Danish IT Society Architecture Certification™

The IT Architecture Education

Foundation level
Syllabus and Preparation Guide

Version 2.01.b

Contents

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Danish IT Society Certification – The IT Architecture Education

www.dit.dk/ark

The Education for IT Architects is a Danish certification model targeted at IT Architecture with FDA (Fællesoffentlig Digital Arkitektur - The common public-sector digital architecture) and The Danish IT Society Architecture Competence Framework – DIT ACF[1] as a context, and incorporating TOGAF, which is a global framework for Enterprise Architecture and IT Architecture.
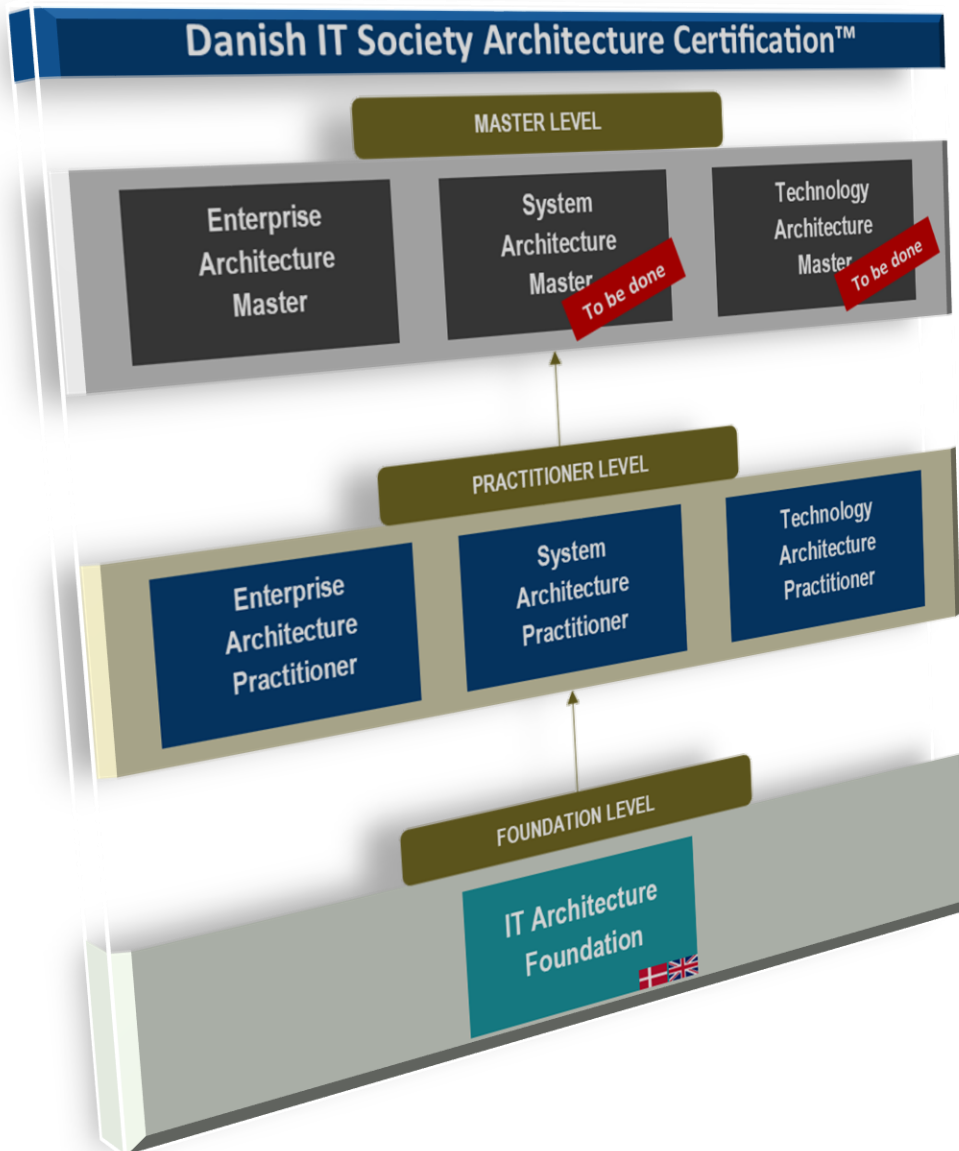
Throughout the certification model, great emphasis is being placed on

- The architect achieving the project goals

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[1] Danish IT Society Architecture Competence Framework - DIT ACF is a continuation of The OIO Architecture Framework's Architect Roles and Skills, which in 2020 was acquired by the Danish IT Society - Association of IT professionals in a new version. DIT ACF is mapped up against the FDA

- Communication, roles and competences in and across the business
- A good mixture of theory and practice, taken from cases and from the participants' own work.

Why a Danish certification?

- We cover more broadly, and we go deeper into the practice of IT Architecture
- Because FDA sets the frame and the requirements to public institutions, and to private organisations, which cooperate with public institutions
- Because FDA, and its predecessor OIO, have become de facto Danish reference frameworks for many private and public organisations
- Because foreign frameworks and certifications typically have been designed with very large organisations as the starting point, and often as a whole are not well suited for the Nordic market.

Proof of acquired knowledge with a certification

It is important with a concluding exam and certification for the following reasons:

- Commitment and benefits of a course increases when concluded with an exam. These are the only courses in IT architecture on the Danish market containing FDA and DIT ACF which concludes with a certification.
- A certification documents that the course participant/employee has acquired knowledge corresponding to the description in the syllabus and preparation guide.

Developed by Danish IT Society and its members of Subject Matter Experts

- The certification is carried by and facilitated by Danish IT Society and Danish IT Society's Advisory Board consisting of Subject Matter Experts, who develop, review and assure the quality of the certification.
- Members of the Advisory Board and the working groups are anchored broadly in both the private and public sectors, so the certification is rooted in the real world.
- The work is voluntary, and the involved members are enthusiastic to share their knowledge and experience with others.
- Danish IT Society is an independent non-governmental organisation and a community for IT professionals. Here you can focus on your career through a continuous development of competences and participation in the largest IT professional network in Denmark. Danish IT Society works to promote and support IT, where it creates value for the individual and for the society. Danish IT Society works to gather, strengthen and develop IT Users' and IT Professionals' competences and professionalism. And also, on an independent basis take care of the IT interests of the members and of the society at large.

Danish IT Society Architecture Foundation

Target group and focus

Foundation gives a common knowledge and professional understanding of the many aspects of IT Architecture for all architects and in all organisations, which are involved in IT Architecture.

Throughout the course, one common case is used for exercises, so the course is anchored in the real world.

Foundation gives the broad common understanding for everyone who works with IT Architecture. Based on a broad knowledge, it prepares the course participants to succeed with the projects, become better at communicating with the rest of the organisation, and involve the right decision makers in the projects. The course is based on theory well mixed with cases. It includes a clarifying mock exam and the course is concluded an exam.

Foundation is a prerequisite for candidates to continue with the practitioner modules.

Short description of the further certifications

Enterprise Architecture Practitioner

Targeted at people, who work with Enterprise Architecture.

Enterprise Architecture in practise and how it is anchored in the organisation, with a case-based exam.

System- and Solution Architecture Practitioner

Targeted at people, who work with System Architecture, including Solution Architecture, Solution Architects etc.

System Architecture in practise, with background in TOGAF and FDA, with a case-based exam.

Technology Architecture Practitioner

Targeted at people, who work with Technology Architecture.

Technology Architecture in practise for technology- and infrastructure architects, with a case-based exam.

Enterprise Architecture Master

Practical Master education with an independent case-study from one's own organisation, which has to be defended.

There are some prerequisites for admittance to the certification regarding previous education and experience, see www.dit.dk/ark.

Course Description

Course content overview

The Foundation course represents the introduction level of Danish IT Society's certification model in IT Architecture.

The objective of this level is presentation of significant models and problem areas as well as clarification of concepts. The focus is on understanding of concepts and knowledge of different IT Architecture considerations, tools and methods.

As the Foundation certification works as a basis for possible later specialisation, it addresses relevant related questions at a general level.

One of the most important purposes of IT Architecture Foundation is to enable the course participants to understand the different architect roles and their corresponding competences and focus on architecture tasks. In this way the course creates an overview of tasks and competencies attached to both architect roles with an enterprise focus, as well as architect roles with a narrower system focus.

Architect roles with enterprise focus, that is focus on an organisation's entire architecture landscape, i.e. the components and their connections, in all parts of an Organisation Architecture, from Business over Data and Application to Technology. This includes the following:

- Enterprise Architect
- Business Architect
- Data Architect
- Application Architect
- Technology Architect

Architect roles with focus on an individual system, which is part of a larger (enterprise-) whole:

- System/Solution Architect, from here on called System Architect, who solves tasks corresponding to all the architect roles above, but within the context of one individual system rather than a connected set of systems.

The System Architect therefore must possess a number of competences, spanning a considerable part of the competency range of the other architect roles, only with a narrower focus, as illustrated in the figure below:
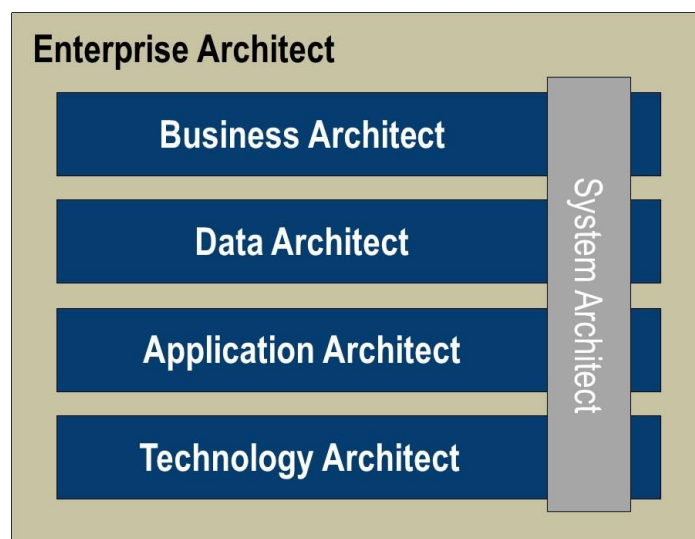
Course Duration

Course duration is 18 hours of training, breaks included, but additional time needed for the exam.

The course is typically conducted over three days.

Preparation before the course

The course participant must orientate themselves in the syllabus before the course starts and a minimum of 3 hours must be added for reading and problem solving, all depending on the student's prior competencies and knowledge within IT architecture.

At the latest 14 days before start of the course, the course participant will receive

- One practical case, which is used throughout the course for practical assignments
  The case must be read before the start of the course
- One practical assignment from the case mentioned above (does not require architecture competencies)
  The assignment must be completed before the start of the course
- This syllabus and preparation guide, containing the full reading list
  It is recommended that the course participant has become familiar with the syllabus before start of the course (only the pages referred to and links)
- Danish IT Society Architecture Certification – Glossary
  The Glossary is part of the curriculum, and must be read before the start of the course

Prerequisites for attending the course

There are no prerequisites for attending this course, but it is recommended that one has worked in this area, and has knowledge of IT.

Exam

The course concludes with an exam (exam is not mandatory) of 60 minutes duration.

If the exam language is different from the candidates native language, one may be allowed 15 minutes of extra time.

The exam is closed book, i.e. no materials allowed.

The exam consists of 40 multiple choice questions, and each correct answer equals 1 mark.

Certification is achieved at minimum 65% correct answers, corresponding to a minimum of 26 marks out of 40 possible marks.

Study guide, focus, syllabus and references

In the following, the contents of the IT Architecture Foundation course is described, divided into modules.

For each module, the following is described:

- Purpose
- Contents, briefly
- References, separated into:
  - Knowledge of – it is expected that the participant has knowledge of the reference (has read the reference or has earlier knowledge of, or has worked with the reference in practise)
  - Background knowledge – it is expected that the participant knows the essence of the reference
  - Supplementary reading – not part of the syllabus
  For those references where page numbers are not given, it is expected that participants have knowledge of the entire document/webpage.

At the end of this document there is a full detailed reading list / syllabus, with links to obtaining all reference materials.

Course modules: weighted subject areas

The course modules contain time for both questions, reflection and assignments.

Module	Lessons
1. Introduction	1
2. Basic concepts	1
3. The Architect role	2
4. The IT architecture in context	3
5. Governance	1
6. Architecture frameworks	2
7. Architecture methods	2
8. Business Architecture	1
9. Data Architecture	1
10. Application Architecture	1
11. Technology Architecture	1
12. System/Solution Architecture	1
13. Law, legislation, contracts and agreements	1
Total course hours	**18**

1. Introduction

Purpose
Introduction of the course, including presentation of the certification, coordination of the participants' expectations, and information about the exam.

Contents
- Presentation of participants and expectations
- Danish IT Society's certification model
- Course purpose
- Course contents
- Course plan incl. lessons overview
- Certification references
- Information about the mock exam and the exam
- Walk through of the course case and the pre-course assignment

References - knowledge of
This syllabus and preparation guide.
Practical case and assignments received before start of the course.
Danish IT Society Architecture Certification – Glossary.

References - background knowledge of
The course provider's own course plan.

2. Basic concepts

Purpose

To introduce basic concepts of Enterprise Architecture. All significant concepts used later in the course are introduced here.

It should be noted, that different frameworks use different terminology, and that a particular term even can have different meanings.

An introduction is given to central concepts in the frameworks, which the course uses as common references, including Common Public Digital Architecture (Fællesoffentlig Digital Arkitektur - FDA) and the large de-facto standards and architecture frameworks such as TOGAF.

Contents

- What is the enterprise in Enterprise Architecture
  - Concepts like organisation, business, capability, IT
- Which market is the enterprise in
  - Concepts like market, customer, competitor, partner, (regulating) authority
- What is going to happen with the enterprise
  - Do we wish to keep or change its role in the market, partners, eco-systems, etc.
  - Do we wish to keep or change its value offers, products, capabilities, etc.
  - Do we wish to keep or change the way value is delivered, actors, processes, IT solutions, etc.
- How do we use an Architecture
  - Architecture in the change- and building process
  - Architecture in the governance process
- Why is it we want an architecture
  - Business needs versus solution description and solution requirements
  - Business processes and Business Architecture
  - IT solutions and IT Architecture
  - Architecture Levels, Architecture Frameworks, and Architecture Models

References - knowledge of

The digitally coherent public sector - White Paper on a common public-sector digital architecture
TOGAF Standard, version 9.2: Chapters:
- 2: Core Concepts
- 3: Definitions

TETRADIAN - Why whole-enterprise architecture matters
eda.c - Enterprise design canvas - a toolkit for strategic design

References - background knowledge

Danish IT Society Architecture Certification – Glossary: FDA

3. The Architect role

Purpose
To give the participant an overview of IT Architect roles and functions in an organisation.
To create an understanding of the various tasks, and the organisational levels, where architecture work is carried out.
Introduction to architecture competency models and which competency profiles an architect should have, in order best to solve different tasks.

Contents
- What do we need Architects for
- The Architect's job description
- The Architect's tasks
    - Advisor (for management)
    - Technical project manager
    - Project participant
- Communication and stakeholder management
    - Concerns, viewpoints and views
- The Architecture Method and Architect Roles
    - Enterprise Architect
    - Business Architect
    - Data Architect
    - Application Architect
    - Technology Architect
    - System/Solution Architect
    - Other Architect roles
- Competency Frameworks
    - TOGAF Architect Competency Framework
- Danish IT Society Architecture Competence Framework (DIT ACF)
- The Architecture team in the organisation
- The Architects' roles in a project
- The most important stakeholders
    - The Architect's advice to management
    - The Architect's cooperation with customers, partners, suppliers (internal and external)

References - knowledge of
DIT ACF - Danish IT Society Architecture Competence Framework:
- Architect Roles and Competences
- Introduction
    - Competences
    - Competence Levels
- Profile Tool incl. the excel file:
    - Danish IT Society Architecture Competence Framework Profile Tool
- Enterprise Architect
- Business Architect
- Information Architect
- Application Architect

- Technology Architect
- Solution Architect

TOGAF Standard, version 9.2: Chapters:
- 10: Phase C: Information Systems Architectures – Application Architecture
- 46: Architecture Skills Framework

4. The IT Architecture in context

Purpose

To present the connection between the IT Architecture processes and other processes in an organisation. The focus is on identifying the actors and determine their relations with respect to cooperation, and present which expectations the actors may have to each other, for example in the form of deliverables.

Contents
- Communication and management
- Identification of the organisation's governance mechanisms
- Interaction between processes related to Enterprise Architecture and other processes of the organisation
- Enterprise architecture and the organisation's strategy management
   - How does the organisation define its value offering, business vision and -strategy
   - How does the organisation prioritise its investments in change
   - Who defines the frames for development (design, architecture, economy, etc.)
   - How does the organisation manage its business- and IT development
   - How does the organisation measure its benefits realisation and improvements in efficiency
- Standards as Architecture Tools (ISO/IEC 42010, FDA Reference Architecture)
- IT architecture and software development methods (SCRUM, Agile, SAFe®, DevOps)
   - How does the organisation acquire concrete IT solutions
   - How are (part) solutions developed according to the total IT Architecture
   - SAFe® – Scaled Agile Framework
   - Scrum and similar pure agile methods
- Architecture and operational processes (ITIL® 4)
   - How does the organisation ensure an appropriate IT Operation
   - How is management of change and handover to operations managed
   - How does the organisation fulfil its service targets for IT Services
- Architecture and Management of Change / Project Management (The cross-governmental ICT project model, PRINCE2®, IPMA, MSP®, MoP™)
   - How are organisational change activities managed
   - How is the introduction of new IT Solutions being managed in relation to other business related changes
   - How does the organisation fulfil its service targets for Business Services
- Enterprise Architecture and Information Security (ISO/IEC 27000 series, NIST)
   - How is an Information Security model related to Architecture Method
   - How is Information Confidentiality, Integrity and Availability ensured

References - knowledge of

The digitally coherent public sector - White Paper on a common public-sector digital architecture
TOGAF Standard, version 9.2: Chapters:
- 2: Core Concepts
- 6: Architecture Vision
- 19: Applying the ADM Across the Architecture Landscape
- 35: Enterprise Continuum

References - background knowledge
Danish Agency for Digitization: Standard for information security
Danish IT Society Architecture Certification – Glossary: Business Case, IPMA, NIST
From v3 to 4 – This is the new ITIL
Global Standards and Publications 2018/2019: SCRUM, Agile, DevOps, ITIL, PRINCE2, MSP, MoP, ISO/IEC 27000
SAFe® for Lean Enterprises 5.0
The cross-governmental ICT project model

References – supplementary reading
Everything you wanted to know about ITIL® in a 1000 words / ITIL: The basics

5. Governance

Purpose

To position Architecture Governance in the context of general Corporate Governance and IT Governance.

To describe how formalised governance processes ensure that the architecture work contributes to realising the strategic objectives of the organisation.

To introduce the participants to TOGAF's set of governance processes and artifacts subject to governance.

Contents

- Governance – what is it (including COBIT and GRC – Governance, Risk and Compliance)
- Objectives of Architecture Governance
  - Management and limitation of deviations between
    - Business- and Architectural Intentions (aka Strategy)
    - Realised Architecture in IT Solutions and Business (aka execution)
  - Overview of technical debt
    - Unnecessary functionality, non-compliance, non-functioning or missing functionality
    - Too much or too little consolidation, unwanted dependencies, missing interfaces (e.g. API's or event streams)
    - Unused functionality, non-supported technology, poor non-functional performance
  - Governance at portfolio and solution levels
  - Communication of proposal for corrective actions
- An Architecture Governance Framework – TOGAF
  - Processes
  - Artifacts
  - Library
- A selected Governance Process, Compliance
  - Compliance objectives
  - Compliance in the context of IT Projects, IT Operations and the strategy process – when and how?
- FDA strategy and management

References - knowledge of

The digitally coherent public sector - White Paper on a common public-sector digital architecture

TOGAF Standard, version 9.2: Chapters:
- 4.4: Architecture Governance
- 27: Risk Management
- 44: Architecture Governance

References - background knowledge

Danish IT Society Architecture Certification – Glossary: Consequence
Global Standards and Publications 2018/2019: COBIT

6. Architecture Frameworks

Purpose

To introduce different frameworks for the Architecture Process (Architecture Frameworks) and put these into perspective in relation to TOGAF, which the certification uses as a reference for a framework. To review the advantages and disadvantages of different frameworks in relation to other management models, and size and maturity of an organisation.

Focus is on the Architecture Development Method (ADM) and Architecture Content Framework. The ADM phases are reviewed, and considerations regarding the usage of the method are presented.

Contents

- What is an Architecture Framework
- What are the characteristics of the different Architecture Frameworks (FDA, TOGAF, Zachman)
- TOGAF Standard version 9.2 – a framework for development and maintenance of architectures
    - Central concepts in TOGAF
    - ADM cycle – in its entirety
    - ADM phases – purpose, contents and examples
    - How can ADM and its deliverables be used?
- The common public-sector digital architecture (FDA - Fællesoffentlig Digital Arkitektur) – a Danish common public framework
    - FDA Framework (FDA Rammeværk)
    - FDA Architecture documentation (FDA Arkitekturdokumentation)
    - FDA Architecture Method (FDA Arkitekturmetode)

References - knowledge of

The digitally coherent public sector - White Paper on a common public-sector digital architecture
TOGAF Standard, version 9.2: Chapters:
- 2: Core Concepts
- Part II: Architecture Development Method
- 4: Introduction to part II
- 20: Architecture Principles
- 37: Architecture Repository

TETRADIAN - Making a knowledge-base for whole-enterprise EA more accessible
eda.c - Enterprise design canvas - a toolkit for strategic design

References - background knowledge

Danish IT Society Architecture Certification – Glossary: Zachman

7. Architecture Methods

Purpose

To work with and understand how and why a process of analysis is useful and important, and how such a process may use different approaches according to how the organisation already deals with changes. To get knowledge of TOGAF's Architecture Development Method (ADM), and how it leads to production of different types of architecture documentation, and in which situations these types of documentation would be useful for an analysis.

To understand the connection between Business Architecture, Data Architecture, Application Architecture and Technology Architecture.

Contents

- Architecture vision and objectives
- Analysis/ clarification process
    - What is it used for?
    - Different processes in different organisations (hypothesis- or data driven)
        - Differences between an experimental approach (prototypes) and desk analyses
    - Anchoring of the result
    - Risk Management in an architecture context
- Development of gap analysis, Migration Architectures and documentation in roadmaps
    - Clarify gaps (differences) between Baseline and Target Architecture
    - Clarify the effort needed to close gaps
    - Prioritisation of initiatives/projects and migration planning
- Architecture views – stakeholder oriented documentation
    - What is a view?
    - Views and TOGAF
    - Who are the stakeholders?
    - Benefit of stakeholder analysis
    - Use of stakeholder analysis
    - Categories of stakeholders
    - Prioritisation of stakeholders
    - Stakeholder Map (TOGAF)
- How are the different aspects of architecture, their interactions and internal dependencies handled? (Business Architecture, Data Architecture, Application Architecture, Technology Architecture and Infrastructure, Security Architecture, System Architecture)
- Who decides and ensures compliance with the architecture? (Signature-ready recommendations)

References - knowledge of

The digitally coherent public sector - White Paper on a common public-sector digital architecture
TOGAF Standard, version 9.2: Chapters:
- 3: Definitions
- 6: Phase A: Architecture Vision
- 7: Phase B: Business Architecture
- 8: Phase C: Information Systems Architectures
- 9: Phase C: Information Systems Architectures – Data Architecture
- 20: Architecture Principles

- 21: Stakeholder Management
- 22: Architecture Patterns
- 23: Gap Analysis
- 30: Content Metamodel
- 31: Architectural Artifacts
- 32: Architecture Deliverables
- 33: Building Blocks

8. Business Architecture

Purpose

To give an overview of a set of relevant methods and models used to describe the most important elements of Business Architecture. This module shows how a Business Architecture is used to support the business' strategy, vision and objectives.

To describe the connection between Business-, Data-, Application- and Technology Architectures as well as the mapping to business processes and corresponding system support.

To enable the participants to distinguish between functional and non-functional requirements of components in an architecture and of an architecture in its entirety.

Contents

- TOGAF ADM phases A and B, and Requirements management
- Architecture vision, strategy and objectives
- Briefly about the requirements specification
  - o Types of requirements: FURPS+
  - o Non-functional requirements
  - o Requirements specification with Use Cases
- Organisational models – generic governance model for Business Architecture
- The business architect's competencies and responsibilities
- Value and purpose of Business Architecture – objectives
- Business Architecture, important business views (value stream, capability, information, organisation)
- Business capabilities
- Business functions and –services
- Business process models
- Information flow models
- Use Cases – elementary, system-supported business processes
- Business conceptual models
- System-supported business processes – workflows
- Use of ArchiMate, UML and BPMN to illustrate Business Architecture views

References - knowledge of

Archimate® 3.1 Specification

ArchiMate® Cookbook

The digitally coherent public sector - White Paper on a common public-sector digital architecture

TOGAF Standard, version 9.2: Chapters:

- 3: Definitions
- 6: Phase A: Architecture Vision
- 7: Phase B: Business Architecture
- 16: ADM Architecture Requirements Management
- 30: Content Metamodel
- 31: Figure 31-4 Artifacts Associated with the Core Content Metamodel and Extensions

References - background knowledge

BIZBOK Guide, Part 1. Introduction

Danish IT Society Architecture Certification – Glossary: Functional requirements, non-functional requirements, KPI

Global Standards and Publications 2018/2019: ArchiMate

Object Management Group Business Process Model and Notation, Charter
TOGAF Standard, version 9.2: Appendix A: Glossary of Supplementary Definitions
What is UML - Introduction to OMG's Unified Modelling Language™ (UML®)

9. Data Architecture

Purpose

To give an overview of a set of relevant methods and models used to describe the most important elements of Data Architecture, as a further processing of the conceptual models from the Business Architecture.

To describe the connection between Business-, Data-, Application- and Technology Architectures.

Contents
- The purpose of Data Architecture
- The importance of Data
- Reference models for data modelling
- Data dictionary
- Domain-, Conceptual- and Data models, at conceptual, logical and physical level
    - Modelling of Data Architecture (e.g. using ArchiMate)
    - Modelling of a conceptual- and data model (e.g. using UML)
- Data ownership matrices (distributed onto components/systems)
- Business service/Data attachment
    - Data quality and master data management
    - Allocation of data to components and services in an Enterprise Architecture
- Data lifecycle-diagrams – where is data created, used and removed?
- Data distribution diagrams – how is data spread out across the organisation and across components and applications?
- Data in cloud solutions, including data ownership and exit strategy
- Data security
- Data standards

References - knowledge of

Archimate® 3.1 Specification

ArchiMate® Cookbook

The digitally coherent public sector - White Paper on a common public-sector digital architecture

TOGAF Standard, version 9.2: Chapters:
- 8: Phase C: Information Systems Architectures
- 9: Phase C: Information Systems Architectures - Data Architecture

References - background knowledge

Global Standards and Publications 2018/2019: ArchiMate

What is UML - Introduction to OMG's Unified Modeling Language™ (UML®)

10. Application Architecture

Purpose
To enable the participants to understand the contents of and the purpose of Application Architecture.
To give an overview of a set of relevant methods and models used to describe the most important elements of an Application Architecture.
To get introduced to the common architecture styles, such as Service-Oriented Architecture and Event-Driven Architecture, including microservices.

Contents
- The purpose of Application Architecture
- Contents of the Application Architecture
  - IT services
  - Application descriptions at conceptual, logical and physical level
  - Structuring and organising of an application into components and modules
    - Cloud solutions
  - The Application landscape (distribution of responsibility for functionality and data, integrations etc.)
  - Reuse of services and components
  - Use of reference models
  - The Application Architecture's requirements to the Technical Architecture
  - Application integration principles
    - Service-Oriented Architecture (SOA)
    - SOA vs. Microservices architecture
    - Event-Driven Architecture (EDA)

References - knowledge of
Archimate® 3.1 Specification
ArchiMate® Cookbook
The digitally coherent public sector - White Paper on a common public-sector digital architecture
TOGAF Standard, version 9.2: Chapters:
- 8: Phase C: Information Systems Architectures
- 9: Phase C: Information Systems Architectures – Data Architecture
- 10: Phase C: Information Systems Architectures – Application Architecture

References - background knowledge
Global Standards and Publications 2018/2019: ArchiMate, IT4IT

11. Technology Architecture

Purpose
To present a framework, a reference model and the relevant concepts for technologies, and an introduction to the technology landscape.
To point out that the architecture may be realised by many different technologies.
To introduce the participants to the organisation's technology strategy as a mean to achieve a coherent application landscape.

Contents
- What is a Technology Architecture
- TOGAF's Technical Reference Model (TRM)
- Description of Technology Architectures: Physical system landscape, Network topology etc.
- Technologies in the Architecture (the technology landscape)
- Company-owned technology, bring your own device (BYOD), Cloud/PaaS
- Operating system, Storage-, Network-, Server- and Client Architectures
- Integration Architecture and tool types: GUI, Application, Data Integration, Service etc.
- Service Management
- Service Level Agreements (SLA)
- Focus on technologies
- The architect's tasks related to technology- and product choices

References – knowledge of
Archimate® 3.1 Specification
ArchiMate® Cookbook
The digitally coherent public sector - White Paper on a common public-sector digital architecture
TOGAF Standard, version 9.2: Chapters:
- 3: Definitions
- 11: Phase D: Technology Architecture
- 35.4: Enterprise Continuum in Detail

References - background knowledge
Global Standards and Publications 2018/2019: ArchiMate
Danish IT Society Architecture Certification – Glossary: Cloud Architecture, ESB - Enterprise Service Bus, ETL - Extract Transform and Load, File transfer, Load Balancer, Message broker, Messaging gateway, MVC - Model-View-Controller, PaaS, Remote Procedure Call, SOA - Service-Oriented Architecture

References – supplementary reading
The TOGAF® Technical Reference Model (TRM)

12. System/Solution Architecture

Purpose
To understand how one may use the elements that already exist in an organisation for constructing IT solutions, and to understand methods to categorise the existing systems from both a technical and business point of view, with a view to reuse, and for utilisation in a design context.
To identify when to design something new, and when to reuse existing solutions.
To be able to present one's design, and implications by choosing a design, to stakeholders in an understandable manner.

Contents
- From analysis to system design
- New versus extensions of the existing
- Design of business, data, application and technology – solution design
  - Design of customer/user experience and business processes
  - Design of services
  - Design of IT solutions and their databases, including cloud solutions
- Architecture views and perspectives – communication with involved stakeholders
- The design process – and design in TOGAF
- Design (and analysis) in SAFe® (cadences and design spikes)
- Examples of Solution Architecture styles and patterns
- FDA reference architectures
- Implications of design choices (technical implementation, economy, …)

References - knowledge of
Archimate® 3.1 Specification
ArchiMate® Cookbook
The digitally coherent public sector - White Paper on a common public-sector digital architecture
TOGAF Standard, version 9.2: Chapter 22: Architecture Patterns
Rozanski Woods: Software Systems Architecture, Viewpoints

References - background knowledge
Danish IT Society Architecture Certification – Glossary: MVC - Model-View-Controller

13. Law, Legislation, Contracts and Agreements

Purpose

To give an insight into legislation, which makes requirements of, and puts up limitations for – and gives opportunities for - the architecture.

To present examples of relevant legislation.

To introduce central legal issues when establishing IT Architectures.

To give the participants an understanding of different types of contracts.

To give insight into the influence of contracts on the IT Architecture.

Contents

- Examples of legislation influencing IT Architecture work
  - E.g. General Data Protection Regulation - GDPR
- What is influenced by the legislation?
- Invitation to Tender and compliance – differences between the contexts of public and private organisations
- Differences between regulation of companies, including the pharmaceutical industry and the finance sector
- Responsibility of the architect when using and developing contracts
- Contract paradigms: Standard Contracts K01/K02/K03/K04, SKI-contracts, vendor specific agreements, public procurement law
- What do we use the contract for?
- Procurement processes
- The most important contractual stipulations for the IT Architecture

References - knowledge of

The digitally coherent public sector - White Paper on a common public-sector digital architecture

References - background knowledge

Facts about SKI

Danish IT Society Architecture Certification – Glossary: GDPR – General Data Protection Regulation, GPL - General Public License, Danish Sale of Goods Act, Freedom of Information Act, Open Source, Public Procurement Law, SKI- Danish National Procurement Agency, Standard Contracts; K01, K02, K03 and K04

Reading List

<u>Books and publications</u>

Archimate® 3.1 Specification

Title	Archimate® 3.1 Specification
Publisher	Van Haren Publishing
Language	English
US ISBN	1-947754-30-0
Version	5 Nov 2019 or later versions
Link	https://publications.opengroup.org/c197

Danish IT Society Architecture Certification - Foundation level Syllabus and Preparation Guide

Title	Danish IT Society Architecture Foundation - Foundation level Syllabus and Preparation Guide
Publisher	Danish IT Society
Language	English
Version	2.01.b. or later versions
Link	www.dit.dk/ark

Danish IT Society Architecture Certification - Glossary

Title	Danish IT Society Architecture Certification - Glossary
Publisher	Danish IT Society
Language	English
Version	2.01.b. or later versions
Link	www.dit.dk/ark

Danish IT Society Architecture Certification - Practical Case and Assignments

Title	Danish IT Society Architecture Certification - Practical Case and Assignments
Publisher	Danish IT Society
Language	English
Version	2.01.b. or later versions
Link	To be accessed by the accredited training organisation

The digitally coherent public sector - White Paper on a common public-sector digital architecture

Title	The digitally coherent public sector - White Paper on a common public-sector digital architecture
Publisher	Danish Agency for Digitisation
Language	English
Version	Version 1.1, June 2017 or later versions
Link	https://arkitektur.digst.dk/sites/default/files/white_paper_on_a_common_public-sector_digital_architecture_pdfa.pdf
Perma-link	https://arkitektur.digst.dk/node/529

Global Standards and Publications 2018/2019

Title	Global Standards and Publications
Publisher	Van Haren Publishing

Language	English
ISBN Hardcopy	9789401802239
ISBN eBook (pdf)	9789401802246
ISBN	978940180223C
Version	Edition 2018/2019 or later versions
Link	https://www.vanharen.net/wp-content/uploads/GlobalStandardsAndPublications-2018-2019.pdf

The TOGAF® Standard version 9.2

Title	The TOGAF® Standard
Publisher	Van Haren Publishing
Language	English
ISBN Hardcopy	9789401802833
ISBN eBook (pdf)	9789401802840
ISBN ePub	9789401802857
Version	9.2 or later versions
Link	https://www.vanharen.net/the-togaf-standard-version-9-2/
Link	https://publications.opengroup.org/c182

Global Standards and Publications 2018/2019

Title	Global Standards and Publications
Publisher	Van Haren Publishing
Language	English
ISBN Hardcopy	9789401802239
ISBN eBook (pdf)	9789401802246
ISBN	978940180223C
Version	Edition 2018/2019 or later versions
Link	https://www.vanharen.net/wp-content/uploads/GlobalStandardsAndPublications-2018-2019.pdf

Articles and tools from the web

ArchiMate Cookbook Version 1.0

Link	http://www.hosiaisluoma.fi/ArchiMate-Cookbook.pdf
Author	Eero Hosiaisluoma (EHo)
Langauge	English

Danish Agency for Digitisation: Standard for information security

Link	https://en.digst.dk/policy-and-strategy/information-security/standard-for-information-security/
Author	Danish Agency for Digitisation
Language	English

Danish IT Society Architecture Competence Framework - DIT ACF

Link	https://dit.dk/acf/uk
Author	Danish IT Society
Language	English

eda.c - Enterprise design canvas - a toolkit for strategic design

Link	http://intersectionbook.com/materials/eda.c_enterprise-design-canvas.pdf
Author	Milan Guenther, Enterprise Design Associates - eda.c
Language	English

BIZBOK® Guide, Part 1 Introduction

Link	https://www.businessarchitectureguild.org/page/002
PDF-link	https://cdn.ymaws.com/www.businessarchitectureguild.org/resource/resmgr/bizbok_8_5/bizbok_v8.5_final_part1.pdf
Author	Business Architecture Guild
Language	English

Facts about SKI

Link	https://www.ski.dk/videnssider/facts-about-ski/
Author	SKI
Language	English

From v3 to 4 – This is the new ITIL

Link	https://www.axelos.com/news/blogs/february-2019/from-v3-to-4-this-is-the-new-itil
Author	Axelos Ltd.
Language	English

Object Management Group Business Process Model and Notation, Charter

Link	http://www.bpmn.org/
Author	Object Management Group
Language	English

Rozanski Woods - Software Systems Architecture, Viewpoints

Link	https://www.viewpoints-and-perspectives.info/home/viewpoints/
Author	Rozanski and Woods
Language	English

SAFe® for Lean Enterprises 5.0

Link	https://www.scaledagileframework.com/
Author	Scaled Agile
Language	English

TETRADIAN - Making a knowledge-base for whole-enterprise EA more accessible

Link	http://weblog.tetradian.com/2016/04/17/making-a-knowledge-base-for-whole-enterprise-ea-more-accessible/

Author	Tom Graves, Tetradian - Making Tools for change
Language	English

TETRADIAN - Why whole-enterprise architecture matters

Link	http://weblog.tetradian.com/2016/08/14/why-whole-enterprise-architecture-matters/
Author	Tom Graves, Tetradian - Making Tools for change
Language	English

The cross-governmental ICT project model

Link	https://en.digst.dk/ict-portfolio-management/ict-project-model/
	Danish Agency for Digitisation
Language	English

UML Destilled 3rd edition, Chapter 1, Introduction, What is UML?

PDF-link	http://ce.sharif.edu/courses/96-97/2/ce418-1/resources/root/Books/UMLDistilled.pdf
Author	Martin Fowler
Language	English

What is UML - Introduction to OMG's Unified Modeling Language™ (UML®)

Link	https://www.uml.org/what-is-uml.htm
Author	Object Management Group
Language	English

<u>Supplementary reading – not part of the syllabus</u>

The TOGAF® Technical Reference Model (TRM)

Title	The TOGAF® Technical Reference Model (TRM)
Publisher	The Open Group
Language	English
ISBN eBook (pdf)	1-937218-99-7
Version	Updated in May 2018 to reference the TOGAF® Standard, Version 9.2. Published September 2017 - Document G175
Link	https://publications.opengroup.org/g175

Everything you wanted to know about ITIL® in a 1000 words / ITIL: The basics

Title	Everything you wanted to know about ITIL® in a 1000 words / ITIL: The basics
Publisher	Axelos Ltd.
Language	English
Link	https://www.axelos.com/case-studies-and-white-papers/everything-you-wanted-know-about-itil-1000-words

Contact details and questions

Questions about the education can be addressed to the trainer(s) or to Danish IT Society / IT-professional certifications at certificering@dit.dk or tel. +45 33 11 15 60.

The certification has been developed by Danish IT Society's Advisory Board. Read more about the Advisory Board and Danish IT Society Architecture Certification™ at www.dit.dk/ark.