Course Handout

TOGAF® Enterprise Architecture Foundation

Training Course Materials

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Preface

This Document

This document is a handout for students studying the TOGAF® Enterprise Architecture Foundation Training Course. It is provided to supplement the materials.

Trademarks

Chapter 1 Introduction

This document is supporting material for the TOGAF Enterprise Architecture Foundation courseware.

Chapter 2 Reference Materials

2.1 Definitions

(Syllabus Reference: Unit 2, Learning Outcome 2.1: You should be able to define the following concepts.)

Exam Tip

No definition from this list is required to be taught separately, or be examinable, unless it is used in the learning objective of another unit.

2.1.1 Application Architecture

A description of the structure and interaction of the applications that provide key business capabilities and manage the data assets.

Note:

Application Architecture is described in the TOGAF Standard — Architecture Development Method.

2.1.2 Architecture Landscape

The architectural representation of assets in use, or planned, by the enterprise at particular points in time.

2.1.3 Architecture Model

A representation of a subject of interest.

Note:

An architecture model provides a smaller scale, simplified, and/or abstract representation of the subject matter.

2.1.4 Artifact

An architectural work product that describes an aspect of the architecture.

2.1.5 Business Architecture

A representation of holistic, multi-dimensional business views of: capabilities, end-to-end value delivery, information, and organizational structure; and the relationships among these business views and strategies, products, policies, processes, initiatives, and stakeholders.

Note:

Business Architecture relates business elements to business goals and elements of other domains.

Business Architecture is described in the TOGAF Standard — Architecture Development Method.

2.1.6 Business Model

A model describing the rationale for how an enterprise creates, delivers, and captures value.

2.1.7 Capability

An ability that an organization, person, or system possesses.

Note:

This a general-purpose definition. See 4.28 Business Capability for how this concept is refined for usage in Business Architecture.

2.1.8 Capability Architecture

An architecture that describes the abilities that an enterprise possesses.

See also the TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF ADM.

2.1.9 Data Architecture

A description of the structure of the enterprise's major types and sources of data, logical data assets, physical data assets, and data management resources.

Note:

Data Architecture is described in the TOGAF Standard — Architecture Development Method.

2.1.10 Deliverable

An architectural work product that is contractually specified and in turn formally reviewed, agreed, and signed off by the stakeholders.

Note:

Deliverables represent the output of projects and those deliverables that are in documentation form will typically be archived at completion of a project, or transitioned into an Architecture Repository as a reference model, standard, or snapshot of the Architecture Landscape at a point in time.

2.1.11 Gap

A statement of difference between two states. Used in the context of gap analysis, where the difference between the Baseline and Target Architecture is identified.

Note:

Gap analysis is described in the TOGAF Standard — ADM Techniques.

2.1.12 Metamodel

A model that describes the entities used in building an Architecture Description, their characteristics, and the key relationships between those entities.

2.1.13 Modeling

A technique through construction of models which enables a subject to be represented in a form that enables reasoning, insight, and clarity concerning the essence of the subject matter.

2.1.14 Requirement

A statement of need, which is unambiguous, testable or measurable, and necessary for acceptability.

2.1.15 Role

The usual or expected behavior of an actor, or the part somebody or something plays in a particular process or event. An actor may have a number of roles.

The part an individual plays in an organization and the contribution they make through the application of their skills, knowledge, experience, and abilities.

2.1.16 Segment Architecture

A detailed, formal description of areas within an enterprise, used at the program or portfolio level to organize and align change activity.

See also Strategic Architecture .

2.1.17 Stakeholder

An individual, team, organization, or class thereof, having an interest in a system.

2.1.18 Strategic Architecture

A summary formal description of the enterprise, providing an organizing framework for operational and change activity, and an executive-level, long-term view for direction setting.

2.1.19 Technology Architecture

A description of the structure and interaction of the technology services and technology components.

Note:

Technology Architecture is described in the TOGAF Standard — Architecture Development Method.

2.1.20 Transition Architecture

A formal description of one state of the architecture at an architecturally significant point in time.

Note:

One or more Transition Architectures may be used to describe the progression in time from the Baseline to the Target Architecture.

Transition Architecture is described in the TOGAF Standard — Architecture Content: Architecture Definition Document.

2.1.21 Work Package

A set of actions identified to achieve one or more objectives for the business. A work package can be a part of a project, a complete project, or a program.

2.2 Enterprise Architecture Governance

(Syllabus Reference: Unit 3, Learning Outcome 3.4: You should be able to explain the need to govern the creation, development, and maintenance of Enterprise Architecture.)

[KLP {S1} §1.4 G186 §15.1.1, 15.1.2, 15.2.1]

Note: this table is to be used as example and is not examinable.

Use the following checklist to execute architecture governance. Good Practitioners understand that only stakeholders can approve architecture. A good governance process will require the Practitioner to demonstrate the following when assessing a Target Architecture:

1.	Were the correct stakeholders identified?	Yes/No
		If yes, proceed.
		If no, direct the architect to engage with the stakeholders appropriate to the scope of the architecture being developed.
2.	Were constraints and guidance from the superior architecture taken into account?	Yes/No
		If yes, proceed.
		If no, direct the Practitioner to perform their job and take into account guidance and constraints from the superior architecture. Where the Practitioner identifies a conflict, obtain a recommendation on whether to grant relief from the superior architecture or enforce the superior architecture. This decision must be made by the superior architecture stakeholders.
3.	Do appropriate SMEs agree with the facts and interpretation of the facts in the architecture?	Yes/No
		If yes, proceed.

		If no, the Practitioner has to do their job and engage with the SMEs. Where the Practitioner identifies a conflict with, or between, SMEs, develop a recommendation for the stakeholders that they should have limitations in confidence.
4.	Do any constraints or guidance produced reflect the views produced for stakeholders and any underpinning architecture models and analysis?	Yes/No
		If yes, proceed.
		If no, the Practitioner needs to do their job and develop appropriate views that are consistent with analysis.
5.	Do the views produced for the stakeholders reflect their concerns and reflect any underpinning architecture models and analysis?	Yes/No
		If yes, proceed.
		If no, the Practitioner needs to do their job and develop appropriate views.
6.	Do the stakeholders understand the value, and any uncertainty in achieving the value, provided by reaching the target state?	Yes/No
		If yes, proceed.
		If no, the Practitioner needs to do their job and develop appropriate views, and other work products, then return to the stakeholders.
7.	Do the stakeholders understand the work necessary to reach the target state and any uncertainty	Yes/No
		If yes, proceed.

	(risk) in successfully accomplishing the work?	If no, the Practitioner needs to do their job and develop appropriate work products and return to the stakeholders.
8.	Do the stakeholders understand any limitations in confidence they should have in the Target Architecture?	Yes/No
		If yes, proceed.
		If no, the Practitioner needs to do their job and develop appropriate guidance on the limitations in confidence and return to the stakeholders.
9.	Have the stakeholders approved the views?	Yes/No

If the answer to the last question is yes, the governance process is done. The architecture, associated view, architecture specifications, controls, and work packages are ready for publication in the EA Repository as an approved Target Architecture.

If the answer to the last question is no, then there is a decision on whether the Practitioner should rework the architecture, or the Architecture Project should be cancelled. Reworking the architecture typically requires the Practitioner to finally embrace the stakeholder's preferences. Rework may require more advanced trade-off.

2.3 Preliminary Phase

(Syllabus Reference: Unit 3, Learning Outcome 3.7: You should be able to briefly explain the purpose of the Preliminary Phase in developing an Enterprise Architecture Capability.)

[KLP G184 §13.1]

The Preliminary Phase is designed as a customized journey of the TOGAF ADM. This journey is predicated on the best practice of developing EA. The ADM is not a linear process model; rather it is a logical method that places key activity steps together for the purpose of understanding the relationship of activity and clarifying information flow. In Table 9 several TOGAF ADM phases are entered iteratively. Partial indicates work only to the extent needed to answer the question at hand. More elaboration can be done in subsequent architecture work.

Table 9: Activity and Key Deliverables

Topic	Mapping to TOGAF ADM Phase
Enterprise Context and EA Context	Partial Strategic Level Phase B Enterprise context: • Goals, objectives, initiatives, competitive, and tactic analysis • Operating model (partners, suppliers) • Explore what-if scenarios and scorecards EA context specific for the EA Capability: • Goals
Business Objectives for the EA Capability	Capability Level Phase A For the EA Capability: • Provide initial goals and objectives • Select a reference EA Capability and maturity model • Candidate EA Capability • Candidate operating model • EA Capability gap and priority roadmap

Topic	Mapping to TOGAF ADM Phase
Architecture Governance	Partial Segment/Capability Level Phase B For the enterprise: • Enterprise Risk Management Model • Governance Model For the EA Capability: • Risk Management Model • Governance Model • Extend candidate operating model to include EA governance • Initial Architecture Partition Model • Trace to EA Capability goals
Alignment with Other Frameworks	Partial Capability Level Phase B & Partial Phase C (Data) For the enterprise: • Reference models for key frameworks • Capability assessment of key frameworks For the EA Capability: • Framework touch-points • Extend candidate operating model to include other frameworks • Extend EA governance and EA risk management • Initial EA Content Framework aligned to other frameworks and EA governance • Candidate architecture partition model • Trace to EA Capability goals

Topic	Mapping to TOGAF ADM Phase
	• EA Capability and key framework gap and priority roadmap
Customization of Architecture Contents and Metamodel	Capability Level Phase C (Data) For the EA Capability: • EA Content Framework • EA Content Metamodel • Viewpoint Library • Architecture Repository Model • Trace to EA Capability goals • Initial EA Content Framework and architecture repository gap
Organization Model for the EA Team	Partial Capability Level Phase B For the EA Capability: • EA organizational model • Select reference EA skills framework • Initial alignment with enterprise job titles and roles • Initial accountability matrix for EA Content Framework and initial architecture repository • Organizational gap and priority roadmap
Process Model	Partial Capability Level Phase B Capability Level Phase C (App) and Capability Level Phase D For the enterprise:

Topic	Mapping to TOGAF ADM Phase
	• Process model highlighting touch-points between EA Capability and enterprise processes the EA Capability supports[27] • Performance matrix for key processes and organization • Accountability matrix for EA Content Framework and organization For the EA Capability: • Process model • Architecture repository application model • Matrix for EA Content Framework and architecture repository application architecture • Process and architecture repository gap and priority roadmap
Create the EA Capability Roadmap	Capability Level Phase E Create a roadmap highlighting development of the EA Capability by changes in the: • Organizational model • Process model • EA Content Framework • Architecture repository For the EA Capability: • Trace roadmap to EA Capability goals
Establishing and Evolving the EA Capability	Capability Level Phase F and Capability Level Phase G For the enterprise: • Transition the EA Capability Roadmap to an Implementation & Migration Plan

Topic	Mapping to TOGAF ADM Phase
	For the EA Capability: • Execute the Implementation & Migration Plan to build the EA Capability your enterprise desires

2.4 Deliverables

(Syllabus Reference: Unit 7, Learning Outcome 7.3: You should be able to briefly describe the TOGAF Standard deliverables created and consumed in different TOGAF ADM phases.)

The TOGAF Content Framework identifies deliverables that are produced as outputs from executing the ADM cycle and potentially consumed as inputs at other points in the ADM. Other deliverables may be produced elsewhere and consumed by the ADM.

Deliverables produced by executing the ADM are shown in the following table.

Deliverable	**Output from...**	**Input to...**
Architecture Building Blocks	F, H	A, B, C, D, E
Architecture Contract	G	G, H
Architecture Definition Document	A, B, C, D, E, F	B, C, D, E, F, G, H
Architecture Principles	Preliminary, A, B, C, D	Preliminary, A, B, C, D, E, F, G, H
Architecture Repository	Preliminary	Preliminary, A, B, C, D, E, F, G, H, Requirements Management
Architecture Requirements	B, C, D, E, F, Requirements Management	C, D, Requirements Management
Architecture Roadmap	B, C, D, E, F	B, C, D, E, F
Architecture Vision	A, E	B, C, D, E, F, G, H, Requirements Management
Business Principles, Business Goals, and Business Drivers	Preliminary, A, B	A, B
Capability Assessment	A, E	B, C, D, E, F
Change Request	F, G, H	—
Communications Plan	A	B, C, D, E, F
Compliance Assessment	G	H

Implementation and Migration Plan	E, F	F
Implementation Governance Model	F	G, H
Organizational Model for Enterprise	Preliminary	Preliminary, A, B, C, D, E, F, G, H, Requirements Management
Request for Architecture Work	Preliminary, F, H	A, G
Requirements Impact Assessment	Requirements Management	Requirements Management
Solution Building Blocks	G	A, B, C, D, E, F, G
Statement of Architecture Work	A, B, C, D, E, F, G, H	B, C, D, E, F, G, H, Requirements Management
Tailored Architecture Framework	Preliminary, A	Preliminary, A, B, C, D, E, F, G, H, Requirements Management

Appendix A Typical Deliverable content

The purpose of this appendix is to show candidates the content of typical deliverables produced and consumed during the TOGAF ADM.

Architecture Building Blocks (ABB)
Fundamental functionality and attributes: semantic, unambiguous, including security capability and manageability Interfaces: chosen set, supplied Interoperability and relationship with other building blocks Dependent building blocks with required functionality and named user interfaces Map to business/organizational entities and policies

Architecture Contract
Typical contents of an Architecture Design and Development Contract are: Introduction and background The nature of the agreement Scope of the architecture Architecture and strategic principles and requirements Conformance requirements Architecture development and management process and roles Target Architecture measures Defined phases of deliverables Prioritized joint workplan Time window(s) Architecture delivery and business metrics
Typical contents of a Business Users' Architecture Contract are: Introduction and background The nature of the agreement Scope Strategic requirements Conformance requirements Architecture adopters Time window Architecture business metrics Service architecture (includes Service-Level Agreement (SLA))

Architecture Definition Document

- Scope
- Goals, objectives, and constraints
- Architecture Principles
- Baseline Architecture
- Architecture models (for each state to be modeled):
    - Business Architecture models
    - Data Architecture models
    - Application Architecture models
    - Technology Architecture models
- Rationale and justification for architectural approach
- Mapping to Architecture Repository:
    - Mapping to Architecture Landscape
    - Mapping to reference models
    - Mapping to standards
    - Re-use assessment
- Gap analysis
- Impact assessment
- Transition Architecture:
    - Definition of transition states
    - Business Architecture for each transition state
    - Data Architecture for each transition state
    - Application Architecture for each transition state
    - Technology Architecture for each transition state

Architecture Principle

Statement:

Rationale:

Implications:

Architecture Repository

Success measures
Architecture requirements
Business service contracts
Application service contracts
Implementation guidelines
Implementation specifications
Implementation standards
Interoperability requirements
IT Service Management requirements
Constraints
Assumptions

Architecture Requirements Specification

Success measures
Architecture requirements
Business service contracts
Application service contracts
Implementation guidelines
Implementation specifications
Implementation standards
Interoperability requirements
IT Service Management requirements
Constraints
Assumptions

Architecture Roadmap

- Work package portfolio:
  - Work package description (name, description, objectives, deliverables)
  - Functional requirements
  - Dependencies
  - Relationship to opportunity
  - Relationship to Architecture Definition Document and Architecture Requirements Specification
  - Business value
- Implementation Factor catalog, including:
  - Risks
  - Issues
  - Assumptions
  - Dependencies
  - Actions
  - Inputs
- Consolidated Gaps, Solutions, and Dependencies matrix, including:
  - Architecture domain
  - Gap
  - Potential solutions
  - Dependencies
- Any Transition Architectures
- Implementation recommendations:
  - Criteria measures of effectiveness of projects
  - Risks and issues
  - Solution Building Blocks

Architecture Vision

- Problem description:
  - Stakeholders and their concerns
  - List of issues/scenarios to be addressed
- Objective of the Statement of Architecture Work

- Summary views necessary for the Request for Architecture Work and the Draft Business, Data, Application, and Technology Architectures created; typically including:
    - Value Chain diagram
    - Solution Concept diagram
- Mapped requirements
- Reference to Draft Architecture Definition Document

Capability Assessment

- Business Capability Assessment, including:
    - Capabilities of the business
    - Baseline state assessment of the performance level of each capability
    - Future state aspiration for the performance level of each capability
    - Baseline state assessment of how each capability is realized
    - Future state aspiration for how each capability should be realized
    - Assessment of likely impacts to the business organization resulting from the successful deployment of the Target Architecture
- IT Capability Assessment, including:
    - Baseline and target maturity level of change process
    - Baseline and target maturity level of operational processes
    - Baseline capability and capacity assessment
    - Assessment of the likely impacts to the IT organization resulting from the successful deployment of the Target Architecture

Change Request

- Description of the proposed change
- Rationale for the proposed change
- Impact assessment of the proposed change, including:
    - Reference to specific requirements
    - Stakeholder priority of the requirements to date
    - Phases to be revisited
    - Phase to lead on requirements prioritization
    - Results of phase investigations and revised priorities
    - Recommendations on management of requirements
- Repository reference number

Communication Plan

Identification of stakeholders and grouping by communication requirements
Identification of communication needs, key messages in relation to the Architecture Vision, communication risks, and CSFs
Identification of mechanisms that will be used to communicate with stakeholders and allow access to architecture information, such as meetings, newsletters, repositories, etc.
Identification of a communications timetable, showing which communications will occur with which stakeholder groups at what time and in what location

Implementation and Migration Plan

• Implementation and Migration Strategy:
  o Strategic implementation direction
  o Implementation sequencing approach
• Project and portfolio breakdown of implementation:
  o Allocation of work packages to project and portfolio
  o Capabilities delivered by projects
  o Milestones and timing
  o Work breakdown structure
  o May include impact on existing portfolio, program, and projects

Implementation Governance Model
Governance processes Governance organization structure Governance roles and responsibilities Governance checkpoints and success/failure criteria

Request for Architecture Work
Organization sponsors Organization's mission statement Business goals (and changes) Strategic plans of the business Time limits Changes in the business environment Organizational constraints Budget information, financial constraints External constraints, business constraints Current business system description Current architecture/IT system description Description of developing organization Description of resources available to developing organization

Requirements Impact Assessment
Reference to specific requirements Stakeholder priority of the requirements to date Phases to be revisited Phase to lead on requirements prioritization Results of phase investigations and revised priorities Recommendations on management of requirements Repository reference number

Statement for Architecture Work
Title Architecture project request and background Architecture project description and scope

Overview of Architecture Vision Specific change of scope procedures Roles, responsibilities, and deliverables Acceptance criteria and procedures Architecture project plan and schedule Approvals