.1.5 Requirements Communication (K4))
- Requirements/solution analysis, design and modeling techniques (see: 1.2.2 Analysis, Modeling and Specification (K4))
- Process improvement techniques (see: 3.2 Process Improvement (K4))

4.1.3 Modeling Notations (K4)

LO-2.1.4	Understand the role and benefits of using notations in Requirements Engineering (K2)
LO-2.1.5	Analyze needs of a given organization/initiative to select proper set of notations supporting Requirements Engineering activities (K4)

Requirements and solution models are typically created using a standardized modeling notation or language. A modeling notation is composed of two elements: syntax and semantics. A modeling language may be any form of expressing models: textual, graphic, symbolic etc.

Modeling notations support the following activities in requirements engineering:

- Elicitation
- Analysis and modeling
- Specification
- Scope management
- Information architecture

Common notations used in Requirements Engineering are:

- SysML® (OMG System Modeling Language)
- UML® (Unified Modeling Language)
- SPEM™ (Software & Systems Process Engineering Metamodel)
- Harel's Statecharts

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6 Appendixes

6.1 Appendix A – Learning Objectives/Cognitive Level of Knowledge

The following learning objectives are defined as applying to this syllabus. Each topic in the syllabus will be examined according to the learning objective relating to it.

Cognitive Levels of Knowledge

Level 1: Remember (K1)

The candidate will recognize, remember and recall a term or concept.

Keywords: Remember, retrieve, recall, recognize, know

Level 2: Understand (K2)

The candidate can select the reasons or explanations for statements related to the topic, and can summarize, compare, classify, categorize and give examples for the testing concept.

Keywords: Summarize, generalize, abstract, classify, compare, map, contrast, exemplify, interpret, translate, represent, infer, conclude, categorize, construct models

Level 3: Apply (K3)

The candidate can select the correct application of a concept or technique and apply it to a given context.

Keywords: Implement, execute, use, follow a procedure, apply a procedure

Level 4: Analyze (K4)

The candidate can separate information related to a procedure or technique into its constituent parts for better understanding and can distinguish between facts and inferences.

Keywords: Analyze, differentiate, organize, attribute

Reference

(For the cognitive levels of learning objectives)

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6.2 Appendix B – Rules Applied to the IQBBA

Advanced Syllabus

The rules listed here were used in the development and review of this syllabus. (A "TAG" is shown after each rule as a shorthand abbreviation of the rule.)

General Rules

SG1. The syllabus should be understandable and absorbable by people with zero to six months (or more) experience in Business Analysis. (6-MONTH)

SG2. The syllabus should be practical rather than theoretical. (PRACTICAL)

SG3. The syllabus should be clear and unambiguous to its intended readers. (CLEAR)

SG4. The syllabus should be understandable to people from different countries, and easily translatable into different languages. (TRANSLATABLE)

SG5. The syllabus should use American English. (AMERICAN-ENGLISH)

Current Content

SC1. The syllabus should include recent Business Analysis concepts and should reflect current best practices in Business Analysis where this is generally agreed. The syllabus is subject to review every two to five years. (RECENT)

SC2. The syllabus should minimize time-related issues, such as current market conditions, to enable it to have a shelf life of two to five years. (SHELF-LIFE).

Learning Objectives

LO1. Learning objectives should distinguish between items to be recognized/remembered (cognitive level K1), items the candidate should understand conceptually (K2), and items the candidate should be able to practice/use (K3). (KNOWLEDGE-LEVEL),

LO2. The description of the content should be consistent with the learning objectives. (LO-CONSISTENT)

LO3. To illustrate the learning objectives, sample exam questions for each major section should be issued along with the syllabus. (LO-EXAM)

Overall Structure

ST1. The structure of the syllabus should be clear and allow cross-referencing to and from other parts, from exam questions and from other relevant documents. (CROSS-REF)

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ST2. Overlap between sections of the syllabus should be minimized. (OVERLAP)

ST3. Each section of the syllabus should have the same structure. (STRUCTURE-CONSISTENT)

ST4. The syllabus should contain version, date of issue and page number on every page. (VERSION)

ST5. The syllabus should include a guideline for the amount of time to be spent in each section (to reflect the relative importance of each topic). (TIME-SPENT)

References

SR1. Sources and references will be given for concepts in the syllabus to help training providers find out more information about the topic. (REFS)

SR2. Where there are not readily identified and clear sources, more detail should be provided in the syllabus. For example, definitions are in the Glossary, so only the terms are listed in the syllabus. (NON-REF DETAIL)

Sources of Information

Terms used in the syllabus are defined in Standard Glossary of Terms used in Software Engineering. A version of the Glossary is available from IQBBA.

A list of recommended books on Business Analysis is also issued in parallel with this syllabus. The main book list is part of the References section.

6.3 Appendix C – Notice to Training Providers

Each major subject heading in the syllabus is assigned an allocated time in minutes. The purpose of this is both to give guidance on the relative proportion of time to be allocated to each section of an accredited course, and to give an approximate minimum time for the teaching of each section. Training providers may spend more time than is indicated and candidates may spend more time again in reading and research. A course curriculum does not have to follow the same order as the syllabus.

The syllabus contains references to established standards, which should be used in the preparation of training material. Each standard used must be the version quoted in the current version of this syllabus. Other publications, templates or standards not referenced in this syllabus may also be used and referenced, but will not be examined.

Module	Course duration
Module – Strategic Analysis and Optimization	3,5 days
Module – Business Analysis Management	4 days
Module – Requirements Engineering and Management	3 days

Table 2 Recommended duration of AL courses

The specific areas of the syllabus requiring practical exercises are as follows:

Module – Strategic Analysis and Optimization

1. Strategy Definition (K4)
2. Solution Evaluation and Optimization (K3)

Module – Business Analysis Management

1. Generic Business Analysis Process (K4)
2. People Management (K4)
3. Tools and Techniques for BA Process Management (K3)

Module – Requirements Engineering and Management

1. Requirements Engineering and Management (K4)
2. Tools and Techniques for Requirements Management (K4)

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