COURSEWARE BASED ON THE TOGAF® EA – PRACTITIONER

Courseware based on
the TOGAF® EA – Practitioner
Courseware

Publisher about the Courseware

The Courseware was created by experts from the industry who served as the author(s) for this publication. The input for the material is based on existing publications and the experience and expertise of the author(s). The material has been revised by trainers who also have experience working with the material. Close attention was also paid to the key learning points to ensure what needs to be mastered.

The objective of the courseware is to provide maximum support to the trainer and to the student, during his or her training. The material has a modular structure and according to the author(s) has the highest success rate should the student opt for examination. The Courseware is also accredited for this reason, wherever applicable.

In order to satisfy the requirements for accreditation the material must meet certain quality standards. The structure, the use of certain terms, diagrams and references are all part of this accreditation. Additionally, the material must be made available to each student in order to obtain full accreditation. To optimally support the trainer and the participant of the training assignments, practice exams and results are provided with the material.

Direct reference to advised literature is also regularly covered in the sheets so that students can find additional information concerning a particular topic. The decision to leave out notes pages from the Courseware was to encourage students to take notes throughout the material.

Although the courseware is complete, the possibility that the trainer deviates from the structure of the sheets or chooses to not refer to all the sheets or commands does exist. The student always has the possibility to cover these topics and go through them on their own time. It is recommended to follow the structure of the courseware and publications for maximum exam preparation.

The courseware and the recommended literature are the perfect combination to learn and understand the theory.

-- Van Haren Publishing

Other publications by Van Haren Publishing

Van Haren Publishing (VHP) specializes in titles on Best Practices, methods and standards within four domains:
- IT and IT Management
- Architecture (Enterprise and IT)
- Business Management and
- Project Management

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Topics are (per domain):

IT and IT Management	Enterprise Architecture	Project Management
ABC of ICT	ArchiMate®	A4-Projectmanagement
ASL®	GEA®	DSDM/Atern
CATS CM®	Novius Architectuur	ICB / NCB
CMMI®	Methode	ISO 21500
COBIT®	TOGAF®	MINCE®
e-CF		M_o_R®
ISO/IEC 20000	**Business Management**	MSP®
ISO/IEC 27001/27002	*BABOK® Guide*	P3O®
ISPL	BiSL® and BiSL® Next	*PMBOK® Guide*
IT4IT®	BRMBOK™	Praxis®
IT-CMF™	BTF	PRINCE2®
IT Service CMM	EFQM	
ITIL®	eSCM	
MOF	IACCM	
MSF	ISA-95	
SABSA	ISO 9000/9001	
SAF	OPBOK	
SIAM™	SixSigma	
TRIM	SOX	
VeriSM™	SqEME®	

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Table of content

Self-Reflection of understanding Diagram

'What you do not measure, you cannot control.'' – Tom Peters

Fill in this diagram to self-evaluate your understanding of the material. This is an evaluation of how well you know the material and how well you understand it. In order to pass the exam successfully you should be aiming to reach the higher end of Level 3. If you really want to become a pro, then you should be aiming for Level 4. Your overall level of understanding will naturally follow the learning curve. So, it's important to keep track of where you are at each point of the training and address any areas of difficulty.

Based on where you are within the Self-Reflection of Understanding diagram you can evaluate the progress of your own training.

Level of Understanding	Before Training (Pre-knowledge)	Training Part 1 (1st Half)	Training Part 2 (2nd Half)	After studying / reading the book	After exercises and the Practice exam
Level 4 I can explain the content and apply it .					
Level 3 I get it! I am right where I am supposed to be.					Ready for the exam!
Level 2 I almost have it but could use more practice.					
Level 1 I am learning but don't quite get it yet.					

(Self-Reflection of Understanding Diagram)

Write down the problem areas that you are still having difficulty with so that you can consolidate them yourself, or with your trainer. After you have had a look at these, then you should evaluate to see if you now have a better understanding of where you actually are on the learning curve.

Troubleshooting

Problem areas:	Topic:
Part 1	
Part 2	
You have gone through the book and studied.	
You have answered the questions and done the practice exam.	

Timetable Practitioner

This is a schedule for a two day course – approximate timings:

Day 1	Day 2
8:00 Module 00	8:00 Module 09
8:30 Module 01	8:30 Module 10
9:00 Module 02	9:00 Module 11
10:00 Module 03	10:00 Module 12
11:00 Module 04	11:00 Module 13
12:00 Lunch	*12:00 Lunch*
13:30 Module 05	13:30 Module 14
15:00 Module 06	15:00 Module 15
16:30 Module 07	16:30 Module 16
18:00 End of day	18:00 End of day

This is a schedule for a three day course – approximate timings:

Day 1	Day 2	Day 3
8:00 Module 00	8:00 Module 06	8:00 Module 12
8:30 Module 01	9:30 Module 07	9:30 Module 13
10:00 Module 02	*11:00 Lunch*	*11:00 Lunch*
11:30 Lunch	12:30 Module 08	12:30 Module 14
13:00 Module 03	14:00 Module 09	14:00 Module 15
14:30 Module 04	15:00 Module 10	15:00 Module 16
16:00 Module 05	16:00 Module 11	16:00 End of day
17:30 End of day	17:00 End of day	
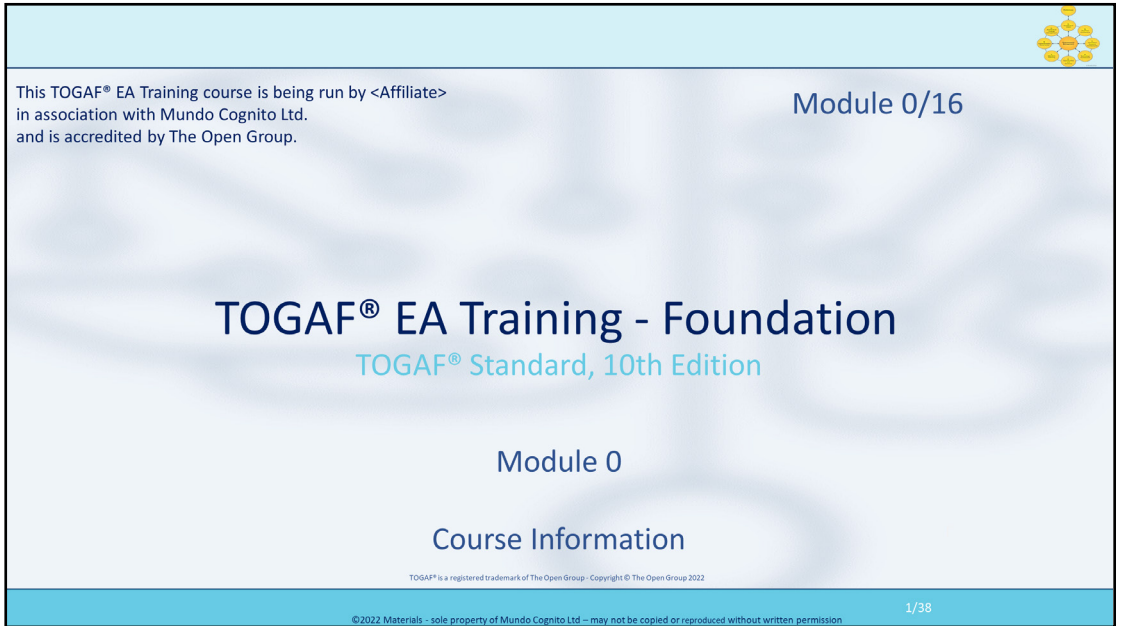
This is a schedule for a four day course – approximate timings:

Day 1	Day 3
8:00 Module 00	8:00 Module 11
8: 30 Module 01	10:00 Module 12
10:15 Module 02	*11:00 Lunch*
12:00 Lunch	12:30 Module 13
13:30 Module 04	14:00 Module 14
15:15 Module 05	15:30 Module 15
17:30 End of day	17:00 End of day

Day 2	Day 4
8:00 Module 06	8:00 Module 16
10:00 Module 07	9:30 Revision/Study
11:00 Lunch	*11:00 Lunch*
12:30 Module 08	12:30 Case Study end
15:30 Module 10	17:00 End of day
17:00 End of day	

TOGAF® Standard, 10th Edition

This TOGAF® EA Training course is being run by <Affiliate> in association with Mundo Cognito Ltd. and is accredited by The Open Group.

Module 0/16

TOGAF® EA Training - Foundation
TOGAF® Standard, 10th Edition

Module 0

Course Information

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This slides shows a start-off module slide. Kicking-off each new module.

Notes:

Modules Level 2:

- 00 - Course Introduction

  08 - The Context for Enterprise Architecture

  09 - Stakeholder Management

  10 - Phase A

  11 - Architecture Development

  12 - Implementing the Architecture

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  15 - Supporting the ADM Work

  16 - Closure

Notes:

Course Module Index

#	Topic – Level 1	✓
1	Module 00 - Course Introduction	
2	Module 01 - Overview	
3	Module 02 - Concepts	
4	Module 03 - Introduction to the ADM	
5	Module 04 - Introduction to the ADM - Techniques	
6	Module 05 – Applying ADM	
7	Module 06 - Architecture Governance	
8	Module 07 – Architecture Content	
#	Topic – Level 2	
9	Module 00 - Course Introduction	
10	Module 08 - The Context for Enterprise Architecture	
11	Module 09 – Stakeholder Management	
12	Module 10 – Phase A	
13	Module 11 – Architecture Development	
14	Module 12 – Implementing the Architecture	
15	Module 13 – Architecture Change Management	
16	Module 14 – Requirements Management	
17	Module 15 – Supporting the ADM Work	
18	Module 16 – Closure	

Course Module Index

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Here you can see all the modules that are in the course. The lowest checkmark indicates the topic that is currently being addressed.
All the checkmarks modules above will have already been previously discussed.

TOGAF® Standard, 10th Edition

Module Index

Module Index

#	Topic	Page No.
1	Module Title	1
2	Course Module Index	2
3	Module Index	3
4	Instructor and Introduction	4
5	Venue Information	5
6	Schedule	6
7	Course Notes	9
8	Recommendation	10
9	Module Structure	11
10	Slide Structure	12
11	Index to Module 2	14

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This slides shows the submodules within this module. Every module will have a slide that will show what submodules are included.

Notes:

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TOGAF® Standard, 10th Edition

Modules Level 2:

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Notes:

Instructor and Introductions

Our coming days

✓ Active participation!
✓ Ask questions
✓ Theory (a lot)
✓ Some homework
✓ Group dialogues

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Modules Level 2:

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Venue Information

Our coming days

- ✓ Safety
- ✓ Breaks
- ✓ Lunch
- ✓ Exercises
- ✓ Phones/Computers

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Notes:

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Modules Level 2:

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Notes:

Course Notes

https://publications.opengroup.org/togaf-library

Fundamental content

Series guides

Home > TOGAF® Library

TOGAF® Library

Quick Links: Browse by Document Type

- The TOGAF Standard
- TOGAF Translation Glossaries
- TOGAF Series Guides
- TOGAF Study Guides
- TOGAF White Papers
- TOGAF Webinars
- TOGAF Reference Cards

Reference to the documentation relevant to a slide is shown here

Series Guide: Business Capabilities, Version 2 : Page 9 : §1.2

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Level=1 : L.O.= 1.10c : Briefly explain what an Architecture Capability is.
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 9 : §3.3

Official publisher: www.vanharen.store

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Modules Level 2:

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  16 - Closure
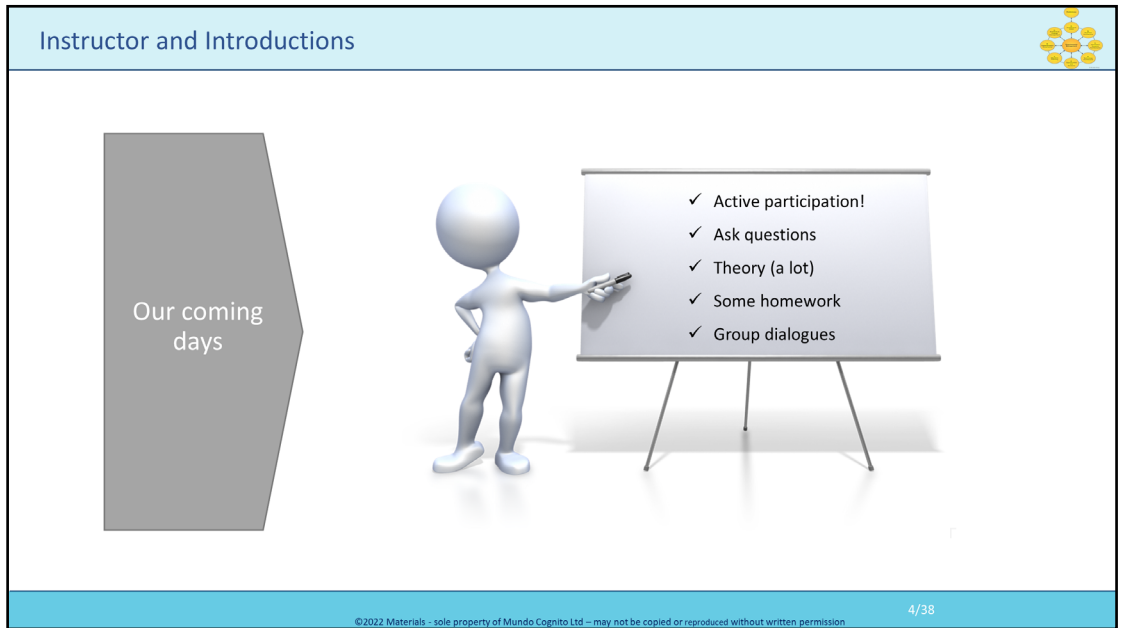
Notes:

Recommendation

Create Account

Please fill out the following information to create your account. You must have an account with The Open Group if you are:

- Registering as part of an organization that is a Member of The Open Group and to take part in forums, consortia and workgroups. You must enter a Business Email. We will inform you about all upcoming webinars
- Registering for an exam, certification; your name and address must match your ID.
- Registering for an event, webinar, or publications.

Fields marked with asterisks are required

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Business / Primary Email (domain must match Member organization to receive entitlements) *

When/If doing the Learning Studies in the Practitioner course, The Open Group account **Individual ID** is needed. So make an account prior.

https://publications.opengroup.org/registration-help

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Modules Level 2:

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Notes:

This slide shows (especially for the trainer) how they can navigate the content during the training.

But also how the training has been constructed in a modular fashion.

Additionally, in the presentation there is the core content. Additional content such as examples, (mini) case-studies, multiple-choice questions and open questions are included for the delegates.

These are also available in the presentation but are not included as standard.

This is done so that the trainer can determine when to leverage these additional materials.

Modules Level 2:

Notes:

Slide Structure 01/02

Top riband · Slide title · duplicate content · ADM Navigation

Std. 9.2 · Ref · Learning Study Reference · Content for learners from 9.2

Content

Lower/bottom Riband

© Declaration · Content reference · Slide numbering · Instructor remote pic

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This slide illustrates the various functions of a slide.

Modules Level 2:

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Notes:

TOGAF® Standard, 10th Edition

Notes:

The courseware presents one slide per page, including any associated notes.

Modules Level 2:

Notes:

Notes Structure – 02/02

The Notes have a 'fixed' structure.

Block 0 = Line 1 if present, contains Navigation indication, as described elsewhere.
The 'flag' that it is Navigation is the 1st character is a thorn [Þ].

Block 1 = if present, gives full detail of the KLP that is the subject matter of the Slide.

Block 2 = if present – various notes, aide memoires of interesting things to enliven the dreariness …
followed by text from the 'standard', up to a point.

Modules Level 2:

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Notes:

Learning Studies – 01/03

It is a requirement of the licencing of the course material, by The Open Group, that The Open Group's

TOGAF Enterprise Architecture Practitioner Learning Studies

are fully integrated into the Level 2/Practitioner course Modules.
This is regardless of any 'test and revision' materials made available by the course licencees.

This is made available in the form of 2 additional booklets, either in print or electronically.
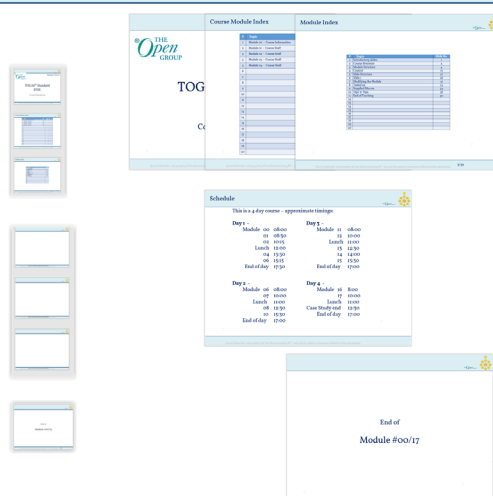
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Notes:

Learning Studies – 02/03

- o You may have to spend some time addressing the content of the 'Case Study'

- o It is an instructor decision to allocate the approach

- o Although stated to be a Learning Aid, the type and style will provide a feel for the type and style of the Practitioner Exam questions

- o The slides will have a pointer to the appropriate Exercise Question [see slide 13]

1. INSTRUCTIONS

The learning studies for TOGAF Enterprise Architecture Practitioner is presented here in book form as a set of eighteen scenario questions. It provides active learning in the form of problem-based learning to reinforce aspects of the syllabus.

You need to work your way through the story (a series of scenarios) based around a single case study (described in Section 2) with a problem in each of the scenarios. You are then required to solve the problem by selecting the best of four possible answers

Please note that the case study in Section 2 applies to all of the scenarios. Worked solutions and detailed explanations are provided in a separate answers book.

You are encouraged to take this is as an open book exercise and to work through this document multiple times. The reference text is the TOGAF Standard, 10th Edition. It is recommended to spend at least three hours on this set of learning studies.

Scenario Scoring

Each scenario consists of a gradient scored, multiple-choice, single response question. In order to answer each question, you will need to read the scenario fully. Based on the common case study, the information provided in the scenario, and the guidance in the TOGAF standard, you need to select the best possible answer from the four possible answers.

There is a maximum of five (5) points per question.

The CORRECT answer scores five (5) points.

The SECOND BEST answer scores three (3) points.

The THIRD BEST answer scores one (1) point.

The DISTRACTER (the incorrect answer) scores zero (0) points.

You should aim to achieve a total of 54 points out of a maximum of 90 points (60%). An additional technique you can use is to rank the answers and check your choice corresponds to the sample solutions.

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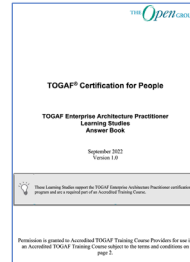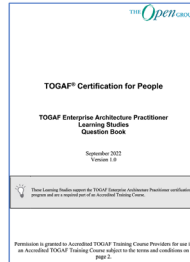
Notes:

Learning Studies – 03/03

Question Structure

Unit # I	Unit Name: The Context for Enterprise Architecture
Question # 1	**Description:** Central question in key concepts
	1.1 Explain why guiding effective change is the purpose of Enterprise Architecture. 2_Understanding G186 §3.1
	1.3 Explain what an Architecture Capability is. 2_Understanding (S0) §8, G184 §3.3

Scenario	usually about 200 words
Question	usually about 50 words

Answers:	usually about 4 x 100 words		
A	B	C	D

Q-3.1,p6
A-1.1,p4

KLP text

Bloom's Taxonomy Score

Book references for KLP
These will relate directly to the references given in the Notes to the Slides.
In this case the Learning Studies Question relates to 4 references for the Learning Outcome. As there is one slide for each reference, 4 slides will have a pointer to the Question.

Question Book and
Answer Book reference as will appear in the header of relevant slides
** Note: there is some overlap in topic coverage.

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Modules Level 2:

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Index to Level 2 – Practitioner Slides 01/12

Note: Where the Volume cover title has the form "TOGAF® Standard – …" the volume type name preferred by The Open Group is "Fundamental Content", reflecting the subdivision of the Body of Knowledge that makes up the TOGAF® Standard, 10th Edition, 2022, and not the word Standard. This is indicated in the **Volume Type** column by the abbreviation Fun Cont.

LO		Learning Outcome Text	M-Module S-Slide	TOGAF® Volume Name	Reference in Volume	Volume type
1	1.1	Explain why guiding effective change is the purpose of Enterprise Architecture.	M-8-S- 4/5	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-8-§3.1	Series Guide
2	1.2	Explain what an Enterprise Architecture looks like.	M-8-S- 6/7	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-15-§3.2.3	Series Guide
3	1.3	Explain what an Architecture Capability is.	M-8-S-8	Introduction and Core Concepts	P-33-§3.13	Fun Cont
4			M-8-S-9	The TOGAF Leader's Guide to Establishing and Evolving an EA Capability	P-52-§8	Series Guide
5	1.4	Explain the role of Architecture Governance and the role of an Enterprise Architect.	M-8-S-10	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-108-§15.1	Series Guide
6			M-8-S-11	Enabling Enterprise Agility	P-22-§4.4.4	Series Guide
7			M-8-S-10	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-108-§15.1	Series Guide
8			M-8-S-11	Enabling Enterprise Agility	P-22-§4.4.4	Series Guide
9	1.5	Explain Architecture Compliance levels of conformance reviews and the role of the architect.3	M-8-S-12	Enterprise Architecture Capability and Governance	P-52-§6.6.2	Fun Cont
10			M-8-S-13	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-110-§15.2.1	Series Guide
11			M-8-S-14	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-112-§15.2.2	Series Guide
12	1.6	Explain how an architecture enables alignment to organizational objectives using Agile development as an example.	M-8-S-15	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-98-§12.1	Series Guide
13			M-8-S-16	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-96-§11.4	Series Guide
14			M-8-S- 17/20	Enabling Enterprise Agility	P-22-§4.5	Series Guide

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TOGAF® Standard, 10th Edition

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	LO	Learning Outcome Text	M-Module S-Slide	TOGAF® Volume Name	Reference in Volume	Volume type
15	1.7	Explain the need to manage multiple architecture states (e.g. candidate current transition target).	M-8-S-21	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-51-§5.4	Series Guide
16			M-8-S-22	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-101-§13	Series Guide
17	1.8	Briefly explain Enterprise Security Architecture.	M-9-S-4	Integrating Risk and Security within a Enterprise Architecture	P-2-§1	Series Guide
18	1.9	Explain how security is a cross-cutting concern.	M-9-S-5	Integrating Risk and Security within a Enterprise Architecture	P-16-§4	Series Guide
19	1.10	Explain why it is important to create an environment in which uncertainty of the success of change can be managed to optimize maximum business benefit and minimum business loss.	M-9-S-6	Integrating Risk and Security within a Enterprise Architecture	P-9-§3.1.1	Series Guide
20	1.11	Briefly explain the role of the Enterprise Architect and Enterprise Architecture in a Digital enterprise for the four contexts of the DPBoKTM Standard.	M-9-S-7/9	Using the TOGAF Standard in the Digital Enterprise	P-27-§4.2.1	Series Guide
21			M-9-S-10	Using the TOGAF Standard in the Digital Enterprise	P-28-§4.2.2	Series Guide
22			M-9-S-11/12	Using the TOGAF Standard in the Digital Enterprise	P-30-§4.2.3	Series Guide
23			M-9-S-13/14	Using the TOGAF Standard in the Digital Enterprise	P-31-§4.2.4	Series Guide
24	2.1	Explain how to identify stakeholders their concerns views and the communication involved.	M-9-S-15/16	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-17-§3.3.1	Series Guide
25			M-9-S-17	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-118-§B	Series Guide
26	2.2	Explain the use of architecture views.	M-9-S-18	Architecture Content	P-34-§3.2	Fun Cont
27	2.3	Explain how to manage stakeholders' engagement and requirements.	M-9-S-19	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-54-§6.1.1	Series Guide

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Index to Level 2 – Practitioner Slides   03/12

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LO		Learning Outcome Text	M-Module S-Slide	TOGAF® Volume Name	Reference in Volume	Volume type
28	2.4	Explain how to use trade-off to support the architecture development.	M-9-S-20	ADM Techniques	P-73-§10.2	Fun Cont
29			M-9-S-21	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-55-§6.1.2	Series Guide
30			M-9-S-22	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-55-§6.2	Series Guide
31	3.1	Explain how to identify the information necessary to execute the Architecture Vision phase and how iteration cycles will provide more information to take into account in order to execute the phase.	M-10-S- 7-8	Architecture Development Method	P-30-§3.2	Fun Cont
32			M-10-S-9/10	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-41-§5.2.1	Series Guide
33	3.2	Explain how to apply the phase and how it contributes to the architecture development work: Scope of the Architecture Project Stakeholders their concerns and business requirements Business goals business drivers and constraints	M-10-S-11/14	Architecture Development Method	P-31-§3.3	Fun Cont
34			M-10-S-15	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-42-§5.2.1	Series Guide
35	3.3	Describe a security-specific architecture design to be carried out that is sufficient.	M-10-S-16	Integrating Risk and Security within a Enterprise Architecture	P-19-§5.2	Series Guide
36	3.4	Explain the outputs necessary to proceed with the architecture development work: Statement of Architecture Work	M-10-S-17	Architecture Development Method	P-36-§3.4	Fun Cont
37		Architecture Vision	M-10-S-19	Architecture Content	P-64-§4.2	Fun Cont

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LO	Learning Outcome Text	M-Module S-Slide	TOGAF® Volume Name	Reference in Volume	Volume type
38	Communications Plan	M-10-S-18	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-42-§5.2.2	Series Guide
39	4.1	Explain the steps applicable to all phases.	M-10-S-20	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-56-§6.3	Series Guide
40	4.2	Explain risk and security considerations during the architecture development.	M-10-S-21	Integrating Risk and Security within a Enterprise Architecture	P-20-§5.3	Series Guide
41			M-10-S-22	Integrating Risk and Security within a Enterprise Architecture	P-22-§5.4	Series Guide
42			M-10-S-23	Integrating Risk and Security within a Enterprise Architecture	P-24-§5.5	Series Guide
43	4.3	Explain the information that is relevant to produce outputs valuable to the architecture development:Business principles	M-10-S-24	Architecture Development Method	P-42-§4.2	Fun Cont
44			M-10-S-25/26	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-42-§5.2.2	Series Guide
45		Business Goals	M-10-S-27	Architecture Development Method	P-42-§4.2	Fun Cont
46			M-10-S-28	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-42-§5.2.2	Series Guide
47		Business Drivers	M-10-S-29	Architecture Development Method	P-42-§4.2	Fun Cont
48			M-10-S-30	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-42-§5.2.2	Series Guide
49	4.4	Explain how to apply Phase B and how it contributes to the architecture development work.	M-11-S- 4/10	Architecture Development Method	P-43-§4.3	Fun Cont
50			M-11-S-11	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-42-§5.2.2	Series Guide

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LO	Learning Outcome Text	M-Module S-Slide	TOGAF® Volume Name	Reference in Volume	Volume type
51	4.5 Explain the information that is relevant to Phase C (Data and Applications) to produce outputs relevant to the architecture development.	M-11-S-12	Architecture Development Method	P-59-§6.2	Fun Cont
52		M-11-S- 13/14	Architecture Development Method	P-71-§7.2	Fun Cont
53		M-11-S- 13/14	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-42-§5.2.2	Series Guide
54	4.6 Explain how to apply Phase C and how it contributes to the architecture development work.	M-11-S-16	Architecture Development Method	P-67-6.5	Fun Cont
55		M-11-S-16	Architecture Development Method	P-79-7.5	Fun Cont
56		M-11-S-17	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-42-§5.2.2	Series Guide
57		M-11-S- 18/19	Architecture Development Method	P-82-8.2	Fun Cont
58		M-11-S-20/21	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-42-§5.2.2	Series Guide
59	4.8 Explain how to apply Phase D and how it contributes to the architecture development work.	M-11-S-24	Architecture Development Method	P-82-§8.2	Fun Cont
60		M-11-S-31	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-42-§5.2.2	Series Guide
61	4.9 Explain the outputs of Phases B, C, and D necessary to proceed with the architecture development work.	M-11-S-32	Architecture Development Method	P-49-§4.4	Fun Cont
62		M-11-S-33	Architecture Development Method	P-66-§6.4	Fun Cont
63		M-11-S-32	Architecture Development Method	P-78-§7.4	Fun Cont
64		M-11-S-32	Architecture Development Method	P-90-§8.4	Fun Cont
65		M-11-S-33	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-42-§5.2.2	Series Guide

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	LO	Learning Outcome Text	M-Module S-Slide	TOGAF® Volume Name	Reference in Volume	Volume type
66	4.10	Explain how to apply Phase D and how it contributes to the architecture development work.	M-11-S- 37/38	Architecture Development Method	P-91-§8.5	Fun Cont
67			M-11-S-33	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-42-§5.2.2	Series Guide
68	4.11	Explain the outputs necessary to proceed with the architecture development work.	M-11-S-34,39/41	Architecture Development Method	P-90-§8.4	Fun Cont
69			M-11-S-42	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-42-§5.2.2	Series Guide
70	5.1	Explain the risk and security considerations for the three Phases (E F and G).	M-12-S-5	Integrating Risk and Security within a Enterprise Architecture	P-24-§5.6	Series Guide
71			M-12-S-6	Integrating Risk and Security within a Enterprise Architecture	P-25-§5.7	Series Guide
72			M-12-S-7	Integrating Risk and Security within a Enterprise Architecture	P-25-§5.8	Series Guide
73	5.2	Describe the steps (Phase E) to create the Implementation and Migration Strategy.	M-12-S-13/14	Architecture Development Method	P-95-§9.3	Fun Cont
74	5.3	Describe three basic approaches to implementation.	M-12-S-15/17	Architecture Development Method	P-98-§9.3.8	Fun Cont
75	5.4	Explain how to identify and group work packages.	M-12-S-18	Architecture Development Method	P-95-§9.3	Fun Cont
76	5.5	Explain how to create and document Transition Architectures.	M-12-S-19	Architecture Development Method	P-95-§9.3	Fun Cont
77	5.6	Explain the impact of the migration projects on the organization and the coordination required.	M-12-S-23	Architecture Development Method	P-106-§10.3	Fun Cont
78			M-12-S-25	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-42-§5.2.2	Series Guide
79			M-12-S-26	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-78-§9	Series Guide

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LO	Learning Outcome Text	M-Module S-Slide	TOGAF® Volume Name	Reference in Volume	Volume type
80		M-12-S-27	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-91-§10.4	Series Guide
81		M-12-S-28&31	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-91-§10.6	Series Guide
82	5.7	Explain why and how business value is assigned to each work package.	M-12-S-29	Architecture Development Method	P-107-§10.3.2	Fun Cont
83		M-12-S-30	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-22-§3.4	Series Guide
84		M-12-S-32	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-13-§3.2.2	Series Guide
85	5.8	Describe how to prioritize the migration projects (Phase F).	M-13-S-4	Architecture Development Method	P-108-§10.3.4	Fun Cont
86	5.9	Describe how to confirm the Architecture Roadmap (Phase F).	M-13-S-5	Architecture Development Method	P-108-§10.3.5	Fun Cont
87	5.10	Explain the outputs necessary to proceed with the architecture implementation work.	M-13-S-6	Architecture Development Method	P-109-§10.4	Fun Cont
88		M-13-S-7	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-42-§5.2.2	Series Guide
89	5.11	Explain the inputs to Phase G.	M-13-S-10	Architecture Development Method	P-112-§11.2	Fun Cont
90	5.12	Explain how the Implementation Governance is executed (Phase G).	M-13-S-12/13	Architecture Development Method	P-113-§11.3	Fun Cont
91		M-13-S-14	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-96-§11.4	Series Guide
92		M-13-S-15	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-109-§15.1.2	Series Guide

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LO	Learning Outcome Text	M-Module S-Slide	TOGAF® Volume Name	Reference in Volume	Volume type
93	5.13 Explain the outputs necessary to support Architecture Governance.	M-13-S-16	Architecture Development Method	P-116-§11.4	Fun Cont
94		M-13-S-17	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-42-§5.2.2	Series Guide
95	5.14 Explain how Architecture Contracts are used to communicate with implementers.	M-13-S-18/21	Enterprise Architecture Capability and Governance	P-29-§5.2	Fun Cont
96		M-13-S-22/23	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-19-§3.3.2	Series Guide
97	5.15 Explain how to balance opportunity and viability.	M-13-S-24	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-73-§8.3	Series Guide
98	6.1 Explain the inputs triggering change management: ⬚ Change Requests	M-13-S-28	Architecture Development Method	P-120-§12.2	Fun Cont
99		M-13-S-34	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-105-§14	Series Guide
100	6.2 Explain the activities necessary for effective change management (Stakeholder Management).	M-13-S-29/31	Architecture Development Method	P-122-§12.3	Fun Cont
101		M-13-S-33	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-105-§14	Series Guide
102	6.3 Explain the outputs relevant to proceed.	M-13-S-32	Architecture Development Method	P-124-§12.4	Fun Cont
103		M-13-S-35	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-42-§5.2.2	Series Guide
104	7.1 Explain the inputs that can feed the Requirements Management phase.	M-14-S-8	Architecture Development Method	P-130-§13.2	Fun Cont
105		M-14-S-9	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-54-§6.1.1	Series Guide

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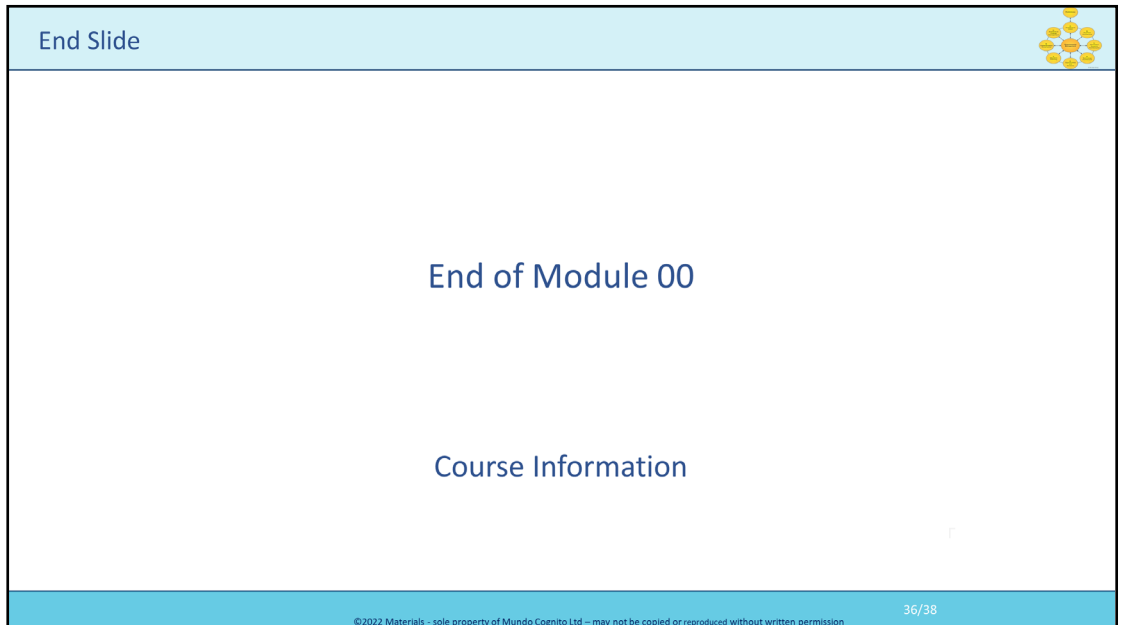## Notes:

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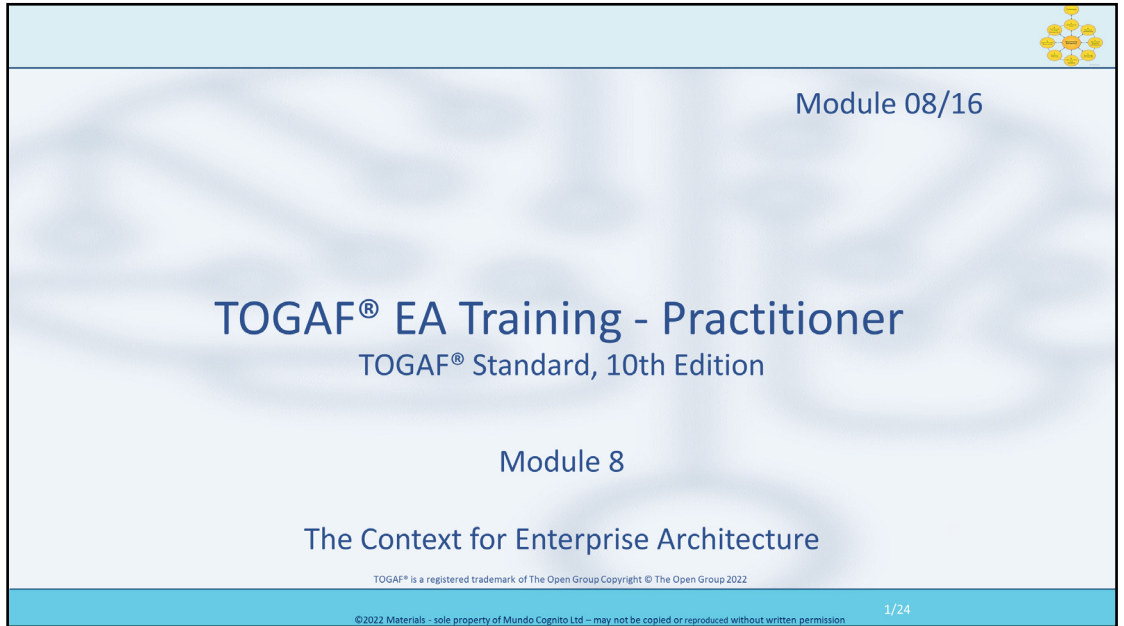| LO	Learning Outcome Text	M-Module S-Slide	TOGAF® Volume Name	Reference in Volume	Volume type
106		M-14-S-10	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-55-§6.1.2	Series Guide
107	7.2 Explain how the Requirements Management steps correspond to ADM phase steps.	M-14-S-11/12	Architecture Development Method	P-131-§13.3	Fun Cont
108	7.3 Explain the purpose of the outputs of Requirements Management.	M-14-S-13	Architecture Development Method	P-134-§13.4	Fun Cont
109	8.1 Describe how The Open Group TOGAF Library can be used to support the practitioner's work.	M-14-S-14/19	Introduction and Core Concepts	P-9-§2	Fun Cont
110	8.2 Briefly explain the business scenario technique.	M-14-S-20/21	Business Scenarios	P-1-§1	Series Guide
111		M-14-S-22	Business Scenarios	P-6-§3.1	Series Guide
112		M-14-S-23	Business Scenarios	P-24-§9	Series Guide
113	8.3 Explain the purpose of compliance assessments.	M-14-S-24/25	Enterprise Architecture Capability and Governance	P-33-§6.3.1	Series Guide
114		M-14-S-26	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-38-§5.1.5	Series Guide
115	8.4 Explain how migration planning techniques are used to review and consolidate the gap analysis results from earlier phases.	M-14-S-27/29	ADM Techniques	P-49-§6	Fun Cont
116		M-14-S-30	ADM Techniques	P-49-§6	Fun Cont
117		M-14-S-31	ADM Techniques	P-49-§6	Fun Cont
118		M-14-S-32	ADM Techniques	P-49-§6	Fun Cont
119		M-14-S-33	ADM Techniques	P-49-§6	Fun Cont

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LO	Learning Outcome Text	M-Module S-Slide	TOGAF® Volume Name	Reference in Volume	Volume type
120	8.5 Describe how a repository can be structured using the TOGAF repository as an example: Architecture Landscape Reference Library Standards Library Governance Repository Architecture Requirements Repository Solutions Landscape Enterprise Repository	M-14-S-34	Architecture Content	P-98-§7.2	Fun Cont
121		M-14-S-35	Architecture Content	P-99-§7.3	Fun Cont
122		M-14-S-36	Architecture Content	P-100-§7.4	Fun Cont
123		M-14-S-37	Architecture Content	P-103-§7.5	Fun Cont
124		M-14-S-38	Architecture Content	P-104-§7.6	Fun Cont
125		M-14-S-39	Architecture Content	P-105-§7.7	Fun Cont
126		M-14-S-40	Architecture Content	P-105-§7.8	Fun Cont
127	8.6 Explain what to expect in a well-run Architecture Repository.	M-14-S-41	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-28-§5.1	Series Guide
128	8.7 Explain how the concepts of Architecture Levels are used to organize the Architecture Landscape.	M-15-S-5	Applying the ADM	P-17-§3.2	Fun Cont
129		M-15-S-6	Applying the ADM	P-17-§3.2	Fun Cont
130		M-15-S-7	Applying the ADM	P-19-§3.3	Fun Cont
131		M-15-S-8	Applying the ADM	P-19-§3.4	Fun Cont
132	8.8 Explain the different levels of architecture that exist in an organization.	M-15-S-9	Applying the ADM	P-17-§3.2	Fun Cont

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	LO	Learning Outcome Text	M-Module S-Slide	TOGAF® Volume Name	Reference in Volume	Volume type
133	8.9	Explain at which level an architecture is being developed and the associated level of detail expected.	M-15-S-10	Applying the ADM	P-17-§3.2	Fun Cont
134			M-15-S-11	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-10-§3.2.1	Series Guide
135	8.10	Explain the role of Architecture Building Blocks (ABBs) and when they are used.	M-15-S-12	Architecture Content	P-80-§5.2.3	Fun Cont
136	8.11	Briefly explain the guidelines and techniques that can be used during the Business Architecture phase:	M-15-S-13	Architecture Development Method	P-50-§4.5	Fun Cont
137			M-15-S-14	Architecture Development Method	P-51-§4.5.3	Fun Cont
138			M-15-S-15	Architecture Development Method	P-52-§4.5.4	Fun Cont
139			M-15-S-16	Architecture Development Method	P-52-§4.5.5	Fun Cont
140			M-15-S-17	Architecture Development Method	P-53-§4.5.6	Fun Cont
141			M-15-S-18	Architecture Development Method	P-53-§4.5.7	Fun Cont
142			M-15-S-19	Architecture Development Method	P-71-§7	Fun Cont
143			M-15-S-20	A Practitioners' Approach to Developing Enterprise Architecture Following the ADM	P-42-§5.2.2	Series Guide
144			M-15-S-21	Value Streams	P-1-§1	Series Guide
145			M-15-S-22	Business Models	P-1-§1	Series Guide
146			M-15-S-23	Information Mapping	P-1-§1	Series Guide
147			M-15-S-24	Organization Mapping	P-1-§1	Series Guide
148			M-15-S-25	Business Capabilities, Version 2	P-1-§1	Series Guide
149	8.12	Explain the technique of gap analysis and where it can be applied.	M-16-S-4	ADM Techniques	P-45-§5.1	Fun Cont
150			M-16-S-5/8	ADM Techniques	P-46-§5.2	Fun Cont

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Summary

This Module has mapped out the next days of this course.
Any questions?

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This slides shows an end-of-module slide. Prior to the end-of-module slide there is always a slide with a summary of the module. Delegates are recommended to read through this summary so that they clearly understand what they need to know.

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Module 8

The Context for Enterprise Architecture

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8	Module 07 – Architecture Content	✓
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Module Index

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Notes:

Notes:

| The purpose of Enterprise Architecture – 01/02 | Q-3.1,p7 / A-1.1,p4 |

To guide effective change

All Enterprises are seeking to make improvements e.g.:
o Shareholder value
o Agility
o Mandate-based value proposition
o Efficiency
o Improvement of mission
It is also used by the stakeholders to govern any change

Governance
Part 1: direct change activity
o Part 2: control the change activity

An architecture methodology serves to validate both the objective and the change

Implementation means "the process of putting a decision or plan into effect" …

Level=2 : L.O.= 1.1a : Explain why guiding effective change is the purpose of Enterprise Architecture.
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 8 : §3.1

To guide effective change
All Enterprises are seeking to make improvements e.g.:
• shareholder value
• agility
• mandate-based value proposition
• efficiency
• improvement of mission
It is also used by the stakeholders to govern any change
Governance
• Part 1: direct change activity
 align the change with the optimal path to realizing the expected value
• Part 2: control the change activity
 ensure the change stays on the optimal path
An architecture methodology serves to validate both the objective and the change, providing:
• rigorous planning
• change governance methodology
Implementation means "the process of putting a decision or plan into effect" …
 substitute the words transformation, change, program execution, deployment to align with your preferences.

3.1 Why is it Important to Develop an Enterprise Architecture?
An EA is developed for one very simple reason: to guide effective change.
All Enterprises are seeking to improve. Regardless of whether it is a public, private, or social enterprise, there is a need for deliberate, effective change to improve.
Improvement can be shareholder value or agility for a private Enterprise, mandate-based value proposition or efficiency for a public Enterprise, or simply an improvement of mission for a social Enterprise.
Guidance on effective change will take place during the activity to realize the approved EA. During implementation, EA is used by the stakeholders to govern change. The first part of governance is to direct change activity – align the change with the optimal path to realizing the expected value. The second part of governance is to control the change activity – ensuring the change stays on the optimal path.

… CONTINUES … SEE REFERENCE SPECIFIED

Notes:

The purpose of Enterprise Architecture – 02/02

Q-3.1,p7
A-1.1,p4

EA must describe the future state to enable an understanding of what must be done to meet the Enterprise's

- Goals
- Objectives
- Mission
- Vision

A good EA facilitates effective

- Governance
- Management
- Risk management
- Exploitation opportunities

The Gaps List makes obvious what must change and the implications

The same concepts readily address the end state

The essential difference is what the documented architecture looks like.

Level=2 : L.O.= 1.1a : Explain why guiding effective change is the purpose of Enterprise Architecture.
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 8 : §3.1

EA must describe the future state to enable understanding of what must be done to meet the Enterprise's:
- goals
- objective
- mission
- vision

A good EA facilitates effective:
- governance
- management
- risk management
- exploitation opportunities

What must change = The gap between the Enterprise's current and future state highlights.
The Gaps List makes obvious what must change and the implications :
- is the proposed project in alignment with what is needed?
- in alignment with priority?
- in alignment with the complete set of goals and objectives?

The same concepts address both big and little questions – the:
- methods
- techniques
- frameworks

readily address the end state, preference trade-off, and value realization.
The essential difference is what the documented architecture looks like.
 While the scope of the system varies, all of the concepts remain the same.

3.1 Why is it Important to Develop an Enterprise Architecture?
An EA is developed for one very simple reason: to guide effective change.
All Enterprises are seeking to improve. Regardless of whether it is a public, private, or social Enterprise, there is a need for deliberate, effective change to improve.
Improvement can be shareholder value or agility for a private Enterprise, mandate-based value proposition or efficiency for a public Enterprise, or simply an improvement of mission for a social Enterprise.

Notes:

What Enterprise Architecture looks like – 01/02

Q-3.1,p7
A-1.1,p4

Request for Architecture Work identifies the EA Landscape.

Architecture Projects populate the EA Landscape.

Architecture describes the current and target Architecture.

Models can vary in formality:
Some strictly conforming to a semantically constrained structure.
Others are quite flexible.

The primary purpose of the models is to facilitate the architect in understanding how a system can be most effective.
A secondary purpose is re-use – it is inefficient to re-describe.

Note also:
- The efficiency of consistency is balanced against the extra energy to describe more than is needed
- Formal models are substantially easier to extend across work teams
- Formal models require semantic precision
- Requires good model definition
- Architecture Projects may have unique aspects
- Practitioners must trade off - re-use versus optimal fit

Refinery

Airport

City (grid)

A Practitioners' Approach to Developing Enterprise Architecture Following the ADM : Page 15 : §3.2.3
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Þ M-31
Level=2 : L.O.= 1.2b : Explain what an Enterprise Architecture looks like.
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 15 : §3.2.3

Request for Architecture Work identifies the EA Landscape.
Architecture Projects populate the EA Landscape.
What actually gets written down?:
1. Models, in the EA Landscape
2. Views derived from the EA Landscape
3. Other useful things

Architecture is the:
• set of models
• the components
• their relationships
to describe the current and Target Architecture. Models can vary in formality, some strictly conforming to a semantically constrained structure, while others are quite flexible.

The primary purpose of the models is to facilitate the architect to:
• understand the system works today
• understand how it can be used most effectively
• understand the implications and impacts of the change.
A secondary purpose is re-use – it is inefficient to re-describe.
Note too:
• The efficiency of consistency is balanced against the extra energy to describe more than is needed.
• Formal models are substantially easier to extend across work teams
• Formal models require semantic precision
• Requires good model definition
• Architecture Projects may have unique aspects
• Practitioners must trade off - re-use versus optimal fit

3.2.2 Introduction to Purpose
A purpose-based EA Capability model identifies four purposes that typically frame the planning horizon, depth and breadth of an Architecture Project, and the contents of the EA Repository. The purpose-based EA Capability model used in this Guide was introduced in the World-Class Enterprise Architecture White Paper (see Referenced
.... CONTINUES ... SEE REFERENCE SPECIFIED

What Enterprise Architecture looks like – 02/02

Q-3.1,p7
A-1.1,p4

Farringdon Station, London

The Architect's Model

How it is

Every model that is produced and maintained has a price in effort.

All approaches to modelling – formal/informal and broad/narrow – are trade-offs.

Models are consistent representations of things to be understood and analysed.

But models are partial representations of the whole.
Example:
A balance sheet –
○ A great model to outline part of an organization's financial position
○ Requires skill to read
○ Silent on the success, margin, or lifecycle of products

Models are poor general communication tools constrained to exactly tell part of a story.

The best communication comes down to views, and "other useful things" - purposefully open-ended.

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Notes:

Level=2 : L.O.= 1.2b : Explain what an Enterprise Architecture looks like.
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 15 : §3.2.3

Every model that is produced and maintained has a price in effort
Typically:
• narrow, special-purpose models facilitate detailed analysis
• broad models facilitate inclusive analysis.

All approaches to modeling – formal/informal and broad/narrow – are trade-offs.
A core unified model can provide a common bridge between discrete models.
The more important a model is to analysis, the more important is the need and clarity of linkage across models.
Models are consistent representations of things to be understood and analyzed.
But models are partial representations of the whole, typically:
• described with a limited language
• requires experience to read
• subject to constraints
• tend to require specialist knowledge
• tend to be ineffective to communicate usefully
Example:
A balance sheet –
• a great model to outline part of an organization's financial position
• requires skill to read
• silent on the success, margin, or lifecycle of products
Models are poor general communication tools constrained to exactly tell part of a story.
They carefully render a complex environment into something that represents the world in terms that can be understood, optimized, and compared.
The best communication comes down to views, and "other useful things - purposefully open-ended.
Most of the effective communication about an architecture will be "other useful things".
... CONTINUES ... SEE REFERENCE SPECIFIED

TOGAF® Standard, 10th Edition

Notes:

What an Architecture Capability is – 01/02

To carry out architectural activity it is necessary to put in place an appropriate business capability for architecture, through organization structures, roles, responsibilities, skills, and processes.
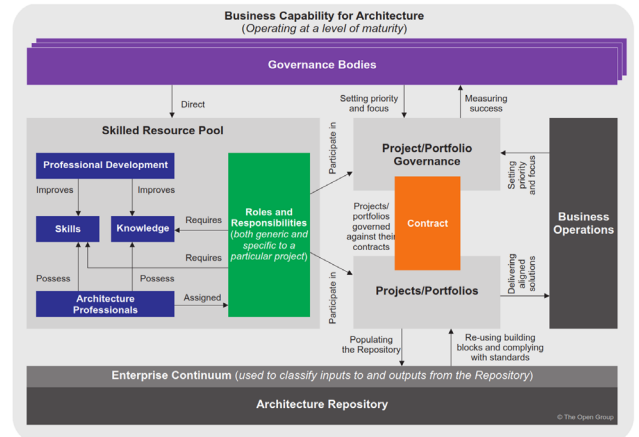
Level=2 : L.O.= 1.3a : Explain what an Architecture Capability is.
See : TOGAF® Standard – Introduction and Core Concepts : Page 33 : §3.13

In order to carry out architectural activity effectively within an enterprise, it is necessary to put in place an appropriate business capability for architecture, through organization structures, roles, responsibilities, skills, and processes.

3.13 Establishing and Maintaining an Enterprise Architecture Capability
In order to carry out architectural activity effectively within an enterprise, it is necessary to put in place an appropriate business capability for architecture, through organization structures, roles, responsibilities, skills, and processes. An overview of the TOGAF Architecture Capability is shown in Figure 3-9.

Notes:

What an Architecture Capability is – 02/02

The TOGAF Content Framework identifies two sets of work products:

i. Work products impacting planning, change governance, and benefits realization.

ii. Work products that are used within the EA Capability to produce the first set.

Understanding the EA Capability's information requirements requires the following questions to be answered:

• What is the EA Capability's purpose in supporting decision-making and governance?
• What is the Enterprise Content Metamodel?
• What is the structure of the Architecture Repository?
• Are there any other considerations pertinent to the enterprise?
• What are the authority, access, and planning divisions for the EA Capability?
• How formal should the documentation and work products of the EA Capability be?

Þ Q-24
Level=2 : L.O.= 1.3b : Explain what an Architecture Capability is.
See : TOGAF® Series Guide: The TOGAF Leader's Guide to Establishing and Evolving an EA Capability : Page 52 : §8

The TOGAF Content Framework identifies two sets of work products:
• work products that impact planning, change governance, and benefits realization
• work products that are used within the EA Capability to produce the first set.

Understanding the EA Capability's information requirements requires the following questions to be answered:
o What is the EA Capability's purpose in supporting decision-making and governance?
o What is the Enterprise Content Metamodel?
o What is the structure of the architecture repository?
o Are there any other considerations pertinent to the enterprise?
o What are the authority, access, and planning divisions for the EA Capability?
o How formal should the documentation and work products of the EA Capability be?
If using a well-established Content Framework, such as Defense with DoDAF, all of the decisions regarding Content Metamodel and Content Framework have been made by DoDAF.

8 Customization of Architecture Contents and Metamodel
The TOGAF Framework identifies two central concepts: a Content Framework and a Content Metamodel. The TOGAF Content Framework describes the types of work products that will be consumed and produced by an EA Capability. A subset of these will be a formal description or architecture description of a system including the components and their inter-relationships. This subset is the Content Metamodel. Both must be customized based upon the purpose of the EA Capability and the enterprise context.

An EA Capability focused on supporting decision-making for strategy will use a different set of work products than an EA Capability chartered to support governance of projects. This is a critical distinction. The Content Framework and Content Metamodel should be adjusted to align with the charter of the EA Capability. Further, the links between an EA Capability and other functions within an enterprise, such as finance, compliance, and operations aspects, require the EA Capability to fit-in and fill-out.
... CONTINUES ... SEE REFERENCE SPECIFIED

Modules Level 2:

Notes:

The role of Architecture Governance - 01/02

Two distinct things must be governed:

• The development of the Target Architecture
  - to support the organization's leadership in directing and controlling change

• All changes within the scope of the Target Architecture
  - to validate developing a good target that provides an organization's best achievable course forward

Central to the definition of governance is: "directs and controls".

Typically, the Enterprise Architect and implementer are directed and (partly) controlled by the stakeholder.

Baseline

Target

Level=2 : L.O.= 1.4a : Explain the role of Architecture Governance and the role of an Enterprise Architect.

See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 108 : §15.1

Two distinct things must be governed:
- the development of the Target Architecture
  - to support the organization's leadership in directing and controlling change
- all changes within the scope of the Target Architecture
  - to validate developing a good target that provides an organization's best achievable course forward

Central to the definition of governance is: "directs and controls".
Typically, the Enterprise Architect and implementer are directed, and partly, controlled by the stakeholder.

15.1 What is Governed and Why?
Two distinct things must be governed. First, the development of the Target Architecture. Second, all change within the scope of the Target Architecture. Without the first, the Practitioner cannot support their organization's leadership in directing and controlling change. Without the latter, there was no point in developing a good target that provides an organization's best achievable course forward.
Central to the definition of governance is "directs and controls". Typically, the Practitioner and implementer are directed, and both are controlled by the stakeholder. This chapter will use the terms direct and control for focus.

Notes:

The role of Architecture Governance – 02/02

Architectural Governance is necessary to ensure that solutions achieve business targets.

Governance should be: a collaborative and continuous effort.

The role of the governor is:
- An intelligent advisor embedded within a team
- Not an occasionally visiting policeman

The value to Agile Architecture is to provide:
- The set of principles and policies to guide the implementation
- The set of standards and compliance considerations
- Surety that the proper governance structures and approvals are in place but in a way that will not constrain the pace of Agile development

The architect has a **consultative** role in this.

Enabling Enterprise Agility : Page 22 : §4.4.4
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Level=2 : L.O.= 1.4b : Explain the role of Architecture Governance and the role of an Enterprise Architect.
See : TOGAF® Series Guide: Enabling Enterprise Agility : Page 22 : §4.4.4

Architectural governance is necessary:
- to ensure that solutions achieve business targets
- to address compliance and regulatory requirements
- to ensure integrity of the overall endeavour through levels of architecture solution implementation
- as a key component of risk management
- as a role in providing feedback up through architecture levels when unforeseen difficulties emerge during implementation

Governance should be a collaborative and continuous effort:
- between architecture teams at different levels
- between architects and delivery teams
- key to maintaining good communication and engagement between the different autonomous teams
- provide guidance
- give them the required freedom to deliver.

The role of the governor is:
- an intelligent advisor embedded within a team
- not an occasionally visiting policeman

The value to Agile Architecture is to provide:
- the set of principles and policies to guide the implementation
- the set of standards and compliance considerations
- surety that the proper governance structures and approval are in place but in a way that will not constrain the Agile development pace

The architect has a consultative role in this.

4.4.4. Governance in Architecture Iterations
Architectural governance is necessary to ensure that solutions keep on track to achieve business targets (refer to KPIs from the Strategy level) and compliance and regulatory requirements, and also to ensure the integrity of the overall endeavour through successive levels of architecture and solution implementation.
Governance is also a key component of risk management. It is often through governance activities that wider impacts of local changes are recognized and addressed. Governance also has a role in providing feedback up through architecture levels where unforeseen difficulties have
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Architecture Compliance - levels of conformance reviews – 01/02	Q-3.2,p8 A-1.2,p5

- Understand clearly the objectives of those soliciting the review; and stay on track and deliver what was asked for.
- If it becomes obvious during the discussions that there are other issues that need to be addressed, outside the scope of the requested review, bring it up with the meeting chair afterwards.
- Stay "scientific" …
- Ask "open" questions; i.e., questions that do not presume a particular answer.
- There are often "hidden agendas" or controversial issues among those soliciting a review.
- Treat those being interviewed with respect - they do the best they can under the circumstances in which they are placed.
- Help the exercise become a learning experience for you and the presenters.
- Reviews should include detailed assessment activities against the architectures.

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Level=2 : L.O.= 1.5a : Explain Architecture Compliance levels of conformance reviews and the role of the architect.
See : TOGAF® Standard – Enterprise Architecture Capability and Governance : Page 52 : §6.6.2

- Understand clearly the objectives of those soliciting the review; and stay on track and deliver what was asked for. For example, they want to know what is right or wrong with the system being architected; not what is right or wrong with the development methodology used, their own management structure, etc.
- If it becomes obvious during the discussion that there are other issues that need to be addressed, outside the scope of the requested review, bring it up with the meeting chair afterwards.
- Stay "scientific" … instead of "We like to see large databases hosted on ABC rather than XYZ.", say "The downtime associated with XYZ database environments is much greater than on ABC database environments. Therefore we don't recommend hosting type M and N systems in an XYZ environment."
- Ask "open" questions; i.e., questions that do not presume a particular answer.
- There are often "hidden agendas" or controversial issues among those soliciting a review, which you probably won't know up-front. A depersonalized approach to the discussions may help.
- Treat those being interviewed with respect. They may not have built the system "the way it should be", but they probably did the best they could under the circumstances in which they were placed.
- Help the exercise become a learning experience for you and the presenters.
- Reviews should include detailed assessment activities against the architectures and ensure that the results are stored in the Enterprise Continuum.

6.6.2 Conducting Architecture Compliance Reviews
■ Understand clearly the objectives of those soliciting the review; and stay on track and deliver what was asked for. For example, they typically want to know what is right or wrong with the system being architected; not what is right or wrong with the development methodology used, their own management structure, etc. It is easy to get off-track and discuss subjects that are interesting and perhaps worthwhile, but not what was solicited. If you can shed light and insight on technical approaches, but the discussion is not necessary for the review, volunteer to provide it after the review.
■ If it becomes obvious during the discussion that there are other issues that need to be addressed, which are outside the scope of the requested review, bring it up with the meeting chair afterwards. A plan for addressing the issues can then be developed in accordance with their degree of seriousness.
... CONTINUES ... SEE REFERENCE SPECIFIED

Modules Level 2:

Architecture Compliance - levels of conformance reviews – 02/02

1	Were the correct stakeholders identified?	Yes - proceed	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 - proceed	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 - proceed	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 reflect the views produced for stakeholders and any underpinning architecture models and analysis?	Yes - proceed	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 - proceed	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 - proceed	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 (risk) in successfully accomplishing the work?	Yes - proceed	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 - proceed	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

Notes:

Level=2 : L.O.= 1.5b : Explain Architecture Compliance levels of conformance reviews and the role of the architect.3
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 110 : §15.2.1

15.2.1 Target Checklist
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:

Modules Level 2:

Architecture Compliance levels

1	Did the organization embarking on a change reasonably interpret the Target Architecture's guidance and constraints?	No - proceed	Yes, their interpretation should be accepted as compliance and any issues addressed through a change to the architecture. This is a key point. Good architecture can have multiple implementation choices, and the implementer is not required to adhere to opinion. If the implementation choice is a reasonable interpretation, it should be judged compliant.
2	Do appropriate SMEs agree with the facts and interpretation of these facts in the impact assessment?	Yes - proceed	No, the Practitioner has to do their job and engage with the SMEs. Where the Practitioner identifies a conflict with, or between, SMEs, they should develop a report for the stakeholders identifying what limitations in confidence they might have in the impact assessment.
3	Do appropriate SMEs agree with the recommendation to enforce the target, grant time-bound relief, or change the architecture?	Yes - proceed	No, The Practitioner has to do their job and engage with the SMEs. Where the Practitioner identifies a conflict with, or between, SMEs, they should develop a report identifying what limitations in confidence the stakeholder might have in the compliance recommendation.
4	Do the views and other materials produced for the stakeholders reflect the impact assessment and reflect any underpinning architecture models and analysis?	Yes - proceed	No, the Practitioner needs to do their job.
5	Do the stakeholders understand any limitations in confidence they should have in the impact assessment?	Yes - proceed	No, the Practitioner has to do their job and provide the appropriate work products that highlight the impact of limitations in confidence and return to the stakeholders.
6	Do the stakeholders understand the impact on prior expected value, and any change in certainty in achieving the value, provided by reaching the target state?	Yes - proceed	No, the Practitioner has to do their job and provide the appropriate work products that highlight the impact on expected value, and on uncertainly in reaching the expected value and return to the stakeholders.
7	Have the stakeholders approved the recommendation to enforce the target, grant relief, or change the architecture?	Yes	No

Notes:

Þ Q-25
Level=2 : L.O.= 1.5c : Explain Architecture Compliance levels of conformance reviews and the role of the architect.3
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 112 : §15.2.2

15.2.2 Implementation and Other Change Checklist
When the architecture is being used, changes to the Enterprise are guided and constrained. Two factors impact governance of change. First, organizations operate in a dynamic environment, and the analysis of the Target Architecture cannot have assessed every circumstance or change option possible. Second, the target was produced for a purpose and may not have been developed to the level of detail required for the current use. The governance process requires flexibility. When non-compliance is identified, the Enterprise must either change the architecture, provide temporary relief from constraint, or enforce the architecture. If relief is not temporary, the Enterprise has chosen the worst available option: changing the target without bothering with analysis and approval.

Two governance roles are often performed by the Practitioner: the auditor and the architect. Compliance assessment is an auditor role. When non-compliance is identified, the architect needs to produce an impact assessment and recommendation on what to do. The recommendation will have three choices: First, enforce compliance; second, provide temporary relief; and third change the Target Architecture.
The choice in the recommendation will be driven by the impact assessment. Practitioners must assess impact on the same terms as the target was developed. Assessing on any other terms invalidates the assessment and recommendation. Implementation governance assesses compliance. Compliance assessment needs to be done soon enough that course correction is viable. As identified in the walk-through chapters, compliance assessment against value and operational change are as important as project-driven change.

This checklist is designed to assist the Practitioner understand what must be demonstrated during the governance process to address a non-compliance report:

Notes:

Alignment to Organizational Objectives – 01/06

There has been a great deal of conversation about aligning with Agile implementation methods but this has blurred the line between implementation and architecture.

The TOGAF standard aligns to Agile development in Phase G. Full stop.

A good Architecture will identify:

- What products the Enterprise needs
- The boundary of the products
- What constraints a product owner has

Phase G serves the stakeholders, guarding the:

- Mission
- Vision
- Goals
- Investment roadmap
- Enterprise value

Architecture to support Project and Solution delivery will have a set of constraints that limit the choices of the Agile team.

Level=2 : L.O.= 1.6a : Explain how an architecture enables alignment to organizational objectives using Agile development as an example.
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 98 : §12.1

There has been a great deal of conversation about aligning to Agile implementation methods but this has blurred the line between implementation and architecture.
The TOGAF standard aligns to Agile development in Phase G. **Full Stop**. *[This is what the manual says – it is 'a bit contentious'.]*

A good Architecture will identify:
- what products the Enterprise needs
- the boundary of the products
- what constraints a product owner has

Architecture to support Project and Solution Delivery will have a set of constraints that limit the choices of the Agile team:
- individual product must bend to Enterprise issues
- parochial preference of a product owner is not valid

Phase G, Implementation Governance:
The EA serves the stakeholders guarding the:
- mission
- vision
- goals
- investment roadmap
- enterprise value

12.1 Architecture in an Agile Enterprise
There has been a great deal of conversation about aligning to Agile implementation methods. Ink has been spilled trying to align the phases of the ADM to these development methods. All of this conversation has blurred the line between implementation and architecture. The TOGAF Standard aligns to Agile development in Phase G. Full stop.
A good Architecture to support Portfolio, or Project, will identify what products the Enterprise needs, the boundary of the products, and what constraints a product owner has. In short, a good architecture defines the Enterprise's backlog.

Modules Level 2:

Alignment to Organizational Objectives – 02/06

Top-down direction and planning provides part of the answer for a nimble organization - sometimes the correct decision is to embark on unplanned change.

Every project will have some form of benefits statement.

Phase G is where the Practitioner provides guidance to the Implementation Project - EA Practitioners should look at the context.
EAs must focus not on project benefits but on Enterprise benefits realization.

When the EA's organization is in a hurry they are focused on receiving value through differentiation and experimentation.

There will be constant micro-iterations exploring discrete statements of the value realized.

In Phase G, the EA is the stakeholders' agent: be aware of the danger in this dual role.

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Notes:

Level=2 : L.O.= 1.6b : Explain how an architecture enables alignment to organizational objectives using Agile development as an example.
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 96 : §11.4

Top-down direction and planning provides part of the answer for a nimble organization - sometimes the correct decision is to embark on unplanned change.
Where the Practitioner has arrived at the implementation of change and stakeholders have less confidence that the project will deliver – at this point EAs have to focus their energy on risk mitigation.

Every project will have some form of benefits statement.
Every organization has some form of strategy. The EA is not expected to correct the project regarding benefits statement and realization plan, instead to mitigate uncertainty regarding realizing the benefits.

Phase G is where the Practitioner provides guidance to the Implementation Project. While Implementers accommodate the constraints of the project: EAs Practitioners look at the context.
EAs must focus not on project benefits but on Enterprise benefits realization, ensuring the stakeholders understand the implications of their choices.
This is a very fine distinction and is worth reiterating, ensuring stakeholders and implementation teams understand what can be expected.

When the EA's organization is in a hurry they are focused on receiving value through differentiation and experimentation. A sustained efficiency gain is not achieved without clarifying dependency: focus on value realization.

There will be constant micro-iterations exploring discrete statements of value out, with the purpose of clarifying value and uncertainties - focus on the critical path to value realization.
In Phase G, the EA is the stakeholders' agent: be aware of the danger in this dual role - guard against:
- tunnel vision
- personal bias
- "tourist dashboard decisions"

1
1.4 Managing Innovation, Creativity, and Circumstance

... CONTINUES ... SEE REFERENCE

Alignment to Organizational Objectives – 03/06

Agile techniques consider that development and delivery work can progress-based on one integrated team across all levels (business, technical, solution, build, and delivery) working in single connected sprints or across the types of boundaries (as shown) that may have separate styles of sprints.

Each level of planning and delivery may cycle through all of the TOGAF phases from A to G.

Enabling Enterprise Agility : Page 22 : §4.5
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Notes:

Level=2 : L.O.= 1.6c : Explain how an architecture enables alignment to organizational objectives using Agile development as an example.
See : TOGAF® Series Guide: Enabling Enterprise Agility : Page 22 : §4.5

Agile techniques consider that development and delivery work can progress based on one integrated team across all levels (business, technical, solution, build, and delivery) working in single connected sprints or across the types of boundaries (as shown) that may have separate styles of sprints.
Each level of planning and delivery may cycle through all of the TOGAF phases from A to G.

4.5. ADM Levels and Phases Mapped to Agile Concepts
As previously described, the TOGAF ADM can be applied to deliver architecture iterations in parallel and partitioned across different levels of detail and change using Strategy, Segment, and Capability Architectures that can be also developed using techniques such as SAFe and Scrum.
Agile techniques consider that development and delivery work can progress based on one integrated team across all levels (business, technical, solution, build, and delivery) working in single connected sprints or across the types of boundaries shown in Figure 5[1] that may have connected but distinctly separate styles of sprints. The exact arrangement will depend on the complexity and scale of each enterprise and the implementation of the Agile approach.
In applying the TOGAF ADM, each level of planning and delivery may cycle through all of the TOGAF® Standard, 10th Edition, 2022 phases from A to G but each of the three levels will often focus on specific elements of the cycle.
In the **Strategic level**, the focus is more on the Preliminary Phase (if architecture capability changes are needed) and Phases A and B to provide the basis to define the cross-enterprise and strategic change time horizon view. This generates a series of strategic high-level plans known as courses of action.
Agile techniques typically address this with concepts such as high-level strategic themes, and the highest level of an enterprise product portfolio backlog. In this level, interdisciplinary teams (business and technical teams and those that create, implement, and operate) must be involved to develop an Enterprise Architecture that meets both the business goals and objectives of the enterprise and is also potentially deliverable.
In the **Segment level**, the focus is on partitioning the courses of action across the relevant organization units (based on an understanding of the desired business capabilities and value
... CONTINUES ... SEE REFERENCE SPECIFIED

Modules Level 2:

Notes:

Alignment to Organizational Objectives – 04/6
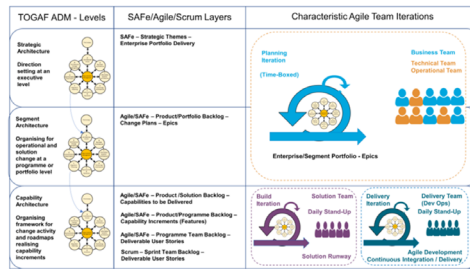
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See : TOGAF® Series Guide: Enabling Enterprise Agility : Page 22 : §4.5

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... CONTINUES ... SEE REFERENCE SPECIFIED

TOGAF® Standard, 10th Edition

Notes:

Alignment to Organizational Objectives – 05/06

Segment level - the focus is on partitioning the courses of action across the relevant organizational units. If information acquired from Phases A and B is insufficient, then explore Phases B, C and D in greater detail.

• Factor work to self-organizing teams (per organization unit structure) with a high-level iteration through Phases C and D - to provide more detailed information - going deeper into smaller organization areas (segments).
• Outputs of this iteration: Epics that reflect large/long-running user stories, and the segment-based initial portfolio and/or backlog.
• The output from this level can be used to test and experiment with new products, delivering descriptions for prototypes to test ideas into the relevant segment market.

Level=2 : L.O.= 1.6c : Explain how an architecture enables alignment to organizational objectives using Agile development as an example.
See : TOGAF® Series Guide: Enabling Enterprise Agility : Page 22 : §4.5

Segment level the focus is on partitioning the courses of action across the relevant organization units.
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Agile techniques typically address this with concepts such as high-level strategic themes, and the highest level of an enterprise product portfolio backlog. In this level, interdisciplinary teams (business
... CONTINUES ... SEE REFERENCE SPECIFIED

Modules Level 2:

Notes:

Alignment to Organizational Objectives – 06/06

Q-3.3,p9
A-1.3,p6

Capability level: is operationally completed in Phase G, Implementation Governance. Ensures the agreed contracts have been delivered:
- The expected capability
- All of the required information for operating and changing the output is properly created

It confirms benefits realization in Phase H – ensuring:
- Operational and business performance is evaluated to confirm that the value has in fact been delivered
- That the users of the output are satisfied with the business outcomes of that capability increment
- That the evolving Segment and/or Strategic-level change projects are operating within the appropriate areas

There may be pressure to move forward beyond the end of the runway defined by the Capability Architecture at a given point in time. This is a type of technical debt that needs careful management to ensure it does not get out of control.
This should be addressed in Phase H, Architecture Change Management.

Enabling Enterprise Agility : Page 22 : §4.5

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Level=2 : L.O.= 1.6c : Explain how an architecture enables alignment to organizational objectives using Agile development as an example.
See : TOGAF® Series Guide: Enabling Enterprise Agility : Page 22 : §4.5

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management to ensure it does not get out of control.
This should be addressed in Phase H, Architecture Change Management.

Notes:

Manage multiple architecture states – 01/02

Track transition states across two characteristics:

- Time
- Conformance testing

It is good practice to architect to value resting states – a state where the Enterprise can receive value if all change activity is suspended.

Budget cycle pressure often forces *time* as the pragmatic transition marker.

To the extent possible, minimize transition states.

When considering transition states keep in mind the distinction between:

- An Architecture Requirements Specification
- An implemented system

Bear in mind that many implementations or operational changes are not architecturally significant.

Level=2 : L.O.= 1.7a : Explain the need to manage multiple architecture states (e.g. candidate current transition target).
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 51 : §5.4

Track transition states across two characteristics:
- time
- conformance test

Good practice is to architect to value resting states – a state where the Enterprise can receive value if all change activity is suspended.
Budget cycle pressure often forces *time* as the pragmatic transition marker.
Tracking to change in conformance facilitates the Implementation Project and operational change governance.
To the extent possible, you should seek to minimize transition states.
When considering transition states, keep in mind the distinction between:
- an Architecture Requirements Specification
- an implemented system.

5.4 Managing Multiple States (Candidate, Current, Transition, and Target)
The Practitioner must track transition states across two characteristics: the first being time, and the second being a conformance test. Theoretically, it might be preferable to use transitions to track the value resting places and changes in conformance. Good practice is to architect to value resting states; a state where the Enterprise can receive value if all change activity is suspended. However, the pressure of the budget cycle forces us to use time is a pragmatic transition marker. Tracking to change in conformance facilitates the Implementation Project and operational change governance. To the extent possible, minimize transition states.
When considering transition states, the Practitioner needs to keep in mind the distinction between an Architecture Requirements Specification and an implemented system. Using the EA Repository as a CMDB confuses implementation record keeping and architecture. Practitioners have to keep in mind that many implementations or operational changes are not architecturally significant. See Chapter 15 for a discussion of the different roles involved in developing and using architecture.

Notes:

Manage multiple architecture states – 02/02

A linear timescale oversimplifies the reality.
Creating a well aligned set of work packages vectored by business cycle and planning horizon does NOT give potential transition states or a near linear roadmap.

Additional/other organizational factors that add to complexity are:

• Advancements and changes outside the Enterprise
• Shared services
• Collaboration with suppliers and partners, including portfolio ownership models
• Impenetrable dependencies
• Multiple geopolitical boundaries (fiscal calendars, regulations, cultures)
• Varying rates of maturity and growth of teams
• EA team model (federated, centralized, etc.)
• Availability of multiple solutions or announcement of end-of-life for current products

One Enterprise roadmap gets broken down into segment, portfolio, or geography.

The Enterprise will be pursuing more than one concurrent goal, e.g. efficiency and retooling.

For each business cycle, the roadmap is revisited to make adjustments, both bottom-up and top-down.

This is a clear use-case that drives the need for a good EA Repository that maintains the integrity of the current state and target state.

Þ Q-29
Level=2 : L.O.= 1.7b : Explain the need to manage multiple architecture states (e.g. candidate current transition target).
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 101 : §13

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Creating a well aligned set of work packages vectored by business cycle and planning horizon does NOT give potential transition states or a near linear roadmap.
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This is a clear use-case that drives the need for a good EA Repository that maintains the integrity of the current state and target state.

13 Transition Architecture: Managing Complex Roadmaps
Until now, this Guide made the effort and process simple by describing most of the concepts using a linear time scale. It gave an impression that creating a well aligned set of work packages vectored by business cycle and planning horizon gives you potential transition states and a near linear roadmap. Recall this simple statement made in Chapter 5 in the context of the EA Repository: "Baseline provides reference for all change. The target state is what stakeholders have approved. Transition states are partially realized targets between current state and target state. Mix the four characteristics of the EA Landscape: breadth, depth, time, and recency. Mix the different Architecture Projects that can work on the same subject at different times and at different levels of detail." That's the only hint to indicate real-world complexity.
... CONTINUES ... SEE REFERENCE SPECIFIED

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- 08 - The Context for Enterprise Architecture

09 - Stakeholder Management

10 - Phase A

11 - Architecture Development

12 - Implementing the Architecture

13 - Architecture Change Management

14 - Requirements Management
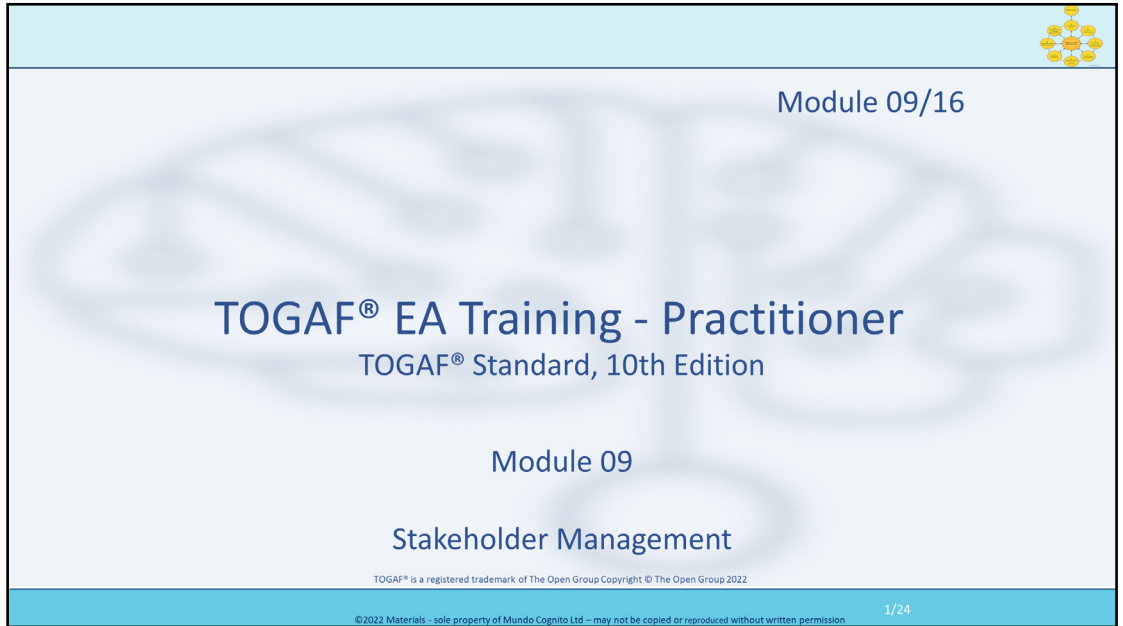
15 - Supporting the ADM Work

16 - Closure

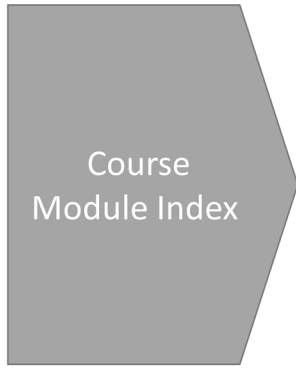## Notes:

Summary of Module 08

The 20 Learning points covered in Module 15 are:

1.2a/b : Explain what an Enterprise Architecture looks like.	1.3a/b : Explain what an Architecture Capability is.	1.4a/b : Explain the role of Architecture Governance and the role of an Enterprise Architect.
1.5a/c : Explain Architecture Compliance levels of conformance reviews and what the roles of the architect building blocks are and their use in the ADM.	1.6a/c : Explain how an architecture enables alignment to organizational objectives using Agile development as an example.	1.7a/b : Explain the need to manage multiple architecture states (e.g. candidate current transition target).

This represents 8.2% of the course coverage.

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Modules Level 2:

End of Teaching Slides

End of

Module 08

The Context for Enterprise Architecture

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Notes:

Module 09/16

TOGAF® EA Training - Practitioner
TOGAF® Standard, 10th Edition

Module 09

Stakeholder Management

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Notes:

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Course Module Index

#	Topic – Level 1	✓
1	Module 00 - Course Introduction	✓
2	Module 01 - Overview	✓
3	Module 02 - Concepts	✓
4	Module 03 - Introduction to the ADM	✓
5	Module 04 - Introduction to the ADM - Techniques	✓
6	Module 05 – Applying ADM	✓
7	Module 06 - Architecture Governance	✓
8	Module 07 – Architecture Content	✓
#	Topic – Level 2	✓
9	Module 00 - Course Introduction	✓
10	Module 08 - The Context for Enterprise Architecture	✓
11	Module 09 – Stakeholder Management	
12	Module 10 – Phase A	
13	Module 11 – Architecture Development	
14	Module 12 – Implementing the Architecture	
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Notes:

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Module Index

Module Index

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15	Summary of Module 9	23

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Notes:

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Notes:

Enterprise Security Architecture

Enterprise Architecture includes Security Architecture. Information Security has long been considered a separate discipline.

A Security Architecture is a structure of:
- Organizational
- Conceptual
- Logical
- Physical

components that interact coherently.

Enterprise Security Architecture builds on existing enterprise information.

The diagram shows [centre column] how Enterprise Architecture and Enterprise Security Architecture relate to each other, highlighting the core security and risk concepts that are used in Information Security Management (ISM) and Enterprise Risk Management (ERM).
Concepts with heavy outline = additions to the TOGAF framework, brought in by ISM or ERM.

Integrating Risk and Security within a Enterprise Architecture : Page 1 : §1
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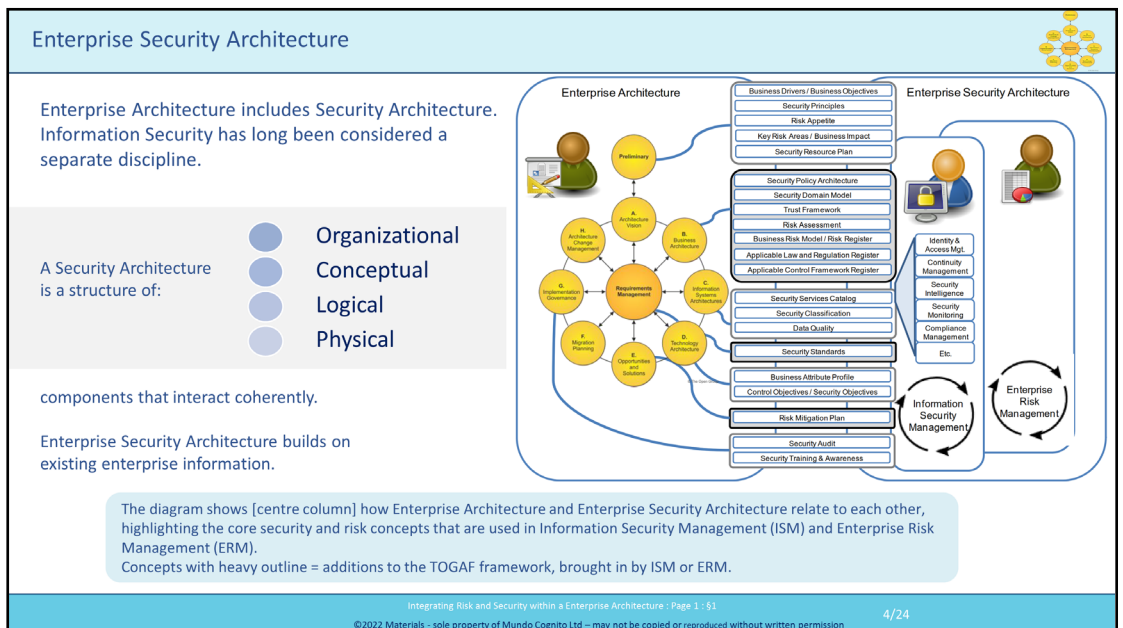
Level=2 : L.O.= 1.8a : Briefly explain Enterprise Security Architecture.
See : TOGAF® Series Guide: Integrating Risk and Security within a TOGAF® Enterprise Architecture : Page 1 : §1
Enterprise Architecture includes Security Architecture and is about aligning business systems and supporting information systems to realize business goals in an effective and efficient manner .
Information security has long been considered a separate discipline, isolated from the business processes and Enterprise Architecture.

A Security Architecture is a structure of:
- Organizational
- Conceptual
- Logical
- Physical

components that interact in a coherent fashion in order to achieve and maintain a state of managed risk and security (or information security).
An Enterprise Security Architecture builds on enterprise information that is already available in the Enterprise Architecture – also produces information that influences the Enterprise Architecture.
Close integration of Security Architecture in the Enterprise Architecture is beneficial.
Security Architects and Enterprise Architects need to speak the same language to integrate security and risk into an Enterprise Architecture.
The diagram shows [centre column] how Enterprise Architecture and Enterprise Security Architecture relate to each other, highlighting the core security and risk concepts that are used in Information Security Management (ISM) and Enterprise Risk Management (ERM).
Concepts with heavy outline are additions to the TOGAF framework and brought in by ISM or ERM.

1 Introduction
Enterprise Architecture (including Security Architecture) is all about aligning business systems and supporting information systems to realize business goals in an effective and efficient manner (systems being the combination of processes, people, and technology). One of the important quality aspects of an Enterprise Architecture is information security and the way this can be managed. For too long, information security has been considered a separate discipline, isolated vvvvvfrom the business processes and Enterprise Architecture.

A Security Architecture is a structure of organizational, conceptual, logical, and physical
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Security is a cross-cutting concern

Security Architecture can be described as:
"a coherent collection of views, viewpoints, and artifacts, including security, privacy, and operational risk perspectives, along with related topics like security objectives and security services".

The Security Architecture interacts with all four architecture domains:

● Business
● Data
● Application
● Technology

and is referred to as 'cross-cutting'.

Security

Business

Data

Application

Technology

© TOGAF® Series Guide: Integrating Risk and Security

Þ M-32
Level=2 : L.O.= 1.9a : Explain how security is a cross-cutting concern.
See : TOGAF® Series Guide: Integrating Risk and Security within a TOGAF® Enterprise Architecture : Page 16 : §4
Security Architecture is pervasive through the whole Enterprise Architecture.
It can be described as: "a coherent collection of views, viewpoints, and artifacts, including security, privacy, and operational risk perspectives, along with related topics like security objectives and security services".

The Security Architecture interacts with all four architecture domains:
• Business
• Data
• Application
• Technology
and is therefore referred to as 'cross-cutting'.

Aspects of the Security Architecture may be organized outside of the architecture scope . . .
But parts of it need to be developed in an integrated fashion with the architecture . . .

4 Security as a Cross-Cutting Concern
Security Architecture is a cross-cutting concern, pervasive through the whole Enterprise Architecture. It can be described as a coherent collection of views, viewpoints, and artifacts, including security, privacy, and operational risk perspectives, along with related topics like security objectives and security services. The Security Architecture is more than a dataset; it is based on the ISM and ERM processes.

The TOGAF ADM covers the development of the four architecture domains commonly accepted as subsets of an Enterprise Architecture: Business, Data, Application, and Technology. The Security Architecture interacts with all four of them and is therefore called cross-cutting.
Figure 5: Security as a Cross-Cutting Concern through the Architecture

As a cross-cutting concern, the Security Architecture impacts and informs the Business, Data, Application, and Technology Architectures. The Security Architecture may often be organized outside of the architecture scope, yet parts of it need to be developed in an integrated fashion with the architecture. These touch-points will be explained in the next chapter.

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Notes:
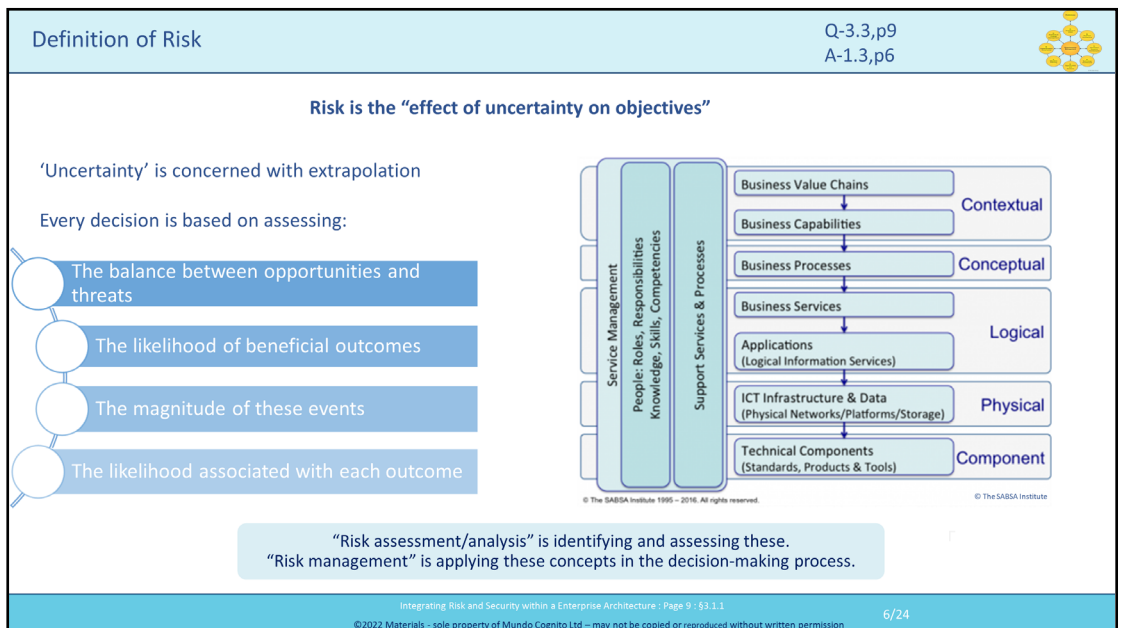
Þ M-34
Level=2 : L.O.= 1.10a : Explain why it is important to create an environment in which uncertainty of the success of change can be managed to optimize maximum business benefit and minimum business loss.
See : TOGAF® Series Guide: Integrating Risk and Security within a TOGAF® Enterprise Architecture : Page 9 : §3.1.1

Risk is the "effect of uncertainty on objectives" (ISO 31000:2009) (Merriam-Webster)
Uncertain =   *   not known beyond doubt
- not having certain knowledge
- not clearly identified or defined
- not constant
- not certain to occur
- indefinite

'Uncertainty' is concerned with extrapolation with limited information.

Every decision is based on assessing:
- the balance between potential opportunities and threats
- the likelihood of beneficial outcomes versus damaging outcomes
- the magnitude of these potential positive or negative events
- the likelihood associated with each identified outcome

"Risk assessment/analysis" is identifying and assessing these.

"Risk management" is applying these concepts in the decision-making process.
Risk can be:
- strategic long-term level (overall direction of the business)
- medium term tactical level (transformation projects and programs)
- operational level (regular day-to-day operational decisions, processes, and practices)

Risk can be seen at any level in the business stack.

The objective of risk management is to optimize business outcomes in order to maximize business
value and minimize business losses.

3.1.1 Definition of Risk
Risk is the "effect of uncertainty on objectives" (ISO 31000:2009 [6]).
The effect of uncertainty is any deviation from what is expected – positive and negative.
... CONTINUES ... SEE REFERENCE SPECIFIED Þ Q-25

Notes:

How the TOGAF Standard Supports the Digital Enterprise   Q-3.4,p10
                                                              A-1.4,p7

The DPBoK Standard notes four contexts of organizational evolution which relate to Enterprise Architecture and the TOGAF Standard:

    👤 Context I: Individual/Founder

    👥 Context II: Team

    🏛 Context III: Team of Teams

    ✳ Context IV: Enduring Enterprise

Indicating balancing 4 contexts

The requirement for well-designed foundations becomes critical to enterprise existence and health.

The strategy for achieving this is to present a set of Enterprise Architecture services that package the right set of activities.

What is needed is a minimal set of Enterprise Architecture services

Þ Q-25
Level=2 : L.O.= 1.11a : Briefly explain the role of the Enterprise Architect and Enterprise Architecture in a Digital Enterprise for the four contexts of the DPBoKTM Standard.
See : TOGAF® Series Guide: Using the TOGAF Standard in the Digital Enterprise : Page 27 : §4.2.1

The DPBoK Standard notes four contexts of organizational evolution which relate to Enterprise Architecture and the TOGAF Standard:
- Context I: Individual/Founder
- Context II: Team
- Context III: Team of Teams
- Context IV: Enduring Enterprise

As the philosophy of the 'Digital Enterprise' inexorably crystalises so the requirement for well designed and rock-solid foundations become critical to enterprise existence and health.

The strategy for achieving this state is to present a set of Enterprise Architecture services that package the right set of activities within the TOGAF Standard to deliver value to the digital enterprise, as needed per context of the emergence model.
What is needed is a minimal set of Enterprise Architecture services that deliver Enterprise Architecture capabilities for decision-making in each context to ensure risk is understood, and to "peek-ahead" in preparation for going to the next context.

4.2. The DPBoK Standard
The DPBoK Standard identifies four contexts of organizational evolution toward a digital enterprise:
• Context I: Individual/Founder
• Context II: Team
• Context III: Team of Teams
• Context IV: Enduring Enterprise

The DPBoK Standard presents these contexts as levels, where the enterprise moves from an earlier context to the next level of success. This is described as an emergence model where only the knowledge and activity essential to the level is presented, with enough foreshadowing, to prepare for the transition to the next level of emergence. It is our strategy to support this emergence model with Enterprise Architecture through our peek-ahead strategy. So, not only does the Enterprise Architect support the specific context, but also considers the next level and informs the Digital Practitioners of ways to position themselves to evolve. At the higher levels of the emergence model, ... CONTINUES ... SEE REFERENCE SPECIFIED

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Notes:

Role of the Enterprise Architect - Context I: Individual/Founder – 01/02

Q-3.4,p10
A-1.4,p7

The Individual/Founder context addresses:
"*Minimum essential concerns they must address to develop and sustain a basic digital product*"
- the bare minimum requirements of delivering digital value.

The key topics, in the DPBoK Standard, for this context:

CONCEPTION OF DIGITAL VALUE

DIGITAL INFRASTRUCTURE AND RELATED PRACTICES

AGILE DEVELOPMENT AND CONTINUOUS DELIVERY PRACTICES

To support this context, the person acting as the EA has a role to assure that risk is understood and that decisions are made with an understanding of risk.

Level=2 : L.O.= 1.11a : Briefly explain the role of the Enterprise Architect and Enterprise Architecture in a Digital Enterprise for the four contexts of the DPBoK™ Standard.
See : TOGAF® Series Guide: Using the TOGAF Standard in the Digital Enterprise : Page 27 : §4.2.1

The Individual/Founder context addresses "*minimum essential concerns they must address to develop and sustain a basic digital product*"
- the bare minimum requirements of delivering digital value.

Key topics, in the DPBoK Standard, for this context:
• Conception of digital value – architecture models communicate very well and are often used as a communication medium.
• Digital infrastructure and related practices (the essential infrastructure and process choices to quickly deliver value to the market). EA provides the necessary descriptions to communicate the infrastructure available and its appropriate use for both development and delivery - there are usually not dedicated architects - it is a role only performed when needed.
• Agile development and continuous delivery practices - Enterprise Architecture is often used to provide answers to questions about Agile development and continuous delivery.
To support this context the person acting as the EA has a role to assure that risk is understood and that decisions are made with an understanding of risk.

4.2.1. Context I: Individual/Founder
The Individual/Founder context addresses "minimum essential concerns they must address to develop
and sustain a basic digital product". This context represents the bare minimum requirements of
delivering digital value.

The DPBoK Standard key topics for this context are:
• Conception of digital value. Architecture is often used as a communication medium.
Architecture models communicate very well. Also, the Enterprise Architect is a
communicator and considered a key enterprise networker.
• Digital infrastructure and related practices (the essential infrastructure and process
choices to quickly deliver value to the market). The Enterprise Architecture provides
the necessary descriptions to communicate the infrastructure available and its
appropriate use for both development and delivery. The Enterprise Architect
... CONTINUES ... SEE REFERENCE SPECIFIED

TOGAF® Standard, 10th Edition

Notes:

Role of the Enterprise Architect - Context I: Individual/Founder – 02/02
Q-3.4-p10
A-1.4,p7

EAs deliver support in an on-demand, service-oriented manner to meet the operating tempo of the individual/founder:

Identifying digital offerings or digital value using an outside-in view

Distinguishing strategy from business model

Helping to distinguish between the problem space and the solution space

Helping to shift from requirements to outcome-oriented and outcome-centered thinking

Increasing or enhancing operational excellence by supporting and providing guidance for operational improvements

Examples of this type of output:

| business model canvas | business scenarios | value stream and business capabilities mapping | product and service modelling | use cases and business cases specifically around requirements management |

Level=2 : L.O.= 1.11a : Briefly explain the role of the Enterprise Architect and Enterprise Architecture in a Digital enterprise for the four contexts of the DPBoKTM Standard.
See : TOGAF® Series Guide: Using the TOGAF Standard in the Digital Enterprise : Page 27 : §4.2.1

EAs deliver support in an on-demand, service-oriented manner to meet the operating tempo of the individual/founder – for example:
- Identifying digital offerings or digital value using an outside-in view that focuses on the customer or end user first
- Distinguishing strategy from business model, and communicating the strategy to support a corporate brand identity
- Helping to distinguish between the problem space and the solution space
- Helping to shift from requirements to outcome-oriented and outcome-centered thinking in product delivery and value delivery to customers through value streams and capabilities identification
- Increasing or enhancing operational excellence by supporting and providing guidance for operational improvements

Examples of this type of output:
- business model canvas
- business scenarios
- value stream and business capabilities mapping
- product and service modelling
- use cases and business cases specifically around requirements management:
  - Digital security, security architecture, risk management, and Enterprise Architecture governance to provide protection from harmful events
  - Creating a digital stack by identifying supporting capabilities for the digital offering
  - Defining the digital lifecycle through the service, application portfolio, and security infrastructure lifecycle viewpoints

4.2.1. Context I: Individual/Founder
The Individual/Founder context addresses "minimum essential concerns they must address to develop and sustain a basic digital product". This context represents the bare minimum requirements of delivering digital value.

The DPBoK Standard key topics for this context are:
• Conception of digital value. Architecture is often used as a communication medium. Architecture models communicate very
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Role of the Enterprise Architect - Context II: Team

Q-3.4,p10
A-1.4,p7

The team has a single mission and a cohesive identity

Establishing team collaboration is essential to success

The insights of Agile and themes such as Lean are primary in this context

The DPBoK Standard highlights:
• Product Management
• Work Execution Management
• Operations Management

In the Team context an Enterprise Architect has a role to assure that risk is understood

Modeling and documenting become more important

A common and shared approach to requirements understanding

Enterprise Architects should deliver this support in an on-demand, service-oriented manner

The team

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Level=2 : L.O.= 1.11b : Briefly explain the role of the Enterprise Architect and Enterprise Architecture in a Digital Enterprise for the four contexts of the DPBoKTM Standard.
See : TOGAF® Series Guide: Using the TOGAF Standard in the Digital Enterprise : Page 28 : §4.2.2

The team has a single mission and a cohesive identity; it is all in the same location, can still communicate informally, but there is enough going on that it needs a more organized approach to getting work done.
Establishing team collaboration as a fundamental guiding value is essential to successful digital product development.
The insights of Agile and themes such as Lean are primary in this context.

The DPBoK Standard highlights:
• Product Management
Product architecture can provide architecture models that map to a given digital product profile.
Enterprise Architecture makes interdependencies explicit, assuring an holistic view of the digital product.
• Work Execution Management
Enterprise Architecture is used to depict processes and workflows. In the Team context very simple models can be constructed to help communicate simple to complex workflows and processes - a good way to communicate within a small team.
• Operations Management
In the Teams context a single digital product may need an architecture model to depict how operations are expected to run while team is working on the continuous delivery of improvements to that product.

In the Team context Enterprise Architect has a role to assure that risk is understood; given the greater number of people, it also has an additional role to ensure efficacy of communication. Modeling and documenting become more important in order to have a common shared understanding to support product management, work execution, and operations understanding.
Also critical in a team environment is ensuring a common and shared approach to requirements understanding to avoid different team members moving on different priorities, the approach should be lightweight communication in full support of the team's tempo.
Enterprise Architects should deliver this support in an on-demand, service-oriented manner to meet the operating tempo of the team.
... CONTINUES ... SEE REFERENCE SPECIFIED
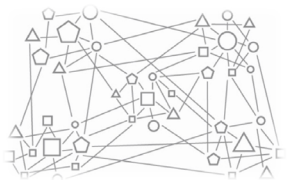
Role of the Enterprise Architect - Context III: Team of Teams – 01/02

Q-3.4-p10
A-1.4,p7

Coordinating a Team of Teams is a main concern that EAs need to address. It is important to balance over-complex coordination with the need to ensure the success.

The traditional strength of EA increases significantly in value by identifying and enabling essential interactions between teams.

The DPBoK Standard key topics for this context are:

Coordinating a Team of Teams

| Organization and cultural factors | Coordination and process mechanisms | Investment and portfolio consequences of a multi-team structure |

Notes:

Level=2 : L.O.= 1.11c : Briefly explain the role of the Enterprise Architect and Enterprise Architecture in a Digital Enterprise for the four contexts of the DPBoKTM Standard. See : TOGAF® Series Guide: Using the TOGAF Standard in the Digital Enterprise : Page 30 : §4.2.3

Coordinating a team of teams is a main concern that EAs need to address. It is important to balance over-complex coordination with the need to ensure the success of the digital products, and communication is key to ensure successful collaboration and value delivery.
The traditional strength of EA increases significantly in value by identifying and enabling essential interactions between teams while minimizing the cognitive load of those interactions for the team members.

The DPBoK Standard key topics for this context are:
• Organization and cultural factors
  These are significant drivers in shaping process design, especially in international enterprises and it might be necessary to respect cultural differences through different means such as altering basic processes, different approaches to stakeholder interaction and management, or altering designs. Enterprise Architecture helps to resolve all of these concerns.
• Coordination and process mechanisms
  Enterprise Architecture is used to depict processes and control mechanisms, to identify and eliminate choke points and for continuous process improvement.
• Investment and portfolio consequences of a multi-team structure
  Enterprise Architectures that depict portfolios critical resources in portfolio management and support portfolio management decision-making.

4.2.3. Context III: Team of Teams
Coordinating across a team of teams is the main concern that people in an Enterprise Architect role need to address using Enterprise Architecture and the TOGAF Standard. Too often, coordination mechanisms (such as overly process-centric operating models) degrade team cohesion and performance. It is important to balance overcomplex coordination with the need to ensure the success of a family of digital products.

The Team of Teams context is a natural evolution of the Teams context, but one where the number of people and digital products involved generates complexity. Coordinating across a team of teams is the main concern and, too often, coordination mechanisms degrade team cohesion and performance.
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Role of the Enterprise Architect - Context III: Team of Teams – 02/02   Q-3.4,p10 A-1.4,p7

Enterprise Architecture expertise can also be used to remove friction from company operations:

Team of Teams

IDENTIFYING KEY DRIVERS FOR THE TRANSITION FROM A UNITARY TEAM TO A TEAM OF TEAMS

IDENTIFYING THE BASICS OF COORDINATION PROBLEMS

IDENTIFYING THE BASIC PRODUCT/FUNCTION SPECTRUM OF ORGANIZATIONAL FORMS

IDENTIFYING IMPORTANT CULTURAL FACTORS AND CONCEPTS

Using the TOGAF Standard in the Digital Enterprise : Page 30 : §4.2.3
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Level=2 : L.O.= 1.11c : Briefly explain the role of the Enterprise Architect and Enterprise Architecture in a Digital Enterprise for the four contexts of the DPBoK™ Standard.
See : TOGAF® Series Guide: Using the TOGAF Standard in the Digital Enterprise : Page 30 : §4.2.3

Enterprise Architecture expertise can also be used to remove friction from company operations and growth such as:
• Identifying key drivers for the transition from a unitary team to a team of teams
• Identifying the basics of coordination problems and providing a solution that solves it
• Identifying the basic product/function spectrum of organizational forms
• Identifying important cultural factors and concepts for measuring and changing culture

The EA has the additional role of ensuring that the digital products work together, supporting the move from a specific digital product to portfolios of integrated digital products - and:
• Can be applied to support cross-activities and interdependencies between teams following a portfolio view
• Supports cross-activities and interdependencies between teams following a portfolio view in alignment with, and supported by, the IT4IT™ Standard
• Delivers the high-level view and landscape, and identifying the current and target organization maturity level for the digital enterprise
• Supports digital product and service catalog definition
• Provides capability-based planning and process management guidance

4.2.3. Context III: Team of Teams
Coordinating across a team of teams is the main concern that people in an Enterprise Architect role need to address using Enterprise Architecture and the TOGAF Standard. Too often, coordination mechanisms (such as overly process-centric operating models) degrade team cohesion and performance. It is important to balance overcomplex coordination with the need to ensure the success of a family of digital products.

The Team of Teams context is a natural evolution of the Teams context, but one where the number of people and digital products involved generates complexity. Coordinating across a team of teams is the main concern and, too often, coordination mechanisms degrade team cohesion and performance.
Communication is again key to ensure successful collaboration and value delivery.

... CONTINUES ... SEE REFERENCE SPECIFIED

TOGAF® Standard, 10th Edition

Notes:

Role of the Enterprise Architect - Context IV: Enduring Enterprise – 01/02   Q-3.4,p10 A-1.4,p7

Enabling an enduring enterprise includes:

An enduring enterprise

ESTABLISHING ADDITIONAL FEEDBACK MECHANISMS

FOUNDING AND MATURING INFORMATION MANAGEMENT ACROSS THE COMPANY

FOSTERING AN ARCHITECTURE-DRIVEN AND PORTFOLIO MANAGEMENT CULTURE

Level=2 : L.O.= 1.11d : Briefly explain the role of the Enterprise Architect and Enterprise Architecture in a Digital Enterprise for the four contexts of the DPBoKTM Standard. See : TOGAF® Series Guide: Using the TOGAF Standard in the Digital Enterprise : Page 31 : §4.2.4

Enabling an enduring enterprise that the DPBoK Standard may or may not address but is relevant and can be leveraged from TOGAF Standard guidance and experience includes:
- Establishing additional feedback mechanisms for steering, managing risk, and assuring performance
- Founding and maturing information management across the company
- Fostering an architecture-driven and portfolio management culture

Specific areas of supporting strategy/portfolio/projects/solution delivery that the DPBoK Standard guidance and experience includes are:
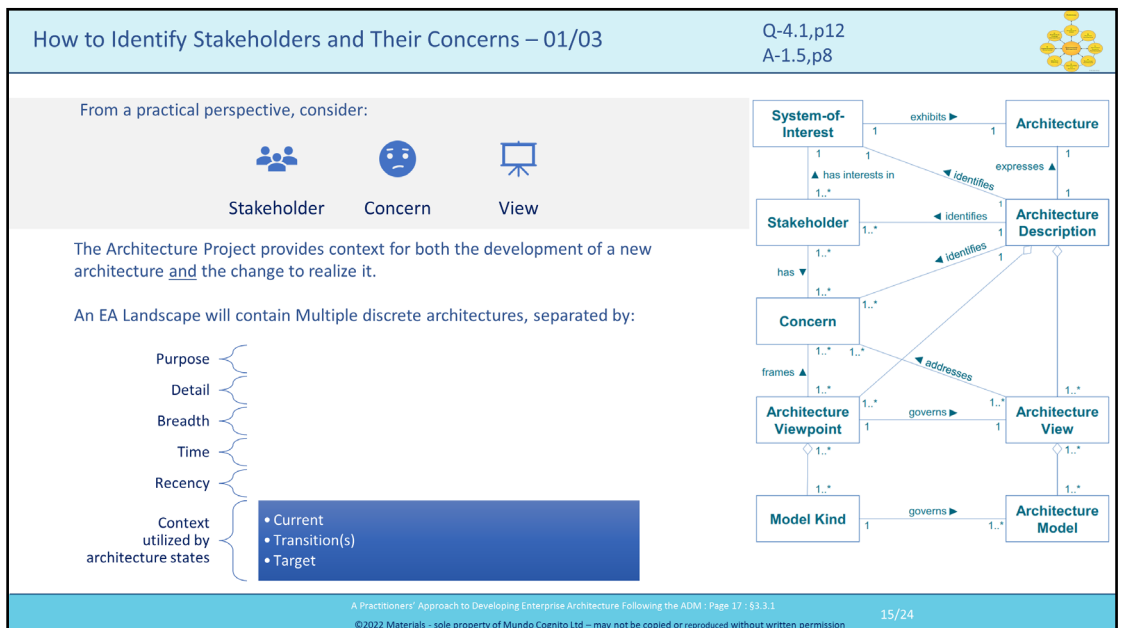- Defining architecture as a competency area
- Defining concepts, quality levels, and implementation guidance for architecture, digital strategy, and portfolio creation and management
- Defining and establishing Agile
- Implementing the TOGAF Governance Framework to support digital governance
- Providing architectural guidance to evolve data from information to knowledge
- Providing support in the creation and connectedness between portfolios
- Adapting an existing or new capability to support an Agile approach
- Adapting TOGAF to fit its delivery style into Agile approaches
- Providing the required capabilities to deliver the digital offering
- Supporting product and service digitalization

4.2.4. Context IV: Enduring Enterprise
The Enduring Enterprise context is about how to manage an enterprise that has been successful and is now faced with the realities of operating a sustainable business over periods of time longer than the next product cycle; see the DPBoK Standard (see Referenced Documents), Section 6.4: "However, what may be less obvious is that scaling up in size also means scaling out in terms of timeframes: concern for the past and the future extend further and further in each direction. Organizational history is an increasing factor, and the need to manage this knowledge base can't be ignored. The organization is fulfilling responsibilities set in place by those no longer present and is building product and
... CONTINUES ... SEE REFERENCE SPECIFIED

Modules Level 2:

Notes:

	Role of the Enterprise Architect - Context IV: Enduring Enterprise – 02/02	Q-3.4,p10 A-1.4,p7

Specific areas of supporting strategy/portfolio/projects/solution delivery that the DPBoK Standard guidance and experience includes:

Define	Define architecture as a competency area
Define	Define concepts, quality levels, and implementation guidance
Define and establish	Define and establish Agile
Implement	Implement the TOGAF governance framework
Provide	Provide architectural guidance to evolve data
Provide	Provide support in the creation and connectedness between portfolios
Adapt	Adapt an existing or new capability to support Agile
Adapt	Adapt to support business strategies that are digital

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Þ Q-26
Level=2 : L.O.= 1.11d : Briefly explain the role of the Enterprise Architect and Enterprise Architecture in a Digital Enterprise for the four contexts of the DPBoKTM Standard.
See : TOGAF® Standard, 10th Edition, 2022® Series Guide: Using the TOGAF Standard in the Digital Enterprise : Page 31 : §4.2.4

Specific areas of supporting strategy/portfolio/projects/solution delivery that the DPBoK Standard may or may not address but are relevant and can be leveraged from Enterprise Architecture and the TOGAF® Standard guidance and experience include:
- Defining architecture as a competency area
- Defining concepts, quality levels, and implementation guidance for architecture, digital strategy, and portfolio creation and management
- Defining and establishing Agile Enterprise Architecture
- Implementing Enterprise Architecture and the TOGAF Standard Governance Framework to support digital governance
- Providing architectural guidance that evolves data from information into knowledge that provides value to the company and adapting the trio to fulfill digital enterprise needs
- Providing portfolio support in the creation and connectedness between portfolios
- Adapting an existing or new Enterprise Architecture capability to support an Agile and digital organization
- Adapting Enterprise Architecture and the TOGAF Standard to fit its delivery style into Agile approaches and digital product creation and offerings
- Adapting Enterprise Architecture to support business strategies that are digital, and providing the required capabilities to deliver the digital offering, as well as supporting product and service digitalization

4.2.4. Context IV: Enduring Enterprise
The Enduring Enterprise context is about how to manage an enterprise that has been successful and is now faced with the realities of operating a sustainable business over periods of time longer than the next product cycle; see the DPBoK Standard (see Referenced Documents), Section 6.4: "However, what may be less obvious is that scaling up in size also means scaling out in terms of timeframes: concern for
... CONTINUES ... SEE REFERENCE SPECIFIED

Modules Level 2:

Notes:

How to Identify Stakeholders and Their Concerns – 01/03   Q-4.1,p12 A-1.5,p8

From a practical perspective, consider:

Stakeholder   Concern   View

The Architecture Project provides context for both the development of a new architecture and the change to realize it.

An EA Landscape will contain Multiple discrete architectures, separated by:

Purpose
Detail
Breadth
Time
Recency
Context utilized by architecture states:
• Current
• Transition(s)
• Target

A Practitioners' Approach to Developing Enterprise Architecture Following the ADM : Page 17 : §3.3.1
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Level=2 : L.O.= 2.1a : Explain how to identify stakeholders their concerns views and the communication involved.
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 17 : §3.3.1

From a practical perspective, consider:
- Stakeholder -someone who has approval rights in the Target Architecture being explored by the current Architecture Project, and subsequently has decision rights to the suitability of the implementation
- Concern - a consistent set of subjects that capture the stakeholder's interests and act to consolidate requirements
- View - a representation of the EA Landscape that addresses a set of stakeholder's concerns; either:
    - describe how the architecture addresses the concerns or
    - demonstrate how the associated requirements are met

The Architecture Project provides context for both the development of new architecture and the change to realize it.
Although stakeholders, views, and concerns are often explained in terms of a single architecture, an EA Landscape will actually contain multiple discrete architectures, separated by:
- Purpose
- Detail
- Breadth
- Time
- Recency
- Contextualized by architecture states:
    - Current
    - Transition(s)
    - Target

The EA preserves the stakeholder's concern in the view...the view communicates with the stakeholder and how the architecture will address their concern giving something useful to govern against.
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

How to Identify Stakeholders and Their Concerns – 02/03			Q-4.1,p12 A-1.5,p8		

Stakeholders' power, interest, and requirements will cluster in six to nine topic areas:

AGILITY	EFFICIENCY	IT COMPLEXITY	CUSTOMER JOURNEY	EFFECTIVENESS	VALUE

	Concern 1			Concern 2		
	Power	Interest	Requirement	Power	Interest	Requirement
Stakeholder 1	High	Low		Low	High	
Stakeholder 2	High	High		Low	Low	
Stakeholder 3	Low	High		High	Low	

A view addresses a stakeholder's concern, thus each viewpoint should identify:

THE CONCERN	THE STAKEHOLDER(S)	HOW THE VIEW SHOULD BE CONSTRUCTED	THE INFORMATION REQUIRED TO ADDRESS THE QUESTION

Level=2 : L.O.= 2.1a : Explain how to identify stakeholders, their concerns and views, and the communication involved.
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 17 : §3.3.1

Stakeholder's power, interest, and requirements
Most requirements will cluster in six to nine topic areas:
- Agility
- Efficiency
- IT complexity
- Customer journey
- Effectiveness
- Value

Enterprise priorities and EAs confirm consistency of requirement within a stakeholder's concern.
Missing requirements within a concern can be either:
- a gap in information gathering or
- a demonstration that the stakeholder is saying "this does not matter".

When stakeholders understand the architecture, the change, and the trade-offs, implementation governance is possible.
A view addresses a stakeholder's concern, thus each viewpoint should identify:
- the concern
- the stakeholder(s)
- how the view should be constructed
- the information required to address the question

3.3.1 Communicating with Stakeholders (Concern and View) cont...
Table 2 provides an extended TOGAF Stakeholder Map including concern and requirement.
Missing requirements within a concern can either be a gap in information gathering or a demonstration the stakeholder is saying "this does not matter". Knowing requirement or lack of preference in relationship to power and interest directly facilitates trade-off. The trade-off is performed within a concern and between the concerns.
Views address a stakeholder's concern about a specific architecture. In a perfect world Practitioners are able to use a single model directly. This is a mythical happy place. It will never be possible for a key issue such as agility or cost.
... CONTINUES ... SEE REFERENCE SPECIFIED Þ Q-29 M-40

Notes:

How to Identify Stakeholders and Their Concerns – 03/03

Q-4.1,p12
A-1.5,p8

Common Stakeholder Classes

Senior Leaders - responsibility for management and oversight

Program/Portfolio Managers - responsibility for management and oversight of strategic initiatives

Business Requirements Owners - responsible for identifying and expressing business requirements

Implementers - responsible for developing, integrating, and deploying the solution

Risk Owners - interested in risk

Business Partners - who are engaged to provide services sustaining a customer value proposition

Customers - who consume products and services

17/24

Þ Q-29 M-40
Level=2 : L.O.= 2.1b : Explain how to identify stakeholders, their concerns and views, and the communication involved.
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 118 : §B

Common Stakeholder Classes
• Senior Leaders are those with responsibility for management and oversight – this responsibility includes approving and realigning strategic initiatives, tracking a portfolio of projects, ensuring transformative benefits are realized, and meeting operational business goals.
• Program/Portfolio Managers are those with responsibility for management and oversight of strategic initiatives – this responsibility includes approving and realigning projects, tracking project progress, and ensuring project benefits are realized
• Business Requirements Owners are those responsible for identifying and expressing business requirements – typically, these stakeholders are responsible for some aspect of business operation.
• Implementers are those responsible for developing, integrating, and deploying the solution
• Risk Owners are those interested in risk
• Business Partners are those who are engaged to provide services sustaining a customer value proposition
Note: The architecture may not be provided to business partners, but must be evaluated from their perspective.
• Customers are those who consume products and services
Note: The architecture may not be provided to members, but must be evaluated from their perspective.

B
Stakeholder/Concern Matrix
We recommend that a set of standardized classes of stakeholders, concerns, and associated viewpoints are maintained for each architecture purpose. This follows the advice of aligning the EA Capability with the questions that are expected to be answered.
This appendix provides a partial list of common stakeholders, concerns, and their alignment. These examples are
... CONTINUES ... SEE REFERENCE SPECIFIED
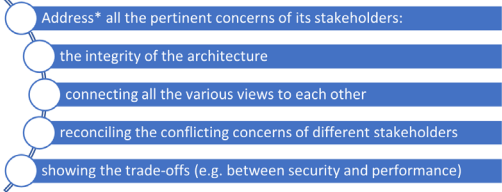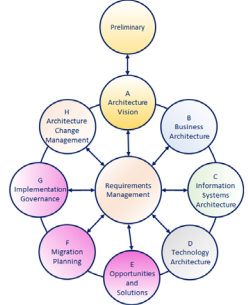
Notes:

Use of Architecture Views

The choice of which particular Architecture Views to develop is a key decision to ensure the completeness of the Architecture.

Address* all the pertinent concerns of its stakeholders.

Address* all the pertinent concerns of its stakeholders:

the integrity of the architecture

connecting all the various views to each other

reconciling the conflicting concerns of different stakeholders

showing the trade-offs (e.g. between security and performance)

An Architecture should be developed only to the point at which it is fit-for purpose

Refer to stakeholders' concerns and requirements for two distinct environments:

This establishes the elements of the Baseline Architecture

• The existing Baseline Architecture
• The Target Architecture

• To be carried forward, and
• The elements to be added, removed, or replaced

* 'Address' does not necessarily mean 'fix in this cycle'

Þ M-47
Level=2 : L.O.= 2.2a : Explain the use of architecture views.
See : TOGAF® Standard – Architecture Content : Page 34 : §3.2

The choice of which particular architecture views to develop is one of the key decisions that the architect has to make – to ensure the completeness (fitness-for-purpose) of the Architecture.

Address* all the pertinent concerns of its stakeholders;
• the integrity of the architecture
• connecting all the various views to each other
• satisfactorily reconciling the conflicting concerns of different stakeholders
• showing the trade-offs (e.g. between security and performance)

Architecture should be developed only to the point at which it is fit-for purpose.
The typical progression is from business to technology (using a technique such as business scenarios)
and from high-level overview to lower-level detail - refer to stakeholders' concerns and requirements throughout the process…
For two distinct environments:
• the existing Baseline Architecture
• the Target Architecture
This provides the context for the Gap Analysis at the end of Phases B, C, and D which establishes the elements of the Baseline Architecture:
• to be carried forward and
• the elements to be added, removed, or replaced

NB. * Address' does not necessarily mean 'fix in this cycle'

3.2 Developing Architecture Views in the ADM
3.2.1 General Guidelines
The choice of which particular architecture views to develop is one of the key decisions that the architect has to make.
The architect has a responsibility for ensuring the completeness (fitness-for-purpose) of the architecture, in terms of adequately addressing all the pertinent concerns of its stakeholders;

Notes:

Stakeholder Engagement and Requirements Management   Q-9.1,p28
                                                                       A-1.15,p21

Requirements Management and Stakeholder Engagement are at the center of architecture development.

EAs act for their stakeholders in several roles:
• Subject Matter Experts (SMEs)
• Agents for their stakeholders
• Developers of architecture

Requirements Management is dependent upon clear traceability.
In order to perform this, EAs distinguish between:
• Direct effective support
• Loose association
• Distractions

EAs maintain the complete set of:
• Every stakeholder's preference
• The implications of those preferences

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and the integrity of the architecture, in terms of connecting all the various views to each other, satisfactorily reconciling the conflicting concerns of different stakeholders, and showing the trade-offs made in so doing (as between security and performance, for example). ... CONTINUES ... SEE REFERENCE SPECIFIED Level=2 : L.O.= 2.3a : Explain how to manage stakeholders' engagement and requirements.
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 54 : §6.1.1

The TOGAF Framework places requirements management and stakeholder engagement at the center of architecture development, in accordance with the preferences and priorities of their organization's stakeholders.

EAs act for their stakeholders in several roles:
• Subject Matter Experts (SMEs)
• Agents for their stakeholders
• Developers of architecture

Requirements management is dependent upon clear traceability from the organization's vision, mission, business model, and strategies through the most detailed statement of requirement. In order to perform this, EAs distinguish between:
• direct effective support
• loose association
• distractions
EAs maintain the complete set of
• every stakeholder's preference
• the implications of those preferences

*__Satisfice__ is a rare and recent English word: it is a gerund, meaning 'decide on and pursue a course of action that will satisfy the minimum requirements necessary to achieve a particular goal' – being a blend of *satisfy* and *suffice*

6.1.1 Stakeholder Engagement and Requirements Management
The TOGAF Framework places requirements management and stakeholder engagement at the center of architecture development. Practitioners develop EA in accordance with the preferences and priorities of their organization's stakeholders. Architecture is never sold to a stakeholder.
stakeholder preferences are never manipulated.
Stakeholders own the architecture and the value preference and priority the architecture is expected to enable. Practitioners must completely submerge their
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Trade-off to Support Architecture Development – 01/03   Q-4.2,p13 A-1.6,p9

A single alternative rarely exists to meet all stakeholders' concerns.
Alternatives are defined per domain to simplify the analysis of the different alternatives:

First select sets of criteria fitting for different alternatives:
• Use the vision
• Principles
• Requirements
• Other information

Second
• Define alternatives based on the criteria
• Build an understanding of each

Third
• Either select one of the alternatives or
• Combine features from more than one
• To create the proposed alternative

Perform
• Criteria
• Identify alternatives
• Choose from alternatives and define in detail

ADM Techniques : Page 73 : §10.2   20/24
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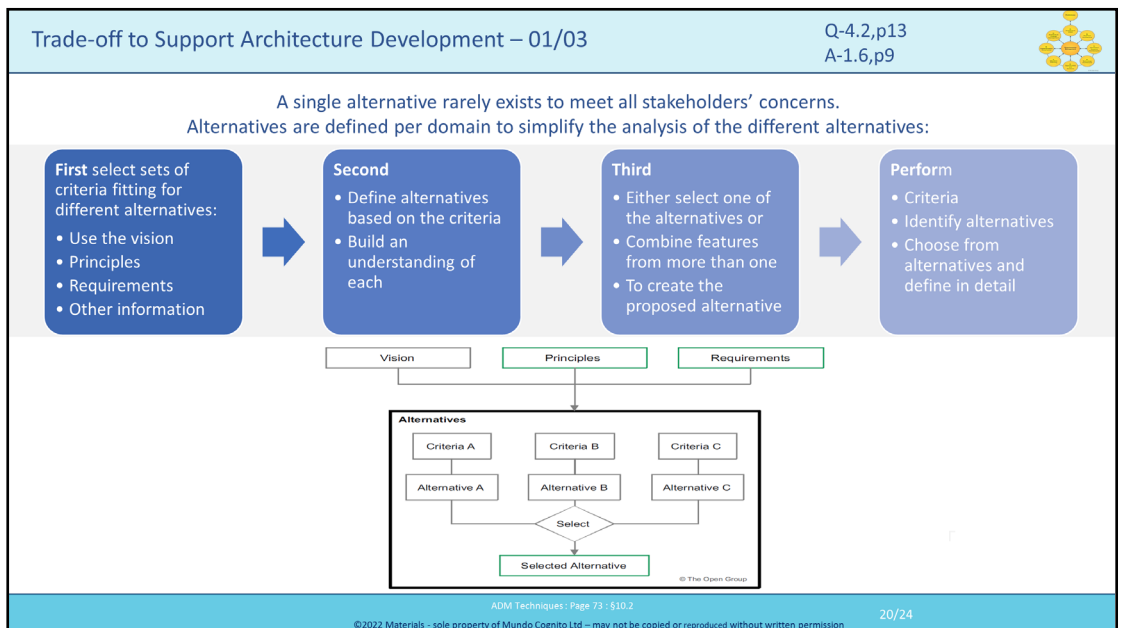
Level=2 : L.O.= 2.4a : Explain how to use trade-off to support the architecture development.
See : TOGAF® Standard – ADM Techniques : Page 73 : §10.2

Often a single alternative does not exist that will meet all stakeholders' concerns.

The TOGAF Standard supports a technique to investigate different alternatives and to discuss these with the stakeholders.
Commonly, alternatives are defined per domain – done to simplify the analysis of the different alternatives. Of course, the alternatives per domain can be merged into an overall analysis of the alternatives for the whole architecture.
First
• use the vision
• principles
• requirements
• other information
to select sets of criteria fitting for different alternatives
Second
• define alternatives based on the criteria
• build an understanding of each
Third
• either select one of the alternatives or
• combine features from more than one
to create the proposed alternative
Perform, in just enough detail to support that decision:
• criteria
• identify alternatives
• choose from alternatives and define in detail
The method can be used for any phase at any level of an architecture.

10.2 Method
It is most common that a single alternative does not exist that will meet all stakeholders' concerns. The TOGAF Standard supports a technique to investigate different alternatives and to discuss these with the stakeholders. Commonly, alternatives are defined per domain. This is done to simplify the analysis of the different alternatives. Of course, the alternatives per domain can be merged into an overall analysis of the alternatives for the whole architecture.

Figure 10-1 illustrates the architecture trade-off method.
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Trade-off to Support Architecture Development - 02/03   Q-4.2,p13   A-1.6,p9

Complex problems do not have clear, unambiguous best answers – they have reasonable compromises.

Trade-off requires a compromise between
- One stakeholder's preferences
- Different stakeholders' preferences

Effective trade-off requires understanding
- Value preference
- Priority
- Scope of change necessary to realize the target

As a rule, stakeholders under-perform when that trade-off
- Stands beyond their span of control
- Span of interest
- Involves the preferences of different stakeholders

In facilitating the trade-off discussion
- Chase down all impacts
- Think through the end game needs
- Surface requisite dimensions

VS

Trade-offs :
Fuel vs Carbon vs Time vs Speed vs Comfort vs Price vs Control

A Practitioners' Approach to Developing Enterprise Architecture Following the ADM : Page 55 : §6.1.2
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Level=2 : L.O.= 2.4b : Explain how to use trade-off to support the architecture development.
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 55 : §6.1.2

Facilitating a trade-off is often more valuable than finalizing an architecture description.
Complex problems do not have clear, unambiguous best answers – they have reasonable compromises.

Trade-off requires a compromise between:
- one stakeholder's preferences
- different stakeholders' preferences

Effective trade-off requires understanding:
- value preference
- priority
- scope of change necessary to realize the target

As a rule, stakeholders underperform when that trade-off:
- stands beyond their span of control
- span of interest
- involves the preferences of different stakeholders

In facilitating the trade-off discussion:
- chase down all impacts
- think through the end game needs
- surface requisite dimensions
- think through all transition states
Practitioners should not underestimate the value their organization receives from facilitation of trade-off across organizational boundaries.

6.1.2 Trade-Off
One of the most valuable activities a Practitioner will perform during architecture development is facilitating the stakeholders' trade-off decision. Facilitating trade-off is often more valuable than finalizing an architecture description. Good architecture addresses complex problems.
Complex problems do not have clear, unambiguous best answers. Instead, they have reasonable compromises.
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Trade-off to Support Architecture Development - 03/03

Q-4.2,p13
A-1.6,p9

The most common interpretations of trade-off are:

"A BALANCE ACHIEVED BETWEEN TWO DESIRABLE BUT INCOMPATIBLE FEATURES; A COMPROMISE"

"LOSING ONE QUALITY, ASPECT, OR AMOUNT OF SOMETHING IN RETURN FOR GAINING ANOTHER QUALITY, ASPECT, OR AMOUNT"

In EA, trade-offs are **never** about compromises.

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Level=2 : L.O.= 2.4c : Explain how to use trade-off to support the architecture development.
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 55 : §6.2

The most common interpretations of trade-off are:
• "a balance achieved between two desirable but incompatible features; a compromise"
• "losing one quality, aspect, or amount of something in return for gaining another quality, aspect, or amount"

In EA, trade-offs are never about compromises but about a question of when, or of the context.
When the context or the objective of the Enterprise is poorly analyzed, some choices will appear obvious or low-cost. Jumping to employ those choices as a viable candidate will result in sub-optimal achievement of the target or total failure of the initiative.

For example, when an EA is exploring a candidate target architecture and discovers what appears to be an obvious improvement without a champion, they are likely to be jumping to a decision that is based on poor analysis. When faced with such circumstances, the EA should look for the hidden value- which will never be described in terms of the obvious.

6.2 Trade-Off Decisions
The most common interpretations of trade-off are "a balance achieved between two desirable but incompatible features; a compromise" and "losing one quality, aspect, or amount of something in return for gaining another quality, aspect, or amount". In developing an Enterprise Architecture, trade-offs are never about compromises, but about a question of when or the context. When the context or the objective of the Enterprise is poorly analyzed, some choices will appear obvious or low-cost. Jumping to employ those choices as a viable candidate will result in sub-optimal achievement of the target or total failure of the initiative.

For example, when a Practitioner is exploring a candidate target architecture and discovers what appears to be an obvious improvement without a champion, they are likely to be jumping to a decision that is based on poor analysis. When faced with such circumstances, the Practitioner should look for the hidden value. Hidden value will never be described in terms of the obvious cost savings.

Modules Level 2:

Summary of Module 09

The 14 Learning points covered in Module 09 are:

1.8a: Briefly explain Enterprise Security Architecture	1.9a: Explain how security is a cross-cutting concern	1.10a: Explain why it is important to create an environment in which uncertainty of the success of change can be managed to optimize maximum business
1.11a/d: Briefly explain the role of the Enterprise Architect and Enterprise Architecture in a digital enterprise for the four contexts of the DPBoKTM Standard	2.1a/b: Explain how to identify stakeholders and their concerns and views, and the communication involved	2.2a: Explain the use of architecture views
2.3a: Explain how to manage stakeholders' engagement and requirements	2.4a/c: Explain how to use trade-off to support the architecture development	

This represents 24.0% of the course coverage.

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Notes:

1.8a : Briefly explain Enterprise Security Architecture
1.9a : Explain how security is a cross-cutting concern
1.10a : Explain why it is important to create an environment in which uncertainty of the success of change can be managed to optimize maximum business
1.11a/d : Briefly explain the role of the Enterprise Architect and Enterprise Architecture in a Digital enterprise for the four contexts of the DPBoKTM Standard
2.1a/b : Explain how to identify stakeholders their concerns views and the communication involved
2.2a : Explain the use of architecture views
2.3a : Explain how to manage stakeholders' engagement and requirements
2.4a/c : Explain how to use trade-off to support the architecture development

Modules Level 2:

00 - Course Introduction

08 - The Context for Enterprise Architecture

• 09 - Stakeholder Management

10 - Phase A

11 - Architecture Development

12 - Implementing the Architecture

13 - Architecture Change Management

14 - Requirements Management

15 - Supporting the ADM Work

16 - Closure

Notes:

End of Teaching Slides

End of

Module 09

Stakeholder Management

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Modules Level 2:

Module 10/16

TOGAF® EA Training - Practitioner
TOGAF® Standard, 10th Edition

Module 10

Phase A

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Notes:

Modules Level 2:

00 - Course Introduction

08 - The Context for Enterprise Architecture

09 - Stakeholder Management

- 10 - Phase A

11 - Architecture Development

12 - Implementing the Architecture

13 - Architecture Change Management

14 - Requirements Management

15 - Supporting the ADM Work

16 - Closure

Course Module Index

Course Module Index

#	Topic – Level 1	✓
1	Module 00 - Course Introduction	✓
2	Module 01 - Overview	✓
3	Module 02 - Concepts	✓
4	Module 03 - Introduction to the ADM	✓
5	Module 04 - Introduction to the ADM - Techniques	✓
6	Module 05 – Applying ADM	✓
7	Module 06 - Architecture Governance	✓
8	Module 07 – Architecture Content	✓
#	Topic – Level 2	✓
9	Module 00 - Course Introduction	✓
10	Module 08 - The Context for Enterprise Architecture	✓
11	Module 09 – Stakeholder Management	✓
12	Module 10 – Phase A	
13	Module 11 – Architecture Development	
14	Module 12 – Implementing the Architecture	
15	Module 13 – Architecture Change Management	
16	Module 14 – Requirements Management	
17	Module 15 – Supporting the ADM Work	
18	Module 16 – Closure	

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Notes:

TOGAF® Standard, 10th Edition

Notes:

Module Index

Module Index

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Modules Level 2:

Notes:

The ADM – 01/03

Core of the TOGAF framework

Contributions from many architecture practitioners

A process for developing an enterprise architecture

Integrates all the elements within the TOGAF® standard

Designed to address enterprise's business and IT needs by providing a set of architectural views:

❑ Business
❑ Data
❑ Application
❑ Technology

A set of recommended deliverables

A method for managing requirements

Guidelines on tools for architecture development

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- The ADM forms the core of the TOGAF Framework
- It is the result of contributions from many architecture practitioners
- A process for developing an enterprise architecture
- Integrates all the elements within the TOGAF® standard
- Designed to address an enterprise's business and IT needs by providing a set of architecture views:
  - Business
  - Data
  - Application
  - Technology
- A set of recommended deliverables
- A method for managing requirements
- Guidelines on tools for architecture development

Notes:

The ADM – 02/03

The ADM is essentially a set of lists of things you need to do in order to create and realize changes to the processes of an Enterprise.

The lists are presented on a 'per domain' basis.
The explanation is somewhat academic.
Parallelism will be introduced at an early stage.

This academic explanation follows the arrows round the cycle (   ).

Each Phase considers: Inputs | Steps | Outputs
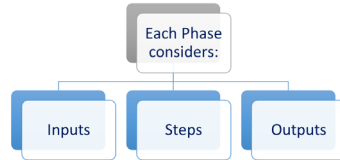
Outputs from a Phase generally provides some input to the next.
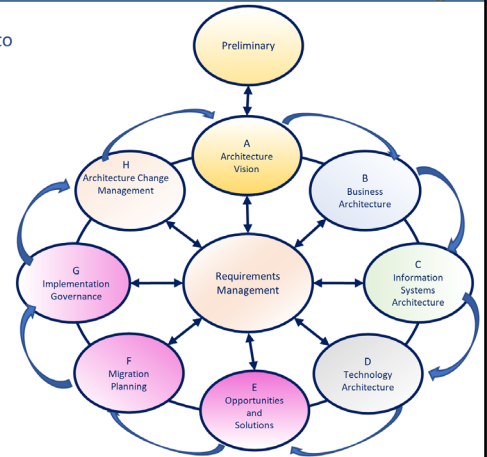
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The ADM is essentially a set of lists of things you need to do in order to create and realize changes to the Processes of an Enterprise.
The lists are presented on a 'per domain' basis for the Architecture, and for the Realization phase they reflect the Development process.
The explanation is given, necessarily, as an idealised, somewhat academic, single threaded, serial sequence.
The reality is that parallelism will be introduced at an early stage to facilitate time compression.
This academic explanation follows the arrows around the cycle (an arrow) through each Phase.

Each Phase considers:
• Inputs: what must be available at entry to the Phase to enable its work to be done
• Steps: being the operations that entail the work of the Phase
• Outputs: what results from performing the Steps

Outputs from a Phase are generally needed as input to the next.

This is generic over all Phases.

Modules Level 2:

Notes:

The ADM – 03/03

The main work of the Enterprise Architects is performed in:

| Phase A - Architecture Vision |
| Phase B – Business Architecture |
| Phase C – Information Systems Architecture comprising: |
| ❑ Data Architecture |
| ❑ Application Architecture |
| Phase D – Technology Architecture |

The contribution of Enterprise Architects to:

| Phase E – Opportunities and Solutions |
| Phase F – Migration Planning |
| Phase G – Implementation Governance |
| Phase H – Architecture Change Management is mainly in the form of support and Governance. |

It is logical to consider these two realms as separate projects.

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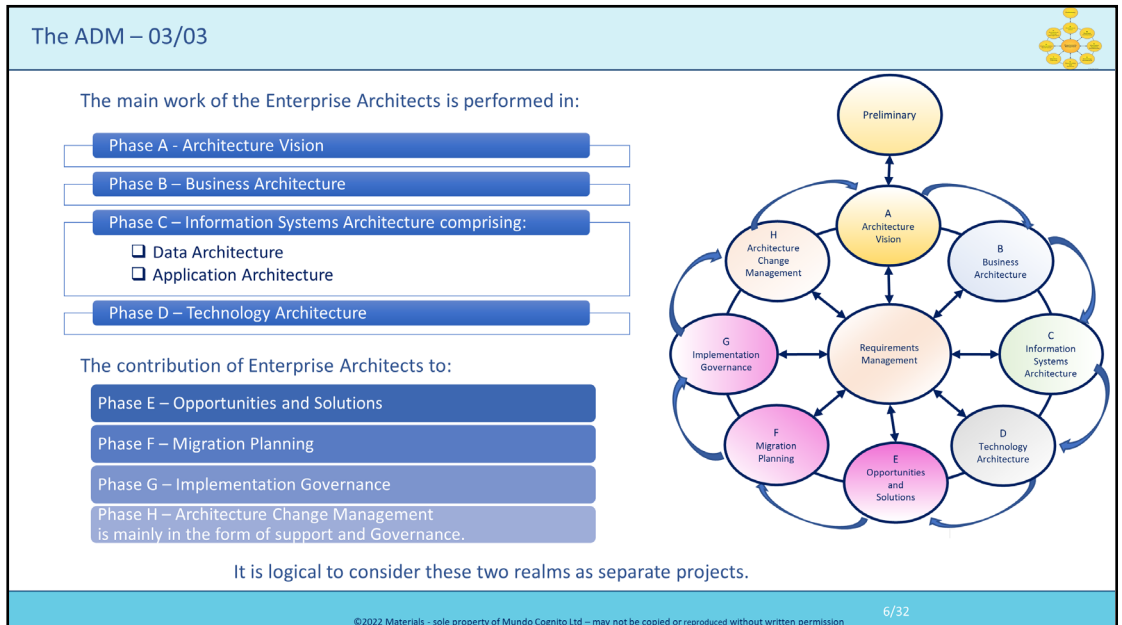
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The main work of the Enterprise Architects is performed in:
- Phase A - Architecture Vision
- Phase B – Business Architecture
- Phase C – Information Systems Architecture comprising:
  - Data Architecture
  - Application Architecture
- Phase D – Technology Architecture

The Enterprise Architects contribution to
- Phase E – Opportunities and Solutions
- Phase F – Migration Planning
- Phase G – Implementation Governance
- Phase H – Architecture Change Management
is mainly in the form of support and Governance.

It is convenient, and logical, to consider these two realms as separate projects. For example, it would make little sense to trigger a 'realization project' if the Architecture determined it was of no , or even a dis- advantage.

Notes:

Phase A - Architecture Vision – 01/14

Q-5.2,p16
A-1.8,p11

Objectives:

Objective: A time-bounded milestone for an organization used to demonstrate progress towards a goal.

Goal: A high-level statement of intent or direction for an organization.

The Objectives of Phase A are:

Develop a high-level aspirational vision of the capabilities and business value to be delivered as a result of the proposed Enterprise Architecture.

Obtain approval for a Statement of Architecture Work that defines a program of works to develop and deploy the architecture outlined in the Architecture Vision.

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Level=2 : L.O.= 3.1a : Explain how to identify the information necessary to execute the Architecture Vision phase and how iteration cycles will provide more information to take into account in order to execute the phase.
See : TOGAF® Standard – Architecture Development Method : Page 30 : §3.2

Objectives

Objective : A time-bounded milestone for an organization, used to demonstrate progress towards a goal.
Goal : A high-level statement of intent or direction for an organization. Typically used to measure success of an organization (two examples shown)

The Objectives of Phase A are:
•   Develop a high-level aspirational vision of the capabilities and business value to be delivered as a result of the proposed Enterprise Architecture
•   Obtain approval for a Statement of Architecture Work that defines a program of works to develop and deploy the architecture outlined in the Architecture Vision

3.1 Objectives
The objectives of Phase A are to:
■Develop a high-level aspirational vision of the capabilities and business value to be delivered as a result of the proposed Enterprise Architecture
■Obtain approval for a Statement of Architecture Work that defines a program of works to develop and deploy the architecture outlined in the Architecture Vision

---

Notes:

Phase A - Architecture Vision – 02/14

Q-5.2,p16
A-1.8,p11

Approach:

The developed output of the ADM cycle is completely dependent on the foundation laid by Phase A.

Phase A defines:
→ what is in and what is outside of the architecture
→ constraints

Constraints are informed by principles, business goals and strategic drivers.

Creates the Architecture Vision document.

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Level=2 : L.O.= 3.1a : Explain how to identify the information necessary to execute the Architecture Vision phase and how iteration cycles will provide more information to take into account in order to execute the phase.
See : TOGAF® Standard – Architecture Development Method : Page 30 : §3.2

Approach:
- The developed output of the ADM cycle is completely dependent on the foundation laid by a rigorous approach to Phase A
- Phase A defines what is in and what is outside of the architecture effort, and the constraints
- Constraints are informed by principles, business goals and strategic drivers
- Creates the Architecture Vision document:
  - Clarifying and agreeing the purpose of the architecture
  - Demonstrating how it will be achieved
  - A first-cut high-level description of the Baseline and Target architectures
  - Integral to the Architecture Vision is an understanding of emerging technologies and potential impact
  - Business models and the business scenarios technique can be used to develop the Architecture Vision

Constraints: Define the constraints that must be dealt with, including enterprise-wide constraints and project-specific constraints (time, schedule, resources, etc.). The enterprise-wide constraints may be informed by the Business and Architectural Principles developed in the preliminary phase or clarified as part of this phase.

The Architecture Vision provides the sponsor with a key tool to sell the benefits of the proposed capability to stakeholders and decision-makers within the enterprise. It describes how the new capability will meet the business goals and strategic objectives and address the stakeholder concerns when implemented. Integral to the Architecture Vision is an understanding of emerging technologies and their potential impact on industries and enterprises, without which many business opportunities may be missed.

Normally, key elements of the Architecture Vision – such as the enterprise mission, vision, strategy, and goals – have been documented as part of some wider business strategy or enterprise planning activity that has its own lifecycle within the enterprise. In such cases, the activity in Phase A is concerned with verifying and understanding the documented business strategy and goals. Phase A may also integrate the enterprise strategy and goals with the strategy and goals implicit within the current architecture. Business models are key strategy artifacts that can provide such a perspective, by
 ... CONTINUES ... SEE REFERENCE

Phase A - Architecture Vision – 03/14

Q-5.2,p16
A-1.8,p11

Inputs:

Reference Materials External to the Enterprise
☐ Architecture reference materials

Non-Architectural Inputs
☐ Request for Architecture Work
☐ Business principles, goals, drivers

Architectural Inputs
☐ Organizational Model for the Enterprise Architecture
☐ Tailored Architecture Framework
☐ Populated Architecture Repository

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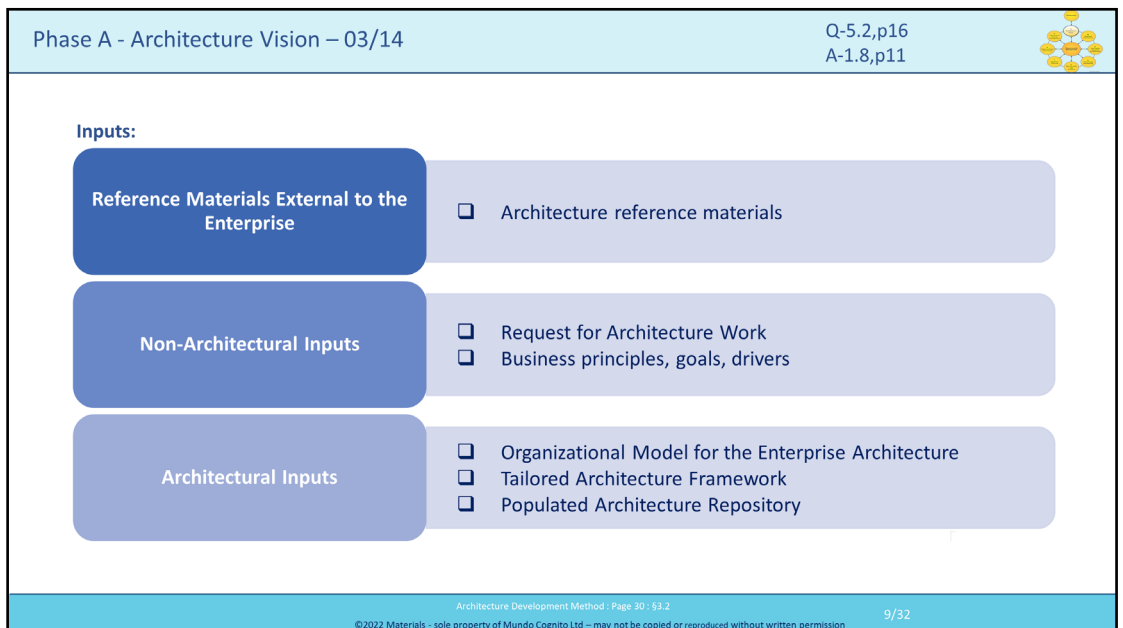
Notes:

Level=2 : L.O.= 3.1a : Explain how to identify the information necessary to execute the Architecture Vision phase and how iteration cycles will provide more information to take into account in order to execute the phase.
See : TOGAF® Standard – Architecture Development Method : Page 30 : §3.2

Reference Materials External to the Enterprise
• Architecture reference materials
Non-Architectural Inputs
• Request for Architecture Work
• Business principles, business goals, and business drivers
Architectural Inputs
• Organizational Model for Enterprise Architecture including:
  • Scope of organizations impacted
  • Maturity assessment, gaps, and resolution approach
  • Roles and responsibilities for architecture team(s)
  • Constraints on architecture work
  • Re-use requirements
  • Budget requirements
  • Requests for change
  • Governance and support strategy
• Tailored Architecture Framework including:
  • Tailored architecture method
  • Tailored architecture content (deliverables and artifacts)
  • Architecture Principles, including business principles, when pre-existing
  • Configured and deployed tools
• Populated Architecture Repository
  • Existing architectural documentation (framework description, architectural descriptions, baseline descriptions, Architecture Building Blocks (ABBs), etc.)

3.2.3 Architectural Inputs
■Organizational Model for Enterprise Architecture (see the TOGAF Standard — Architecture Content), including:
—Scope of organizations impacted
—Maturity assessment, gaps, and resolution approach
—Roles and responsibilities for architecture team(s)
—Constraints on architecture work
—Re-use requirements
—Budget requirements
... CONTINUES ... SEE REFERENCE SPECIFIED

Modules Level 2:

Notes:

Phase A - Architecture Vision – 04/14

Q-5.2,p16
A-1.8,p11

Set-up essentials:

Define the scope of the Architecture Project. What problem are you solving?

→ breadth and planning-horizon
→ purpose
→ confirm the level of detail
→ where in the business cycle this architecture will be used

Identify stakeholders, concerns, and associated requirements.

→ explore the EA Repository for architecture constraints/guidance
→ complete the Stakeholder Map

Assess the capability of the EA team.

→ confirm the ability of the EA team to deliver on this architecture development project

Level=2 : L.O.= 3.1b : Explain how to identify the information necessary to execute the Architecture Vision phase and how iteration cycles will provide more information to take into account in order to execute the phase.
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 41 : §5.2.1

Set-up essentials:
• Define the scope of the Architecture Project
  What problem are you solving?
    • breadth and planning-horizon
    • purpose
    • confirm the necessary level of detail
    • where in the business cycle this architecture will be used
• Identify stakeholders, concerns, and associated requirements
    • explore the EA Repository for architecture constraints and guidance
    • complete the Stakeholder Map
• Assess the capability of the EA team
    • confirm the ability of the EA team to deliver on this architecture development project

5.2.1 Phase A: The Starting Point
All architecture development needs to start with Phase A. Without the set-up inherent in Phase A, Practitioners can expect to slide off-course and fail to deliver useful architecture.

The set-up essentials of Phase A are:
• Define the scope of the Architecture Project
What problem are you solving? In terms of the EA Landscape (breadth and planning horizon) and in terms of purpose, which will tend to confirm the necessary level of detail?
Be completely clear where in the business cycle this architecture will be used.
• Identify stakeholders, concerns, and associated requirements
Explore the EA Repository for superior architecture constraints and guidance.
Complete the Stakeholder Map. Be completely clear which stakeholders must be served and what they are worrying about.
• Assess the capability of the EA team
Take a hard look at the EA team and confirm the ability of the team to deliver on this architecture development project. A good EA team covers gaps in experience, skill, and
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Phase A - Architecture Vision – 05/14   Q-5.1,p15   A-1.7,p10

How to apply Phase A

Steps

The level of detail addressed in Phase A will depend on:

The scope and goals of the Request for Architecture Work

The subset of scope and goals associated with this iteration of Architecture development.

The order of the steps in Phase, as well as the time at which they are formally started and completed, should be adapted to the situation at hand.
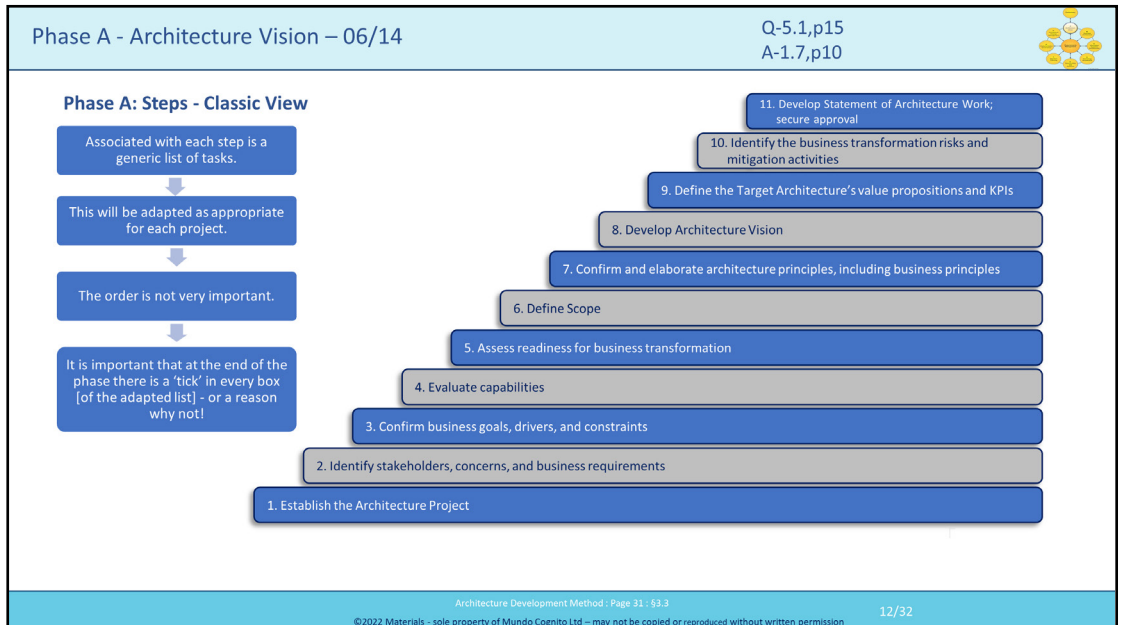
Level=2 : L.O.= 3.2a : Explain how to apply the phase and how it contributes to the architecture development work: Scope of the Architecture Project
Stakeholders their concerns and business requirements Business goals business drivers and constraints
See : TOGAF® Standard – Architecture Development Method : Page 31 : §3.3

How to apply Phase A
Steps
The level of detail addressed in Phase A will depend on:
•   the scope and goals of the Request for Architecture Work
•   the subset of scope and goals associated with this iteration of architecture development.
The order of the steps in Phase A as well as the time at which they are formally started and completed should be adapted to the situation at hand.

3.3.1 Establish the Architecture Project
Enterprise Architecture is a business capability; each cycle of the ADM should normally be handled as a project using the project management framework of the enterprise.
In some cases, architecture projects will be stand-alone. In other cases, architectural activities will be a subset of the activities within a larger project. In either case, architecture activity should be planned and managed using accepted practices for the enterprise.
Conduct the necessary procedures to secure recognition of the project, the endorsement of corporate management, and the support and commitment of the necessary line management.
Include references to other management frameworks in use within the enterprise, explaining how this project relates to those frameworks.

Modules Level 2:

Notes:

Phase A - Architecture Vision – 06/14

Q-5.1,p15
A-1.7,p10

Phase A: Steps - Classic View

Associated with each step is a generic list of tasks.

This will be adapted as appropriate for each project.

The order is not very important.

It is important that at the end of the phase there is a 'tick' in every box [of the adapted list] - or a reason why not!

11. Develop Statement of Architecture Work; secure approval
10. Identify the business transformation risks and mitigation activities
9. Define the Target Architecture's value propositions and KPIs
8. Develop Architecture Vision
7. Confirm and elaborate architecture principles, including business principles
6. Define Scope
5. Assess readiness for business transformation
4. Evaluate capabilities
3. Confirm business goals, drivers, and constraints
2. Identify stakeholders, concerns, and business requirements
1. Establish the Architecture Project

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Level=2 : L.O.= 3.2a : Explain how to apply the phase and how it contributes to the architecture development work: Scope of the Architecture Project.
Stakeholders their concerns and business requirements. Business goals business drivers and constraints.
See : TOGAF® Standard – Architecture Development Method : Page 31 : §3.3

Phase A
Steps - Classic View
Associated with each step is a generic list of tasks.
This will be adapted as fitting for each project.
The order is not very Important.
It is important that at the end of the phase there is a
✓   in every box [of the adapted list] - or a reason why not!

3.3 Steps
The level of detail addressed in Phase A will depend on the scope and goals of the Request for Architecture Work, or the subset of scope and goals associated with this iteration of architecture development.
The order of the steps in Phase A as well as the time at which they are formally started and completed should be adapted to the situation at hand in accordance with the established Architecture Governance.

The steps in Phase A are as follows:
■Establish the architecture project (see Section 3.3.1)
■Identify stakeholders, concerns, and business requirements (see Section 3.3.2)
■Confirm and elaborate business goals ,business drivers, and constraints (see Section 3.3.3)
■Evaluate capabilities (see Section 3.3.4)
■Assess readiness for business transformation (see Section 3.3.5)
■Define scope (see Section 3.3.6)
■Confirm and elaborate Architecture Principles, including business principles (see Section 3.3.7)
■Develop Architecture Vision (see Section 3.3.8)
■Define the Target Architecture value propositions and KPIs (see Section 3.3.9)
■Identify the business transformation risks and mitigation activities (see Section 3.3.10)
■Develop Statement of Architecture Work; secure approval(see Section 3.3.11)

Modules Level 2:

Notes:

Phase A - Architecture Vision – 07/14

Q-5.1,p15
A-1.7,p10

Step 1 — **Establish the architecture project**
Conduct the necessary procedures to secure:
❑ Recognition of the project.
❑ Endorsement of corporate management.
❑ Support and commitment of line management.
Refer to other management frameworks:
❑ How this project relates to those frameworks

Step 2 — **Identify stakeholders, concerns, and business requirements**
Here we must identify:
❑ Candidate vision components and requirements.
❑ Candidate scope boundaries for the engagement.
❑ Stakeholder concerns, issues, and cultural factors.
❑ The concerns and viewpoints that are relevant.
❑ The stakeholders that are involved with the project.
❑ The key roles and responsibilities within the project.
Consider which architecture views and viewpoints need to be developed to satisfy the various stakeholder requirements.

Step 3 — **Confirm business goals, drivers and constraints**
❑ Identify the business goals and strategic drivers of the organization.
❑ If these have been defined elsewhere ensure that the definitions are current and clarify any areas of ambiguity.
❑ Otherwise, define the goals and secure their endorsement by management.
❖ Define any constraints that must be dealt with

Step 4 — **Evaluate capabilities**
Seek to understand the capabilities and desires of the business:
❑ Identify options to realize those capabilities.
❑ Assess the implications for the organization's architecture capability.
❑ Create an initial picture of the new capability that will be required.
❑ Document the results in a Capability Assessment.

Step 5 — **Assess readiness for business transformation**
Based upon the determination and rating of a series of readiness factors, these results are then used to:
❑ Shape the scope of the architecture.
❑ Identify activities required within the architecture project.
❑ Identify risk areas to be addressed.

Step 6 — **Define the Scope**
❑ Breadth of coverage.
❑ Level of detail.
❑ The partitioning characteristics of the architecture.
❑ Domains to be covered.
❑ Schedule project milestones.
❑ Identify Enterprise Continuum assets for use:
❖ Created from previous ADM cycles
❖ Existing reference frameworks, models, and so on...

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Level=2 : L.O.= 3.2a : Explain how to apply the phase and how it contributes to the architecture development work: Scope of the Architecture Project
Stakeholders their concerns and business requirements. Business goals, business drivers and constraints
See : TOGAF® Standard – Architecture Development Method : Page 31 : §3.3 et seq

3.3.1 Establish the Architecture Project
Enterprise Architecture is a business capability; each cycle of the ADM should normally be handled as a project using the project management framework of the enterprise .In some cases, architecture projects will be stand-alone. In other cases, architectural activities will be a subset of the activities within a larger project. In either case, architecture activity should be planned and managed using accepted practices for the enterprise.
Conduct the necessary procedures to secure recognition of the project, the endorsement of corporate management, and the support and commitment of the necessary line management.
Include references to other management frameworks in use within the enterprise, explaining how this project relates to those frameworks.

3.3.2 Identify Stakeholders, Concerns, and Business Requirements
Identify the key stakeholders and their concerns/objectives, and define the key business requirements to be addressed in the architecture engagement. Stakeholder engagement at this stage is intended to accomplish three objectives:
■To identify candidate vision components and requirements to be tested as the Architecture Vision is developed
■To identify candidate scope boundaries for the engagement to limit the extent of architectural investigation required
■To identify stakeholder concerns, issues, and cultural factors that will shape how the architecture is presented and communicated

The major product resulting from this step is a stakeholder map for the engagement, showing which stakeholders are involved with the engagement, their level of involvement, and their key concerns (see the TOGAF Standard — ADM Techniques). The stakeholder map is used to support various outputs of the Architecture Vision phase, and to identify:
■The concerns and viewpoints that are relevant to this project; this is captured in the Architecture Vision (see the TOGAF Standard — Architecture Content)
■The stakeholders that are involved with the project and as a result form the starting point
... CONTINUES ... SEE REFERENCE SPECIFIED

Phase A - Architecture Vision – 08/14

Q-5.1,p15
A-1.7,p10

Step 7

Confirm and elaborate Architecture Principles, including business principles
- Ensure that any existing definitions are current and clarify any areas of ambiguity.
- If principles do not exist, go to the body responsible for Architecture Governance and together define the principles.
- Secure their endorsement by management.

Step 8

Develop Architecture Vision
Create a high-level view of the Baseline and Target Architectures.
- Informal techniques are often used e.g., a simple solution concept diagram can illustrate the main components of the solution and its advantages.
- Business scenarios are useful here for discovering and documenting business requirements.
- The result is the first very high-level definition of the baseline and target environments, from a business, IS, and technology perspective.
- This should be stored in the Architecture Repository.

Step 9

Define the Target Architecture value propositions and KPIs
- Develop the business case for the Architectures and changes
- Produce the value proposition for each of the stakeholder groupings.
- Assess and define the procurement requirements.
- Agree the value propositions with sponsors/stakeholders:
  - Define the performance metrics
  - Assess the business risk
    - Incorporate the outputs in the SO Architecture Work

Step 10

Identify the business transformation risks and mitigation activities
- Identify the risks associated with the Architecture Vision, assess the initial level of risk and its potential frequency. There are two levels of risk to consider:
  - Initial Level of Risk
  - Residual Level of Risk
- Assign a mitigation strategy for each risk. These should be considered for inclusion within the SOA architecture

Step 11

Develop Statement of Architecture Work; secure approval
- Assess the work products that are required to be produced against the set of business performance requirements.
- Identify new work products that need to be changed.
- Provide direction on which existing work products need to be changed, ensuring that all dependencies are coordinated.
- Identify the impact of change on other work products.
- Choose which Architecture Domains to develop.
- Assess the resource requirements.
- Estimate the resources needed, develop a roadmap and schedule for the proposed development and document in the SO Architecture.
- Define the performance metrics.
- Develop the specific Enterprise Architecture. Communications Plan
- Review and agree the plans with the sponsors, and secure formal approval of the Statement of Architecture Work under the appropriate governance procedures.
- Gain sponsor's sign-off.

Architecture Development Method : Page 31 : §3.3
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14/32

Notes:

Level=2 : L.O.= 3.2a : Explain how to apply the phase and how it contributes to the architecture development work: Scope of the Architecture Project
Stakeholders their concerns and business requirements. Business goals, business drivers and constraints
See : TOGAF® Standard – Architecture Development Method : Page 31 : §3.3

3.3.7 Confirm and Elaborate Architecture Principles, including Business Principles
Review the principles under which the architecture is to be developed. Architecture Principles are normally based on the principles developed as part of the Preliminary Phase. They are explained, and an example set given, in the TOGAF Standard — ADM Techniques. Ensure that the existing definitions are current, and clarify any areas of ambiguity. Otherwise, go back to the body responsible for Architecture Governance and work with them to define these essential items for the first time and secure their endorsement by corporate management.

3.3.8 Develop Architecture Vision
An understanding of the required artifacts will enable the stakeholders to start to scope out their decision-making which will guide subsequent phases. These decisions need to be reflected in the stakeholder map.
Policy development and strategic decisions need to be captured in this phase to enable the subsequent work to be quantified; for example, rationalization decisions and metrics, revenue generation, and targets which meet the business strategy. There are also other areas which need to be addressed; for example, Digital Transformation and IT strategy where decisions on the Architecture Vision will provide leadership and direction for the organization in subsequent phases.
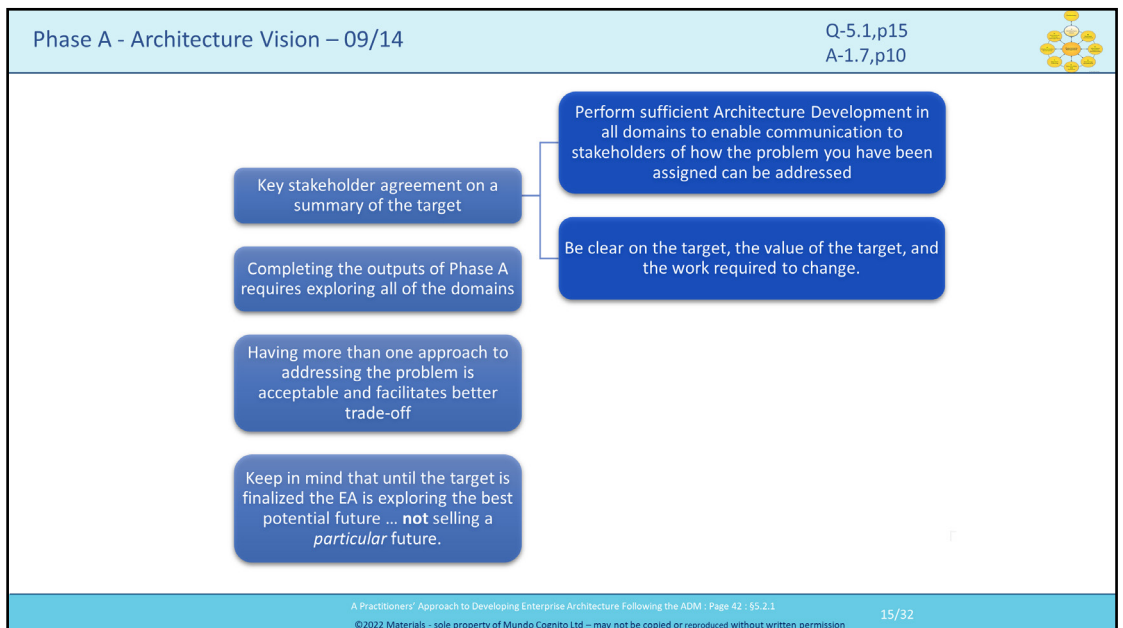For the Architecture Vision it is recommended that first an overall architecture be decided upon showing how all of the various architecture domain deliverables will fit together (based upon the selected course of action).
Based on the stakeholder concerns, business capability requirements, scope, constraints, and principles, create a high-level view of the Baseline and Target Architectures. The Architecture Vision typically covers the breadth of scope identified for the project, at a high level. Informal techniques are often employed. A common practice is to draw a simple solution concept diagram
… CONTINUES … SEE REFERENCE SPECIFIED

TOGAF® Standard, 10th Edition

Notes:

Phase A - Architecture Vision – 09/14 — Q-5.1,p15 / A-1.7,p10

Key stakeholder agreement on a summary of the target

Perform sufficient Architecture Development in all domains to enable communication to stakeholders of how the problem you have been assigned can be addressed

Be clear on the target, the value of the target, and the work required to change.

Completing the outputs of Phase A requires exploring all of the domains

Having more than one approach to addressing the problem is acceptable and facilitates better trade-off

Keep in mind that until the target is finalized the EA is exploring the best potential future … **not** selling a *particular* future.

A Practitioners' Approach to Developing Enterprise Architecture Following the ADM : Page 42 : §5.2.1
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Level=2 : L.O.= 3.2b : Explain how to apply the phase and how it contributes to the architecture development work: Scope of the Architecture Project
Stakeholders their concerns and business requirements. Business goals business drivers and constraints
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 42 : §5.2.1

The completion essentials of Phase A
- Key stakeholder agreement on a summary of the target and the work to reach the target:
  - perform sufficient architecture development in all domains to enable communication to stakeholders of how the problem you have been assigned can be addressed and the scope of change to reach their articulated preferences
  - be clear on the target, the value of the target, and the work to change.
- Completing the outputs of Phase A requires exploring all of the domains – whether the exploration is to understand what should change, or where change is not an option, to determine the impact of retaining current architecture.
- Having more than one approach to addressing the problem is acceptable to key stakeholders and facilitates better trade-off when performing more detailed analysis.
- Keep in mind that until the target is finalized the EA is exploring the best potential future … **not** selling a *particular* future.

5.2.1 Phase A: The Starting Point
All architecture development needs to start with Phase A. Without the set-up inherent in Phase A, Practitioners can expect to slide off-course and fail to deliver useful architecture.

The set-up essentials of Phase A are:
• Define the scope of the Architecture Project
What problem are you solving? In terms of the EA Landscape (breadth and planning horizon) and in terms of purpose, which will tend to confirm the necessary level of detail?
Be completely clear where in the business cycle this architecture will be used.
• Identify stakeholders, concerns, and associated requirements
Explore the EA Repository for superior architecture constraints and guidance.
Complete the Stakeholder Map. Be completely clear which stakeholders must be served and what they are worrying about.
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Phase A - Architecture Vision – 10/14

In Phase A sufficient security-specific architecture design is carried out to:

Satisfy the security stakeholders that the end-state does not represent any unknown/unacceptable risks.

Satisfy business stakeholders – in particular, those who control the budget.

Identify the complete list of all stakeholders, their concerns, and associated requirements.

The stakeholder requirements are gathered together to determine the security blueprint needed to address the various concerns the stakeholders have.

The Business Attribute Profile can be useful as a basis for the business case
- the SABSA-provided Business Attribute Profile can be used as a starting point.

The viewpoints and business cases must build on security principles, drivers, key risks, and risk appetite.

Integrating Risk and Security within a Enterprise Architecture : Page 19 : §5.2
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Level=2 : L.O.= 3.3a : Describe a security-specific architecture design to be carried out that is sufficient.
See : TOGAF® Series Guide: Integrating Risk and Security within a TOGAF® Enterprise Architecture : Page 19 : §5.2

In Phase A sufficient security-specific architecture design is carried out to:
- Satisfy the security stakeholders that the end-state does not represent any unknown or unacceptable risk and aligns with corporate policies, standards, and principles
- Satisfy business stakeholders – in particular those who control the budget – that the Security Architecture is instrumental in enabling and supporting the overall architecture required to deliver the business opportunities and benefits identified with the right balance between risk, compliance, and business benefits
- Identify the complete list of all stakeholders, their concerns, and associated requirements for approval of the architecture.

Note:
All stakeholders will have security and risk concerns and associated requirements. Separating security stakeholders ensures that the architecture will address a subset of stakeholders and a subset of requirements.

The stakeholder requirements are gathered to determine the security blueprint needed to address the various concerns the stakeholders have, at a level giving sufficient assurance to the stakeholders that the final artifacts and deliverables will address their concerns appropriately.

Security Value may be metrics about reduced risk and enablement of the overall architecture. The Business Attribute Profile can be useful as a basis for the business case - the SABSA-provided Business Attribute Profile can be used as a starting point. A scenario-based approach may be used to obtain stakeholder approval.
The viewpoints and business cases must build on Security Principles, drivers, key risks, and risk appetite and are an integral part of the overall Architecture Vision deliverables.

5.2 How is ADM Iteration Realized in Practice?
An often-misunderstood element of the TOGAF framework is the ADM and the concept of iteration. The TOGAF ADM graphic provides a stylized representation that is frequently misinterpreted as a linear waterfall process model. This approach leads to some of the most confusing diagrams and explanations.
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Phase A - Architecture Vision – 11/14

Outputs include at least:

- Approved Statement of Architecture Work
  - Overview of Architecture Vision
  - Architecture project description and scope, plan and schedule
- Refined Statements of Business Principles/Goals/Drivers
- Architecture Principles
- Capability Assessment
- Tailored Architecture Framework
  - Tailored architecture method/content (deliverables and artifacts)
  - Configured and deployed tools
- Architecture Vision
- Draft Architecture Definition Document
- Communications Plan
- Additional Content Populating the Architecture Repository
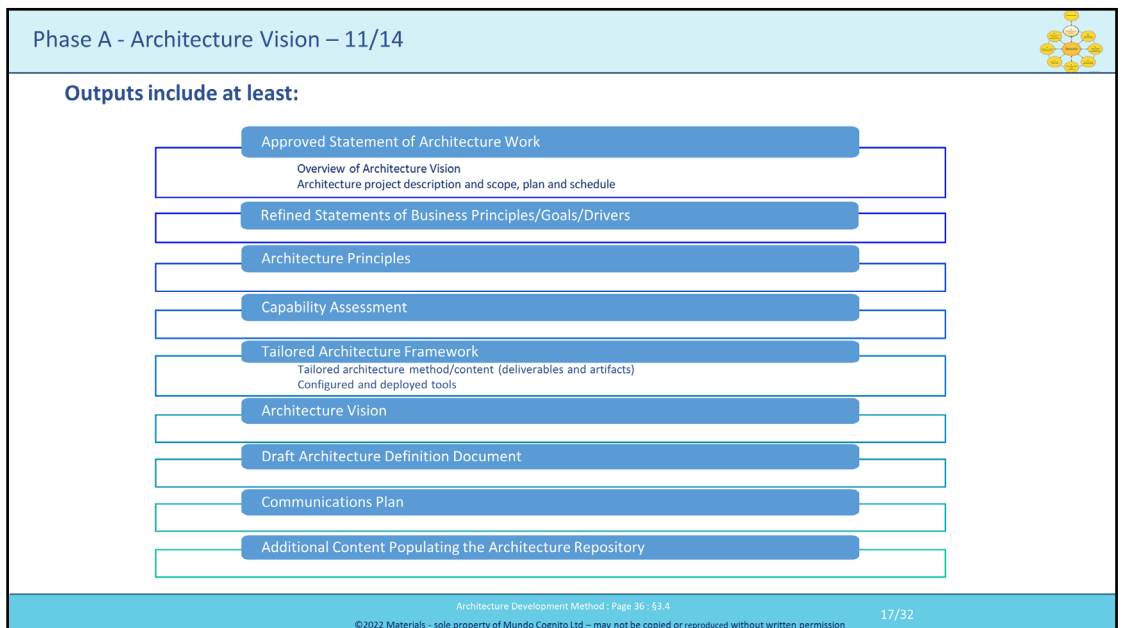
Level=2 : L.O.= 3.4a : Explain the outputs necessary to proceed with the architecture development work: Statement of Architecture Work, Architecture Vision, Communications Plan
See : TOGAF® Standard – Architecture Development Method : Page 36 : §3.4

Outputs include at least:
- Approved Statement of Architecture Work - in particular:
  - Architecture project description and scope
  - Overview of Architecture Vision
  - Architecture project plan and schedule
- Refined statements of business principles, business goals, and business drivers
- Architecture Principles
- Capability Assessment
- Tailored Architecture Framework - including:
  - Tailored architecture method
  - Tailored architecture content (deliverables and artifacts)
  - Configured and deployed tools
- Architecture Vision - including:
  - Problem description
  - Objective of the Statement of Architecture Work
  - Summary views
  - Business scenario (optional)
  - Refined key high-level stakeholder requirements
- Draft Architecture Definition Document, which may include Baseline and/or Target Architectures of any architecture domain
- Communications Plan
- Additional content populating the Architecture Repository
Note: Multiple business scenarios may be used to generate a single Architecture Vision.
See also the TOGAF Standard - Architecture Content.

3.4 Outputs
The outputs of Phase A may include, but are not restricted to:
■Approved Statement of Architecture Work (see the TOGAF Standard — Architecture Content), including in particular :
—Architecture project description and scope
—Overview of Architecture Vision
—Architecture project plan and schedule
... CONTINUES ... SEE REFERENCE SPECIFIED

Modules Level 2:

| Phase A - Architecture Vision – 12/14 | Q-7.1,p19 |
| | A-1.9,p12 |

Key outputs and outcomes

For an exhaustive list, refer to the TOGAF standard.

Phase A: Architecture Vision

Output & Outcome
- Sufficient documentation to get permission to proceed.
- Permission to proceed to develop a Target Architecture to prove out a summary target.

Essential Knowledge
- The scope of the problem being addressed.
- Those who have interests that are fundamental to the problem being addressed (Stakeholders & Concerns).
- What summary answer to the problem is acceptable to the stakeholders (Architecture Vision)?
- Stakeholder priority and preference.
- What value does the summary answer provide?

A signed-off Statement of Work releases budget to proceed with the rest of the ADM.

A Practitioners' Approach to Developing Enterprise Architecture Following the ADM : Page 42 : §5.2.2
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Notes:

Level=2 : L.O.= 3.4c : Explain the outputs necessary to proceed with the architecture development work: Statement of Architecture Work, Architecture Vision, Communications Plan
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 42 : §5.2.2

Key outputs and outcomes
For an exhaustive list, refer to the TOGAF standard.
A signed-off Statement of Work releases budget to proceed with the rest of the ADM.

5.2.2 Essential ADM Output and Knowledge
A summary of the essential outcome and output is provided in Table 4. Keep in mind that the essential output is what stakeholders, sponsor, and boss' boss' boss wants. No-one wants an architecture; they want guidance on planning and executing an effective change. Practitioners use an architected approach to providing the best available guidance on effective change. The essential outcomes and outputs are derived from the objectives of the phase – the statement of why a Practitioner should perform this activity.

What the Enterprise values and consumes is typically different than what the Practitioner produces. Practitioners deliver an essential output. It is provided as views, roadmaps, architecture specifications, controls, and other useful things. Architecture is developed, and the EA Landscape populated. To do this, Practitioners require a set of essential knowledge. The Enterprise consumes effective guidance about, and the ability to govern, change.

Read Table 4 in conjunction with Table 3 to confirm whether for a particular purpose the output of the phase is already in existence, needs to be created, or is extraneous to the current Architecture Project. Good Practitioners will adjust their work accordingly. Table 4 lists only key outputs and outcomes. For an exhaustive list, refer to the TOGAF standard. In order to achieve these outcomes, the Practitioner may have to perform more activities or create more deliverables than those listed in the table below. The intent is to keep the focus on what is pursued, not what is done.

Modules Level 2:

Notes:

Phase A - Architecture Vision – 13/14

Outputs:
from Phase A are highlighted by *Italics* in this table.

It also shows where these outputs are consumed.

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 Architecture	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

Level=2 : L.O.= 3.4b : Explain the outputs necessary to proceed with the architecture development work:
See : TOGAF® Standard – Architecture Content : Page 64 : §4.2

It is worth pointing out that though this table is reproduces from the stated source, some have questioned its accuracy.

Statement of Architecture Work
Architecture Vision
Communications Plan

Outputs: from Phase A are highlighted by *Italics* in this Table.
It also shows where these outputs are consumed.

4.1 Introduction
This chapter defines the deliverables that will typically be consumed and produced across the TOGAF ADM cycle. As deliverables are typically the contractual or formal work products of an architecture project, it is likely that these deliverables will be constrained or altered by any overarching project or process management for the enterprise (such as CMMI, PMBOK® ,PRINCE2®).
This chapter therefore is intended to provide a typical baseline of architecture deliverables in order to better define the activities required in the ADM and act as a starting point for tailoring within a specific organization.
The TOGAF Content Framework (see Chapter 1)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 table below.
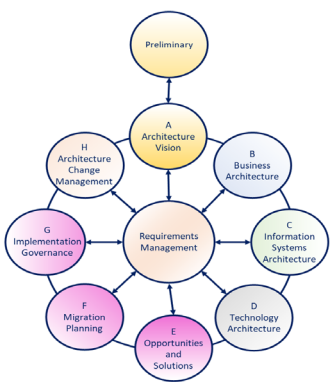
Notes:

Phase A - Architecture Vision – 14/14

Phase	Output & Outcome	Essential Knowledge
Phase A: Architecture Vision	Sufficient documentation to get permission to proceed. Permission to proceed to develop a Target Architecture to prove out a summary target.	The scope of the problem being addressed. Those who have interests that are fundamental to the problem being addressed. (Stakeholders & Concerns) What summary answer to the problem is acceptable to the stakeholders? (Architecture Vision) Stakeholder priority and preference. What value does the summary answer provide?

In the Content Model there is a list of Artifacts for each Phase.

Þ Q-33 M-38
Level=2 : L.O.= 3.4c : Explain the outputs necessary to proceed with the architecture development work:
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 42 : §5.2.2

Statement of Architecture Work
Architecture Vision
Communications Plan

5.2.2 Essential ADM Output and Knowledge
A summary of the essential outcome and output is provided in Table 4. Keep in mind that the essential output is what stakeholders, sponsor, and boss' boss' boss wants. No-one wants an architecture; they want guidance on planning and executing an effective change. Practitioners use an architected approach to providing the best available guidance on effective change. The essential outcomes and outputs are derived from the objectives of the phase – the statement of why a Practitioner should perform this activity.
What the Enterprise values and consumes is typically different than what the Practitioner produces. Practitioners deliver an essential output. It is provided as views, roadmaps, architecture specifications, controls, and other useful things. Architecture is developed, and the EA Landscape populated. To do this, Practitioners require a set of essential knowledge. The Enterprise consumes effective guidance about and the ability to govern change.
Read Table 4 in conjunction with Table 3 to confirm whether for a particular purpose the output of the phase is already in existence, needs to be created, or is extraneous to the current Architecture Project. Good Practitioners will adjust their work accordingly. Table 4 lists only key outputs and outcomes. For an exhaustive list, refer to the TOGAF Standard. In order to achieve these outcomes, the Practitioner may have to perform more activities or create more deliverables than those listed in the table below. The intent is to keep the focus on what is pursued, not what is done.

Table 4: Essential ADM Outputs, Outcomes, and Required Knowledge

Notes:

Steps – All Domain Architecture Phases

Phases B, C, and D – Developing the Architecture

The steps outlined in the TOGAF standard to develop architecture in Phases B, C, and D are identical because the approach to:
- ❑ Developing an architecture
- ❑ Confirming the work product developed fits and
- ❑ Confirming approval are all identical

The steps are also mandatory.

What changes from:
- ❑ Purpose to purpose
- ❑ Domain to domain
- ❑ Project to project
- ❑ EA team to EA team?

The level of:
- ❑ Detail
- ❑ Precision
- ❑ Formality

Use the steps as a checklist.

Level=2 : L.O.= 4.1a : Explain the steps applicable to all phases.
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 56 : §6.3

Phases B, C, and D – Developing the Architecture
Surprisingly, the steps outlined in the TOGAF Standard to develop architecture in Phases B, C, and D are identical because the approach to:
- developing an architecture
- confirming the work product developed fits
- confirming approval **are all identical**

The steps are also mandatory – if any are skipped the outcome could be at risk.

What changes from:
- purpose to purpose
- domain to domain
- project to project
- EA team to EA team ?

It is the level of:
- detail
- precision
- formality

Use the Steps as a checklist.

6.3 Phases B, C, and D – Developing the Architecture
Practitioners often find it surprising that the steps outlined in the TOGAF standard to develop architecture in Phases B, C, and D are identical. The steps are identical because the approach to developing an architecture, confirming the work product developed fits, and confirming approval are identical. These steps are also mandatory. Steps can be skipped, but the final outcome could be at risk.

What changes from purpose to purpose, domain to domain, project to project, and EA team to EA team is the level of detail, precision, and formality. All Practitioners should use the steps as a checklist.

Notes:

Risk and Security Considerations - Phase B – 01/03

Security Policy Architecture

Contains a set of security policies that express the security strategy, assigns ownership and accountability for security and risk management, and addresses the linkage and hierarchy of operational risk management in general, such as business continuity, information security, system security, and physical security.

Security Domain Model

A grouping of information (or data entities) by a set of criteria such as security classification, ownership, location, etc.

Trust Framework

Describes trust relationships between various entities in the architecture domain and on what basis this trust exists.

Risk Assessment

Is the activity of determining the risks that are relevant to an asset or objective. Qualitative risk assessment delivers a listing of relevant risk scenarios with a high-level prioritization – the quantitative approach looks for numeric determination of the risk.

Business Risk Model/Risk Register

Determines the cost (both qualitative and quantitative) of asset loss/impact in failure cases, based on identified threats, the likelihood of these materializing, and the impact of an incident.

Applicable Law and Regulation Register

Contains the specific laws and regulations that apply within the scope of the Enterprise Architecture engagement.

Applicable Control Framework Register

Contains the suitable set of control frameworks that best satisfy the requirements - e.g., ISO/IEC 27001:2013 [4], ISO/IEC 27002:2013 [5], COBIT [10], etc.

Factors that drive the selection of control frameworks are:

- Mandatory certifications
- Way of working of the internal ISM process
- Marketing objectives
- Support for security audits

Level=2 : L.O.= 4.2b : Explain risk and security considerations during the architecture development.
See : TOGAF® Series Guide: Integrating Risk and Security within a TOGAF® Enterprise Architecture : Page 20 : §5.3

Security Policy Architecture
Contains a set of security policies that express the security strategy, assigns ownership and accountability for security and risk management, addresses the linkage and hierarchy of operational risk management in general, such as business continuity, information security, system security, and physical security.

Security Domain Model
A grouping of information (or data entities) by a set of criteria such as security classification, ownership, location, etc. In the context of security, information domains are defined as a set of users, their information objects and a security policy. Distinguishes between areas of different security/trust levels. A security policy authority is responsible for setting and implementing policy within the domain.

Trust Framework
Describes trust relationships between various entities in the architecture domain and on what basis this trust exists. Trust relationships can be unidirectional, bidirectional, or non-existent. The onus for assessing trust is the responsibility of those choosing to enter into the contracts - and their legal counsel.

Risk Assessment
Is the activity of determining the risks that are relevant to an asset or objective. Qualitative risk assessment delivers a listing of relevant risk scenarios with a high-level prioritization - quantitative approach seeks for numeric determination of the risk. A deliverable of a risk assessment is the Business Risk Model.

Business Risk Model/Risk Register
Determines the cost (both qualitative and quantitative) of asset loss/impact in failure cases, based on identified threats, likelihood of these materializing, and impact of an incident. Security classification should be carried out at this stage based on the risks identified.

Applicable Law and Regulation Register
Contains the specific laws and regulations that apply within the scope of the Enterprise Architecture engagement, based on the business function inventory. It is kept up-to-date, following legal and regulatory changes. This register is important for compliance purposes.

Applicable Control Framework Register
Contains the suitable set of control frameworks that best satisfy the requirements and address the risks related to the engagement scope and context – e.g. ISO/IEC
... CONTINUES ... SEE REFERENCE SPECIFIED

Modules Level 2:

Risk and Security Considerations - Phase C – 02/03

Security Services Catalog

A list of services that provide security-specific functionality as part of the overall architecture Examples of security services are:

❑ Identity & Access Management
❑ Continuity Management
❑ Security Intelligence
❑ Compliance Management
❑ Training & Awareness Programs, etc.

The advantage of the Security Services Catalog is that it uses common terminology.

Security Classification

A label attached to an asset, according to a classification scheme, that is defined and described in the information security policy - based on one or more characteristics of the asset:

❑ Business service
❑ Capability
❑ Information
❑ An information system service
❑ Physical data component
❑ Physical technology component.

Data Quality

A key factor in operational risk management.

Key attributes are:

❑ Accuracy
❑ Relevance
❑ Timeliness
❑ Completeness
❑ Consistency
❑ Availability
❑ Accessibility

For each dataset, ownership, and responsibility for the quality of data needs to be assigned. Each of the key attributes should be measured based on log and performance data.

Notes:

Level=2 : L.O.= 4.2b : Explain risk and security considerations during the architecture development.
See : TOGAF® Series Guide: Integrating Risk and Security within a TOGAF® Enterprise Architecture : Page 22 : §5.4

Security Services Catalog
Is a list of services that provide security-specific functionality as part of the overall architecture. Unlike control frameworks that contain requirements, the Security Services Catalog describes security building blocks that actually realize the security goals. It provides a common terminology and reference framework for the domain of security management. The Security Services Catalog contains conceptual definitions of the services, as well as operational information about implementation and usage.

Examples of security services are:
• Identity & Access Management
• Continuity Management
• Security Intelligence
• Digital Forensics
• Security Analytics
• Audit, Network Monitoring
• Compliance Management
• Training & Awareness Programs, etc.
The advantage of the Security Services Catalog is that it is a common terminology and reference framework for the domain of security management, allowing better cooperation between the parties concerned.

Security Classification
Is a label attached to an asset, according to a classification scheme. In most cases, this scheme is defined and described in the information security policy and the classification is based on one or more characteristics of the asset which can be any relevant component of the architecture business service.
Capability Information
An information system service, physical data component, physical technology component.
The security classification determines the security requirements that apply.
Data Quality
Is a key factor in operational risk management. Some of the key attributes that contribute to data quality are accuracy, relevance, timeliness, currency, completeness, consistency, availability, and accessibility.
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Risk and Security Considerations - Phase D – 03/03

In most cases, the development of specific Technology Architecture security artifacts is not necessary

The Security Architect must ensure that the required controls are included in the Technology Architecture - including technology for:
- ❑ Provision
- ❑ Protection
- ❑ Regulation

Of system resources, such as:
- ❑ Electric power
- ❑ Processing capacity
- ❑ Network bandwidth
- ❑ Memory

A security stakeholder may request the creation of a specific Technology Architecture security view or deliverable that describes all security-related technology components and how they inter-relate.

Level=2 : L.O.= 4.2b : Explain risk and security considerations during the architecture development.
See : TOGAF® Standard, 10th Edition, 2022® Series Guide: Integrating Risk and Security within a TOGAF® Enterprise Architecture : Page 24 : §5.5

- In most cases, the development of specific Technology Architecture security artifacts is not necessary, as long as it incorporates the relevant security controls and mechanisms defined in the earlier phases.
- The Security Architect must ensure that the required controls are included in the Technology Architecture and verify whether the controls are used in an effective and efficient way. This includes the technology for the:
    - Provision
    - Protection
    - Regulation
- of system resources, such as:
    - electric power
    - processing capacity
    - network bandwidth
    - memory
- A security stakeholder may request the creation of a specific Technology Architecture security view or deliverable that describes all security-related technology components and how they inter-relate.
  This view should explain which business risks are mitigated by what technology, providing justification for the technology.

Non syllabus note
Certain aspects of Security may be recognised, but the handling of these is outside the scope of the enterprise.
Examples include:
- Firmware code
  e.g. in Routers, Printers, CNC machines etc.
- Operating system code
- Software package code
Insurance tolerance around threats via these aspects is dwindling.
When these are recognised the EA must draw specific attention to them and give notice to –
- Architecture Board
- Corporate Counsel
- Procurement
- Other domain architects
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Business Principles – 01/02

Q-7.1,p19
A-1.9,p12

Business Principles contribute to understanding the context for architecture work.

They describe and inform the needs and ways of working employed by the enterprise.

Architecture Principles are an addition to the inherited set of Business Principles.

Many factors that lie outside the consideration of architecture discipline may nevertheless have significant implications for the way that architecture is developed.

For example:

⚖ We are an ethical bank

🌳 We are a green oil company

🤝 We support Fairtrade

Level=2 : L.O.= 4.3a : Explain the information that is relevant to produce outputs valuable to the architecture development: Business Principles
See : TOGAF® Standard – Architecture Development Method : Page 42 : §4.2

Business Principles contribute to understanding the context for architecture work. They describe and inform the needs and ways of working employed by the enterprise. Architecture Principles are an addition to the inherited set of Business Principles. Many factors that lie outside the consideration of architecture discipline may nevertheless have significant implications for the way that architecture is developed. For example:
- We are an ethical bank
- We are a green oil company
- We support Fairtrade

4.2 Inputs
This section defines the inputs to Phase B.
4.2.1 Reference Materials External to the Enterprise
■Architecture reference materials (see the TOGAF Standard — Architecture Content)
4.2.2 Non-Architectural Inputs
■Request for Architecture Work (see the TOGAF Standard — Architecture Content)
■***Business principles***, business goals, and business drivers (see the TOGAF Standard — Architecture Content)
■Capability Assessment (see the TOGAF Standard — Architecture Content)
■Communications Plan (see the TOGAF Standard — Architecture Content)

Business Principles – 02/02

Phase	Output & Outcome	Essential Knowledge
Phase A: Architecture Vision	Sufficient documentation to get permission to proceed, in order to develop a Target Architecture to prove out a summary target.	The scope of the problem being addressed. Those who have interests that are fundamental to the problem being addressed. (Stakeholders & Concerns). What summary answer to the problem is acceptable to the stakeholders? (Architecture Vision). Stakeholder priority and preference. What value does the summary answer provide?
Phase B, Phase C, & Phase D	A set of Domain Architectures approved by the stakeholders for the problem being addressed, with a set of gaps, and work to clear the gaps understood by the stakeholders.	How does the current Enterprise fail to meet the preferences of the stakeholders? What must change to enable the Enterprise to meet the preferences of the stakeholders? (Gaps) What work is necessary to realize the changes, that is consistent with the additional value being created? (Work Package) How stakeholder priority and preference adjust in response to value, effort, and risk of change. (Stakeholder Requirements)
Phase E: Opportunities & Solutions	A set of work packages that address the set of gaps, with an indication of value produced and effort required, and dependencies between the work packages to reach the adjusted target.	Dependency between the set of changes. (Work Package & Gap Dependency) Value, effort, and risk associated with each change and work package. How stakeholder priority and preference adjust in response to value, effort, and risk of change
Phase F: Implementation and Migration Plan	An approved set of projects, containing the objective and any necessary constraints, resources required, and start and finish dates.	Resources available to undertake the change. How stakeholder priority and preference adjust in response to value, effort, and risk of change. (Stakeholder Requirements)
Phase G: Implementation Governance	Completion of the projects to implement the changes necessary to reach the adjusted target state.	Purpose and constraints on the implementation team. (Gap, Architecture Requirement Specification, Control) How stakeholder priority and preference adjust in response to success, value, effort, and risk of change. (Stakeholder Requirements)
Phase H: Architecture Change Management	Direction to proceed and start developing a Target Architecture that addresses perceived, real, or anticipated shortfalls in the Enterprise relative to stakeholder preferences.	Gaps between approved target, or preference, and realization from prior work. (Value Realization) Changes in preference or priority. (Stakeholder Requirements)

Notes:

Þ M-42
Level=2 : L.O.= 4.3b : Explain the information that is relevant to produce outputs valuable to the architecture development: Business goals
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 42 : §5.2.2

Though alluded to in general terms, Business Principles are Essential Knowledge and will influence the Right Hand column of this table.
Consultants entering a new gig MUST ensure they understand this aspect of their client's business culture.

5.2.2 Essential ADM Output and Knowledge

A summary of the essential outcome and output is provided in Table 4. Keep in mind that the essential output is what stakeholders, sponsor, and boss' boss' boss wants. No-one wants an architecture; they want guidance on planning and executing an effective change. Practitioners use an architected approach to providing the best available guidance on effective change. The essential outcomes and outputs are derived from the objectives of the phase – the statement of why a Practitioner should perform this activity.

What the Enterprise values and consumes is typically different than what the Practitioner produces. Practitioners deliver an essential output. It is provided as views, roadmaps, architecture specifications, controls, and other useful things. Architecture is developed, and the EA Landscape populated. To do this, Practitioners require a set of essential knowledge. The Enterprise consumes effective guidance about, and the ability to govern, change.

Read Table 4 in conjunction with Table 3 to confirm whether for a particular purpose the output of the phase is already in existence, needs to be created, or is extraneous to the current Architecture Project. Good Practitioners will adjust their work accordingly. Table 4 lists only key outputs and outcomes. For an exhaustive list, refer to the TOGAF Standard. In order to achieve these outcomes, the Practitioner may have to perform more activities or create more deliverables than those listed in the table below. The intent is to keep the focus on what is pursued, not what is done.

Business Goals – 01/02

Q-7.1,p19
A-1.9,p12

… are goals that a business anticipates accomplishing in a set period of time.
They are a consequence of the desire to attain the objective(s) implied by the Strategy.
They are set for the enterprise in general.

Business goals:

| Are steps towards an objective |
| Do not have to be specific |
| Are broad outcomes |

Setting business goals is important:

Provide	Provide a way to measure success
Keep	Keep all employees on the same page as to what the goals of the company are
Give	Give employees a clear understanding of how decision-making reaches company's goals
Ensure	Ensure the company is headed in the right direction

Much Architecture work arises from the need to achieve Business Goals.

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Notes:

Level=2 : L.O.= 4.3a/c : Explain the information that is relevant to produce outputs valuable to the architecture development: Business goals
See : TOGAF® Standard – Architecture Development Method : Page 42 : §4.2

Business Goals
… are goals that a business anticipates accomplishing in a set period of time.
They are a consequence of the desire to attain the objective(s) implied by the Strategy
They are set for the enterprise in general
Business Goals :
• are steps towards an objective
• do not have to be specific
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Setting business goals are important because they:
• Provide a way to measure success
• Keep all employees on the same page as to what the goals of the company are
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Much Architecture work arises from the need to achieve Business Goals.

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■Request for Architecture Work (see the TOGAF Standard — Architecture Content)
■Business principles, *business goals*, and business drivers (see the TOGAF Standard — Architecture Content)
,■Capability Assessment (see the TOGAF Standard — Architecture Content)
■Communications Plan (see the TOGAF Standard — Architecture Content)

Business Goals – 02/02

Phase	Output & Outcome	Essential Knowledge
Phase A: Architecture Vision	Sufficient documentation to get permission to proceed, in order to develop a Target Architecture to prove out a summary target.	The scope of the problem being addressed. Those who have interests that are fundamental to the problem being addressed. (Stakeholders & Concerns) What summary answer to the problem is acceptable to the stakeholders? (Architecture Vision) Stakeholder priority and preference. What value does the summary answer provide?
Phase B, Phase C, & Phase D	A set of domain architectures approved by the stakeholders for the problem being addressed, with a set of gaps, and work to clear the gaps understood by the stakeholders.	How does the current Enterprise fail to meet the preferences of the stakeholders? What must change to enable the Enterprise to meet the preferences of the stakeholders? (Gaps) What work is necessary to realize the changes, that is consistent with the additional value being created? (Work Package) How stakeholder priority and preference adjust in response to value, effort, and risk of change. (Stakeholder Requirements)
Phase E: Opportunities & Solutions	A set of work packages that address the set of gaps, with an indication of value produced and effort required, and dependencies between the work packages to reach the adjusted target.	Dependency between the set of changes. (Work Package & Gap dependency) Value, effort, and risk associated with each change and work package. How stakeholder priority and preference adjust in response to value, effort, and risk of change
Phase F: Implementation and Migration Plan	An approved set of projects, containing the objective and any necessary constraints, resources required, and start and finish dates.	Resources available to undertake the change. How stakeholder priority and preference adjust in response to value, effort, and risk of change. (Stakeholder Requirements)
Phase G: Implementation Governance	Completion of the projects to implement the changes necessary to reach the adjusted target state.	Purpose and constraints on the implementation team. (Gap, Architecture Requirement Specification, Control) How stakeholder priority and preference adjust in response to success, value, effort, and risk of change. (Stakeholder Requirements)
Phase H: Architecture Change Management	Direction to proceed and start developing a Target Architecture that addresses perceived, real, or anticipated shortfalls in the Enterprise relative to stakeholder preferences.	Gaps between approved target, or preference, and realization from prior work. (Value Realization) Changes in preference or priority. (Stakeholder Requirements)

Notes:

Level=2 : L.O.= 4.3b : Explain the information that is relevant to produce outputs valuable to the architecture development: Business Goals
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 42 : §5.2.2

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Notes:

Business Drivers – 01/02

Q-7.1,p18
A-1.9,p12

… ARE THE KEY INPUTS AND ACTIVITIES THAT DRIVE THE OPERATIONAL AND FINANCIAL RESULTS OF A BUSINESS.

THE TERM 'BUSINESS DRIVER' HAS BECOME A FASHIONABLE CATCH-PHRASE.

IN ORDER TO MAKE INTERNAL CHOICES ABOUT BUSINESS STRATEGY OR BUILD A FINANCIAL MODEL TO VALUE A COMPANY, IT'S CRITICAL TO GAIN A SOLID UNDERSTANDING OF THE MAIN DRIVERS OF A BUSINESS.

Architecture Development Method : Page 42 : §4.2
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Level=2 : L.O.= 4.3a/c : Explain the information that is relevant to produce outputs valuable to the architecture development: Business goals
See : TOGAF® Standard – Architecture Development Method : Page 42 : §4.2
… are the key inputs and activities that drive the operational and financial results of a business.

Business Drivers
The term 'business driver' has become a fashionable catchphrase that refers to any key part of a business.
In order to make internal choices about business strategy or build a financial model to value a company, it's critical to gain a solid understanding of the main drivers of a business.
Identifying a company's business drivers gets harder as it becomes more complex.
The business drivers of software companies, for example, are technological innovation, better products, and optimum marketing.
The most common business drivers are:
•   Legislation and government policy
•   Litigation
•   The price of resources or commodities
•   Competitors' activities
•   Customer demand

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Business Drivers – 02/02

Q-7.1,p19
A-1.9,p12

Phase	Output & Outcome	Essential Knowledge
Phase A: Architecture Vision	Sufficient documentation to get permission to proceed, in order to develop a Target Architecture to prove out a summary target.	The scope of the problem being addressed. Those who have interests that are fundamental to the problem being addressed. (Stakeholders & Concerns) What summary answer to the problem is acceptable to the stakeholders? (Architecture Vision) Stakeholder priority and preference. What value does the summary answer provide?
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Notes:

Level=2 : L.O.= 4.3b : Explain the information that is relevant to produce outputs valuable to the architecture development: Business drivers
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 42 : §5.2.2

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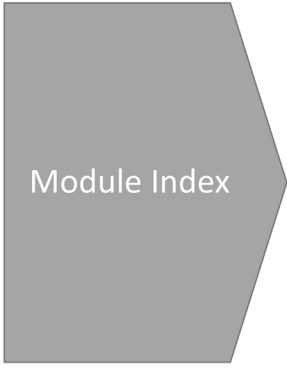
Modules Level 2:

Notes:

Summary of Module 10

The 18 Learning points covered in Module 10 are:

3.1a/b: Explain how to identify the information necessary to execute the Architecture Vision phase and how iteration cycles will provide more information to take into account in order to execute the phase.

3.2a/b: Explain how to apply the phase and how it contributes to the architecture development work: Scope of the Architecture Project Stakeholders, their concerns and business requirements. Business goals business drivers and constraints.

3.3a: Describe a security-specific architecture design to be carried out that is sufficient.

3.4/c: Explain the outputs necessary to proceed with the architecture development work: Statement of Architecture Work, Architecture Vision, Communications Plan.

4.1a: Explain the steps applicable to all phases.

4.2b: Explain risk and security considerations during the architecture development.

4.3a/f: Explain the information that is relevant to produce outputs valuable to the architecture development.

This represents 30.6% of the course coverage.

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The 18 Learning points covered in Module 10 are:
3.1a/b: Explain how to identify the information necessary to execute the Architecture Vision phase and how iteration cycles will provide more information to take into account in order to execute the phase.
3.2a/b: Explain how to apply the phase and how it contributes to the architecture development work: Scope of the Architecture Project Stakeholders their concerns and business requirements. Business goals business drivers and constraints.
3.3a: Describe a security-specific architecture design to be carried out that is sufficient.
3.4/c: Explain the outputs necessary to proceed with the architecture development work: Statement of Architecture Work Architecture Vision Communications Plan.
4.1a: Explain the steps applicable to all phases.
4.2b: Explain risk and security considerations during the architecture development.
4.3a/f: Explain the information that is relevant to produce outputs valuable to the architecture development

Modules Level 2:

End of Teaching Slides

End of

Module 10

Phase A

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Notes:

Module 11/16

TOGAF® EA Training - Practitioner
TOGAF® Standard, 10th Edition
Module 11

Architecture Development

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Notes:

Modules Level 2:

00 - Course Introduction

08 - The Context for Enterprise Architecture

09 - Stakeholder Management

10 - Phase A

- 11 - Architecture Development

12 - Implementing the Architecture

13 - Architecture Change Management

14 - Requirements Management

15 - Supporting the ADM Work

16 - Closure

Notes:

Course Module Index

Course Module Index

#	Topic – Level 1	✓
1	Module 00 - Course Introduction	✓
2	Module 01 - Overview	✓
3	Module 02 - Concepts	✓
4	Module 03 - Introduction to the ADM	✓
5	Module 04 - Introduction to the ADM - Techniques	✓
6	Module 05 – Applying ADM	✓
7	Module 06 - Architecture Governance	✓
8	Module 07 – Architecture Content	✓
#	Topic – Level 2	✓
9	Module 00 - Course Introduction	✓
10	Module 08 - The Context for Enterprise Architecture	✓
11	Module 09 – Stakeholder Management	✓
12	Module 10 – Phase A	✓
13	Module 11 – Architecture Development	
14	Module 12 – Implementing the Architecture	
15	Module 13 – Architecture Change Management	
16	Module 14 – Requirements Management	
17	Module 15 – Supporting the ADM Work	
18	Module 16 – Closure	

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Modules Level 2:

00 - Course Introduction

08 - The Context for Enterprise Architecture

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10 - Phase A

- 11 - Architecture Development

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13 - Architecture Change Management

14 - Requirements Management

15 - Supporting the ADM Work

16 - Closure

Notes:

Module Index

Module Index

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5	Phase C – Information Systems Architecture	15
6	Phase D – Technology Architecture	27
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8	Summary of Module 11	44

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Notes:

Phase B – Business Architecture – 01/11

Q-7.1,p19
A-1.9,p12

Objectives

Develop the Target Business Architecture that describes how the enterprise needs to operate to achieve the business goals, and respond to the strategic drivers set out in the Architecture Vision in a way that addresses the Statement of Architecture Work and stakeholder concerns

Identify candidate Architecture Roadmap components based upon gaps between the Baseline and Target Business Architectures

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Level=2 : L.O.= 4.4a : Explain how to apply Phase B and how it contributes to the architecture development work.
See : TOGAF® Standard – Architecture Development Method : Page 43 : §4.3

Objectives
Develop the Target Business Architecture that describes how the enterprise needs to operate to achieve the business goals, and respond to the strategic drivers set out in the Architecture Vision in a way that addresses the Statement of Architecture Work and stakeholder concerns.
Identify candidate Architecture Roadmap components based upon gaps between the Baseline and Target Business Architectures.

4.3 Steps
The level of detail addressed in Phase B will depend on the scope and goals of the overall architecture effort.
New models characterizing the needs of the business will need to be defined in detail during Phase B. Existing business artifacts to be carried over and supported in the target environment
These may already have been adequately defined in previous architectural work; but, if not, they too will need to be defined in Phase B.
The order of the steps in Phase B, as well as the time at which they are formally started and completed, should be adapted to the situation at hand, in accordance with the established Architecture Governance. In particular ,determine whether in this situation it is appropriate to conduct Baseline or Target Architecture development first, as described in the TOGAF Standard

Applying the ADM.
All activities that have been initiated in these steps should be closed during the Finalize the Business Architecture step (see Section 4.3.8). The documentation generated from these steps must be formally published in the Create/Update the Architecture Definition Document step (see Section 4.3.9).

Notes:

Phase B – Business Architecture – 02/11

Q-7.1,p19
A-1.9,p12

Approach

Knowledge of the Business Architecture is a prerequisite for architecture work in the other domains

Business Strategy defines what to achieve

Business Architecture describes how to achieve it

If there is no existing strategy or planning:
→ Identify any existing architecture definitions, then verify and update
→ New process definitions may require detailed work

In both cases, use business scenarios

The Royal Ontario Museum, Toronto, featuring the Michael Lee-Chin Crystal, designed by Daniel Libeskind

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5/44

Level=2 : L.O.= 4.4a : Explain how to apply Phase B and how it contributes to the architecture development work.
See : TOGAF® Standard – Architecture Development Method : Page 43 : §4.3

Approach
- Knowledge of the Business Architecture is a prerequisite for architecture work in the other domains (Data, Applications, Technology):
  - And so is the first activity that needs to be undertaken.
- Business Strategy defines what to achieve
- Business Architecture describes how to achieve it
- This Phase is often required to demonstrate the business value of subsequent work to key stakeholders:
  - Scope depends on existing strategy and planning
  - Update and verify bridge between high-level business drivers, strategy, and goals on the one hand, and specific business requirements
  - Existing architecture discovery must include all relevant detail
- If there is no existing strategy or planning:
  - Identify any existing architecture definitions, then verify and update
  - New process definitions may require detailed work
- In both cases, use business scenarios to identify key business objectives and processes

4.3 Steps
The level of detail addressed in Phase B will depend on the scope and goals of the overall architecture effort.
New models characterizing the needs of the business will need to be defined in detail during Phase B. Existing business artifacts to be carried over and supported in the target environment may already have been adequately defined in previous architectural work; but, if not, they too will need to be defined in Phase B.
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Applying the ADM.
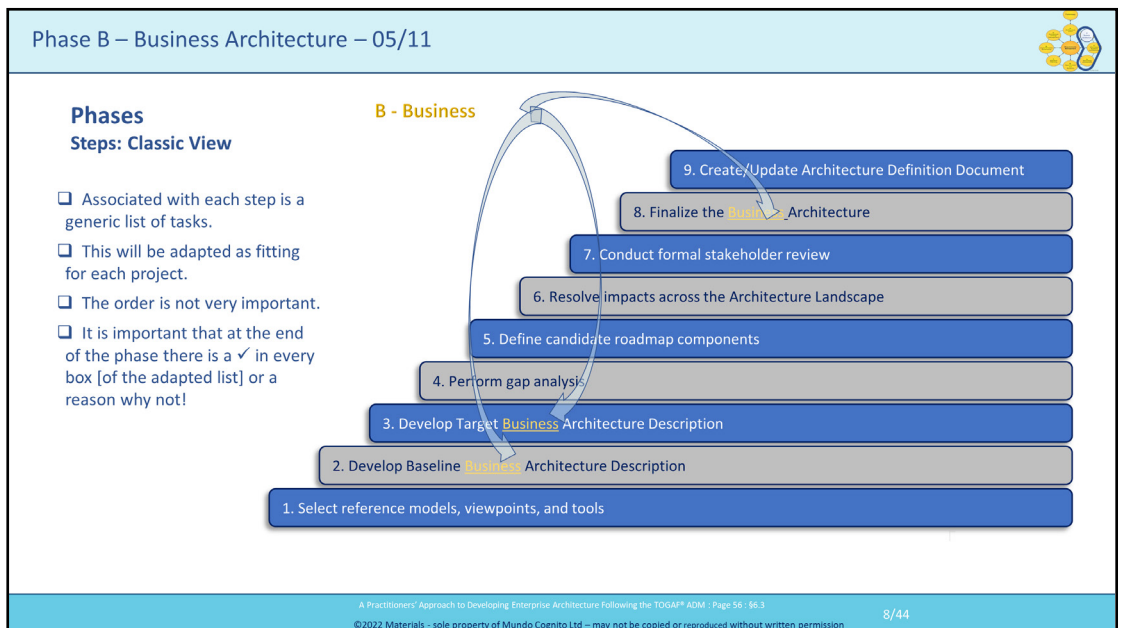All activities that have been initiated in these steps should be closed during the Finalize the Business Architecture step (see Section 4.3.8).
 ... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Phase B – Business Architecture – 03/11

Inputs

Reference Materials External to the Enterprise
- ❑ Architecture reference materials

Non-Architectural Inputs
- ❑ Request for Architecture Work
- ❑ Business principles, goals, drivers
- ❑ Communications Plan

Architectural Inputs
- ❑ Organizational Model for Enterprise
- ❑ Tailored Architecture
- ❑ Approved Statement of Architecture Work
- ❑ Architecture Principles
- ❑ Enterprise Continuum
- ❑ Architecture Repository
- ❑ Architecture Vision
- ❑ Draft Architecture Definition Document

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Þ M-57
Level=2 : L.O.= 4.4a : Explain how to apply Phase B and how it contributes to the architecture development work.
See : TOGAF® Standard – Architecture Development Method : Page 43 : §4.3

4.2.2 Non-Architectural Inputs
■Request for Architecture Work (see the TOGAF Standard — Architecture Content)
■Business principles, business goals, and business drivers (see the TOGAF Standard — Architecture Content)
■Capability Assessment (see the TOGAF Standard — Architecture Content)
■Communications Plan (see the TOGAF Standard — Architecture Content)
4.2.3 Architectural Inputs
■Organizational Model for Enterprise Architecture (see the TOGAF Standard — Architecture Content), including:
—Scope of organizations impacted
—Maturity assessment, gaps, and resolution approach
—Roles and responsibilities for architecture team(s)
—Constraints on architecture work
—Budget requirements
—Governance and support strategy
■Tailored Architecture Framework (see the TOGAF Standard — Architecture Content), including:
—Tailored architecture method
—Tailored architecture content (deliverables and artifacts)
—Configured and deployed tools
■Approved Statement of Architecture Work (see the TOGAF Standard — Architecture Content)
■Architecture Principles (see the TOGAF Standard — Architecture Content), including business principles, when pre-existing
■Enterprise Continuum (see the TOGAF Standard — Architecture Content)
■Architecture Repository(see the TOGAF Standard — Architecture Content), including:
—Re-usable building blocks
—Publicly available reference models
—Organization-specific reference models
—Organization standards
■Architecture Vision (see the TOGAF Standard — Architecture Content), including:
—Problem description
—Objective of the Statement of Architecture Work
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Phase B – Business Architecture – 04/11

Steps

The TOGAF® Standard includes a generic set of Steps.

The main benefits of having 'tick lists' are threefold:

1. You can see clearly what must be done and organize resource accordingly

2. Management is less arduous – there is a clear list of what must be done, and to what precision.

3. You clearly know when you have finished.

The TOGAF® Standard generic set of Steps are in the next slide.

This set of Steps is the distillation of tens of thousands of hours of practical EA work in a myriad of firms, in most industries, worldwide.
Probably you should only add to it.

Level=2 : L.O.= 4.4a : Explain how to apply Phase B and how it contributes to the architecture development work.
See : TOGAF® Standard – Architecture Development Method : Page 43 : §4.3

Steps
The TOGAF® Standard includes a generic set of Steps.
The main benefits of having 'tick lists' are threefold:
• You can see clearly what must be done and organize resource accordingly
• Management is less arduous – there is a clear list of what must be done, and to what precision.
• You clearly know when you have finished.
The TOGAF® Standard generic set of Steps are in the next slide.
This set of Steps is the distillation of tens of thousands of hours of practical EA work in a myriad of firms, in most industries, worldwide.
Probably you should only add to it.

4.3 Steps
The level of detail addressed in Phase B will depend on the scope and goals of the overall architecture effort.
New models characterizing the needs of the business will need to be defined in detail during Phase B. Existing business artifacts to be carried over and supported in the target environment
These may already have been adequately defined in previous architectural work; but, if not, they too will need to be defined in Phase B.
The order of the steps in Phase B as well as the time at which they are formally started and completed should be adapted to the situation at hand, in accordance with the established

Architecture Governance.
In particular, determine whether in this situation it is appropriate to conduct Baseline or Target Architecture development first, as described in the TOGAF Standard

Applying the ADM.
All activities that have been initiated in these steps should be closed during the Finalize the Business Architecture step (see Section 4.3.8). The documentation generated from these steps must be formally published in the Create/Update the Architecture Definition Document step (see Section 4.3.9).

Modules Level 2:

Notes:

Phase B – Business Architecture – 05/11

Phases
Steps: Classic View

- Associated with each step is a generic list of tasks.
- This will be adapted as fitting for each project.
- The order is not very important.
- It is important that at the end of the phase there is a ✓ in every box [of the adapted list] or a reason why not!

B - Business

9. Create/Update Architecture Definition Document
8. Finalize the Business Architecture
7. Conduct formal stakeholder review
6. Resolve impacts across the Architecture Landscape
5. Define candidate roadmap components
4. Perform gap analysis
3. Develop Target Business Architecture Description
2. Develop Baseline Business Architecture Description
1. Select reference models, viewpoints, and tools

A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 56 : §6.3
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Þ R-18
Level=2 : L.O.= 4.1a : Explain the steps applicable to all phases.
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 56 : §6.3

4.3 Steps
The level of detail addressed in Phase B will depend on the scope and goals of the overall architecture effort.
New models characterizing the needs of the business will need to be defined in detail during Phase B. Existing business artifacts to be carried over and supported in the target environment may already have been adequately defined in previous architectural work; but, if not, they too will need to be defined in Phase B.
The order of the steps in Phase B, as well as the time at which they are formally started and completed, should be adapted to the situation at hand, in accordance with the established Architecture Governance. In particular, determine whether in this situation it is appropriate to conduct Baseline or Target Architecture development first, as described in the TOGAF Standard

Applying the ADM.
All activities that have been initiated in these steps should be closed during the Finalize the Business Architecture step (see Section 4.3.8). The documentation generated from these steps must be formally published in the Create/Update the Architecture Definition Document step (see Section 4.3.9).

Notes:

Phase B – Business Architecture – 06/11

Step 1 — Select Reference Models, Viewpoints, and Tools
- ❑ Identify required service granularity level, boundaries, contracts.
- ❑ Identify required catalogs, matrices, and diagrams.
- ❑ Identify types of requirements to be collected.
  - ❖ Identify requirements to be met by the Architecture
  - ❖ Formalize the business-focused requirements
  - ❖ Provide requirements input for all Architectures
  - ❖ Provide detailed guidance to be reflected down the line

Step 2 — Develop Baseline Business Architecture Description
- ❑ Must be complete, but without unnecessary detail.
- ❑ If possible, identify the relevant Business Architecture building blocks, drawing on the Architecture Repository.
- ❑ If not, develop a new architecture description:
  - ❖ Use the models identified within Step 1 as a guideline

Step 3 — Develop Target Business Architecture Description
- ❑ If possible, identify the relevant Business Architecture building blocks, drawing on the Architecture Repository.
- ❑ If not, develop a new architecture description:
  - ❖ Use the models identified within Step 1 as a guideline

Step 4 — Perform Gap Analysis
- ❑ Verify the architecture models for internal consistency and accuracy.
- ❑ Perform trade-off analysis to resolve conflicts (if any) among views:
  - ❖ Validate models support the principles, objectives, constraints
    - ➢ Note changes to the viewpoint represented in the selected models from the Architecture Repository, and document.
- ❑ Test architecture models for completeness against requirements
- ❑ Identify gaps between baseline and target using Gap Analysis.

Step 5 — Define Candidate Roadmap Components
- ❑ The initial Business Architecture roadmap is raw material to support a more detailed definition of a consolidated, cross-discipline roadmap within the Opportunities & Solutions phase.

Step 6 — Resolve Impacts Across the Architecture Landscape
Assure the architecture artifacts in the Architecture identify:
- ❑ Does this Architecture impact on any pre-existing architectures?
- ❑ Have recent changes been made that impact Business Architecture?
- ❑ Any opportunities to leverage work from this Business Architecture?
- ❑ Does this Business Architecture impact other projects?
- ❑ Will this Business Architecture be impacted by other projects?

Step 7 — Conduct Formal Stakeholder Review
- ❑ This is a formal review of the model and building blocks selected.
- ❑ Compare proposed Business Architecture against the SOW.
- ❑ It is possible to loop back to earlier steps if necessary

Step 8 — Finalize the Business Architecture
- ❑ Select standards for each of the ABBs, reusing where possible.
- ❑ Fully document each ABB.
- ❑ Cross-check the overall Architecture against the business goals.
- ❑ Document final requirements traceability report.
- ❑ Document final mapping of the Architecture within the Architecture Repository.
- ❑ Publish reusable ABBs.

Step 9 — Create/Update Architecture Definition Document

Level=2 : L.O.= 4.4a : Explain how to apply Phase B and how it contributes to the architecture development work.
See : TOGAF® Standard – Architecture Development Method : Page 43 : §4.3

4.3 Steps
The level of detail addressed in Phase B will depend on the scope and goals of the overall architecture effort.
New models characterizing the needs of the business will need to be defined in detail during Phase B. Existing business artifacts to be carried over and supported in the target environment may already have been adequately defined in previous architectural work; but, if not, they too will need to be defined in Phase B.
The order of the steps in Phase B as well as the time at which they are formally started and completed should be adapted to the situation at hand, in accordance with the established Architecture Governance. In particular, determine whether in this situation it is appropriate to conduct Baseline or Target Architecture development first, as described in the TOGAF Standard

Applying the ADM.
All activities that have been initiated in these steps should be closed during the Finalize the Business Architecture step (see Section 4.3.8). The documentation generated from these steps must be formally published in the Create/Update the Architecture Definition Document step (see Section 4.3.9).

The steps in Phase B are as follows:
- ■Select reference models, viewpoints, and tools (see Section 4.3.1)
- ■Develop Baseline Business Architecture Description (see Section 4.3.2)
- ■Develop Target Business Architecture Description (see Section 4.3.3)
- ■Perform Gap Analysis (see Section 4.3.4)
- ■Define candidate roadmap components (see Section 4.3.5)
- ■Resolve impacts across the Architecture Landscape (see Section 4.3.6)
- ■Conduct formal stakeholder review(see Section 4.3.7)
- ■Finalize the Business Architecture (see Section 4.3.8)
- ■Create/Update the Architecture Definition Document (see Section 4.3.9)

4.3.1 Select Reference Models, Viewpoints, and Tools
Select relevant Business Architecture resources (reference models, patterns, etc.) from the Architecture Repository, on the basis of the business drivers and stakeholder concerns.
Select relevant Business Architecture viewpoints (e.g., operations, management, financial); i.e., ... CONTINUES ... SEE REFERENCE SPECIFIED

Phase B – Business Architecture – 07/11

Key Outputs and Outcomes
What the Enterprise values and consumes is typically different than what the EA produces. EAs deliver essential output.

It is provided as:

VIEWS ROADMAPS ARCHITECTURE SPECIFICATIONS CONTROLS OTHER USEFUL THINGS

Architecture is developed, and the EA landscape populated.
To do this, practitioners require a set of essential knowledge.

Phase	Output & Outcome	Essential Knowledge
Phase B	A set of domain architectures approved by the stakeholders for the problem being addressed, with a set of gaps, and work to clear the gaps understood by the stakeholders.	How does the current Enterprise fail to meet the preferences of the stakeholders? What must change to enable the Enterprise to meet the preferences of the stakeholders? (Gaps) What work is necessary to realize the changes, that is consistent with the additional value being created? (Work Package) How stakeholder priority and preference adjust in response to value, effort, and risk of change. (Stakeholder Requirements)

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Notes:

Level=2 : L.O.= 4.4b : Explain how to apply Phase B and how it contributes to the architecture development work.
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 42 : §5.2.2

Key Outputs and Outcomes
What the Enterprise values and consumes is typically different than what the EA produces. EAs deliver essential output.
It is provided as:
- views
- roadmaps
- architecture specifications
- controls
- other useful things

Architecture is developed, and the EA Landscape populated.
To do this, Practitioners require a set of essential knowledge.

5.2.2 Essential ADM Output and Knowledge
A summary of the essential outcome and output is provided in Table 4. Keep in mind that the essential output is what stakeholders, sponsor, and boss' boss' boss wants. No-one wants an architecture; they want guidance on planning and executing an effective change. Practitioners use an architected approach to providing the best available guidance on effective change. The essential outcomes and outputs are derived from the objectives of the phase – the statement of why a Practitioner should perform this activity.
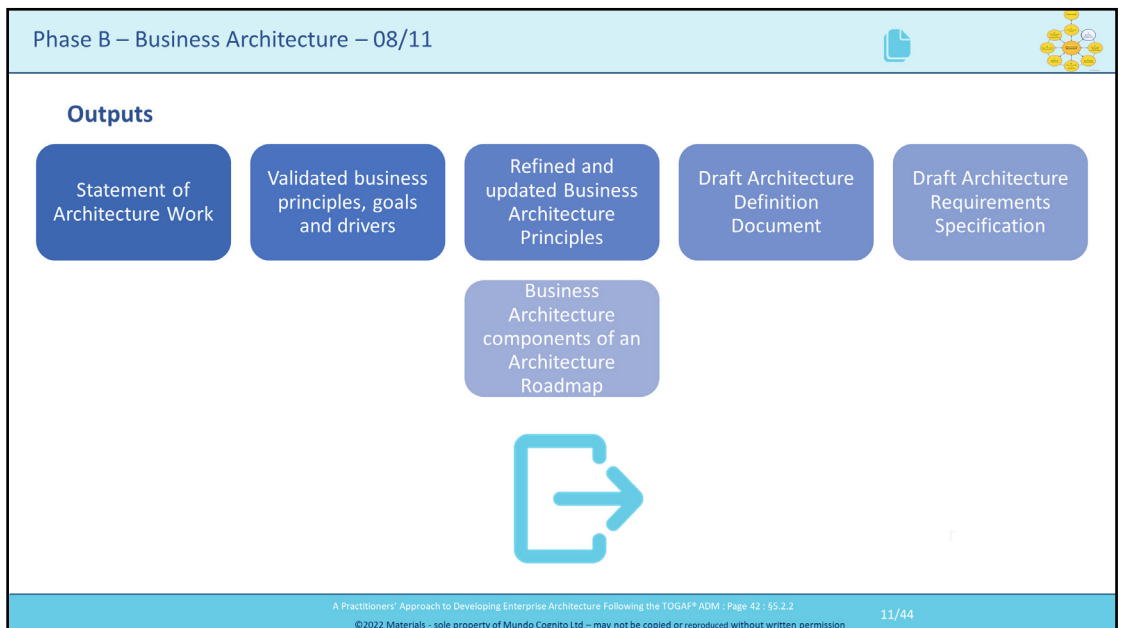What the Enterprise values and consumes is typically different than what the Practitioner produces. Practitioners deliver an essential output. It is provided as views, roadmaps, architecture specifications, controls, and other useful things. Architecture is developed, and the EA Landscape populated. To do this, Practitioners require a set of essential knowledge. The Enterprise consumes effective guidance about, and the ability to govern, change.
Read Table 4 in conjunction with Table 3 to confirm whether for a particular purpose the output of the phase is already in existence, needs to be created, or is extraneous to the current Architecture Project. Good Practitioners will adjust their work accordingly.
Table 4 lists only key outputs and outcomes. For an exhaustive list, refer to the TOGAF Standard. In order to achieve these outcomes, the Practitioner may have to perform more activities or create more deliverables than those listed in the table below. The intent is to keep the focus on what is pursued, not what is done.
Table 4: Essential ADM Outputs, Outcomes, and Required Knowledge

Notes:

Phase B – Business Architecture – 08/11

Outputs

| Statement of Architecture Work | Validated business principles, goals and drivers | Refined and updated Business Architecture Principles | Draft Architecture Definition Document | Draft Architecture Requirements Specification |

Business Architecture components of an Architecture Roadmap

Level=2 : L.O.= 4.4b : Explain how to apply Phase B and how it contributes to the architecture development work.
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 42 : §5.2.2

Key Outputs and Outcomes
What the Enterprise values and consumes is typically different than what the EA produces. EAs deliver essential output.
It is provided as:
- views
- roadmaps
- architecture specifications
- controls
- other useful things

Architecture is developed, and the EA Landscape populated.
To do this, Practitioners require a set of essential knowledge.

5.2.2 Essential ADM Output and Knowledge
A summary of the essential outcome and output is provided in Table 4. Keep in mind that the essential output is what stakeholders, sponsor, and boss' boss' boss wants. No-one wants an architecture; they want guidance on planning and executing an effective change. Practitioners use an architected approach to providing the best available guidance on effective change. The essential outcomes and outputs are derived from the objectives of the phase – the statement of why a Practitioner should perform this activity.
What the Enterprise values and consumes is typically different than what the Practitioner produces. Practitioners deliver an essential output. It is provided as views, roadmaps, architecture specifications, controls, and other useful things. Architecture is developed, and the EA Landscape populated. To do this, Practitioners require a set of essential knowledge. The Enterprise consumes effective guidance about, and the ability to govern, change.
Read Table 4 in conjunction with Table 3 to confirm whether for a particular purpose the output of the phase is already in existence, needs to be created, or is extraneous to the current Architecture Project. Good Practitioners will adjust their work accordingly. Table 4 lists only key outputs and outcomes. For an exhaustive list, refer to the TOGAF Standard. In order to achieve these outcomes, the Practitioner may have to perform more activities or create more deliverables than those listed in the table below. The intent is to keep the focus on what is pursued, not what is done.
Table 4: Essential ADM Outputs, Outcomes, and Required Knowledge

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Phase B – Business Architecture – 09/11

Q-7.2,p19
A-1.10,p14

Outputs

Refined and updated versions of the Architecture Vision phase deliverables, where applicable

Draft Architecture Definition Document, including:

• Baseline Business Architecture, approved
• Target Business Architecture, approved

Draft Architecture Requirements Specification with Business Architecture requirements as:

• Gap Analysis results
• Technical requirements
• Updated business requirements
• Business Architecture components of Architecture Roadmap

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Notes:

Level=2 : L.O.= 4.4b : Explain how to apply Phase B and how it contributes to the architecture development work.
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 42 : §5.2.2

Key Outputs and Outcomes
What the Enterprise values and consumes is typically different than what the EA produces. EAs deliver essential output.
It is provided as:
• views
• roadmaps
• architecture specifications
• controls
• other useful things

Architecture is developed, and the EA Landscape populated.
To do this, Practitioners require a set of essential knowledge.

5.2.2 Essential ADM Output and Knowledge
A summary of the essential outcome and output is provided in Table 4. Keep in mind that the essential output is what stakeholders, sponsor, and boss' boss' boss wants. No-one wants an architecture; they want guidance on planning and executing an effective change. Practitioners use an architected approach to providing the best available guidance on effective change. The essential outcomes and outputs are derived from the objectives of the phase – the statement of why a Practitioner should perform this activity.
What the Enterprise values and consumes is typically different than what the Practitioner produces. Practitioners deliver an essential output. It is provided as views, roadmaps, architecture specifications, controls, and other useful things. Architecture is developed, and the EA Landscape populated. To do this, Practitioners require a set of essential knowledge. The Enterprise consumes effective guidance about, and the ability to govern, change.
Read Table 4 in conjunction with Table 3 to confirm whether for a particular purpose the output of the phase is already in existence, needs to be created, or is extraneous to the current Architecture Project. Good Practitioners will adjust their work accordingly.
Table 4 lists only key outputs and outcomes. For an exhaustive list, refer to the TOGAF Standard. In order to achieve these outcomes, the Practitioner may have to perform more activities or create more deliverables than those listed in the table below. The intent is to keep the focus on what is pursued, not what is done.
Table 4: Essential ADM Outputs, Outcomes, and Required Knowledge

TOGAF® Standard, 10th Edition

Notes:

Phase B – Business Architecture – 10/11

Objectives
Develop the Target Business Architecture that describes how the enterprise needs to operate to achieve the business goals, and respond to the strategic drivers set out in the Architecture Vision in a way that addresses the Statement of Architecture Work and stakeholder concerns. Identify candidate Architecture Roadmap components based upon gaps between the Baseline and Target Business Architectures.

PHASE B - at-a-glance

Inputs	Steps	Outputs
❑ Request for Architecture Work	❑ Select reference models, viewpoints, and tools	❑ Statement of Architecture Work, updated if necessary
❑ Business principles, business goals, and business drivers		❑ Validated business principles, business goals, and business drivers
❑ Capability Assessment	❑ Develop Baseline Business Architecture Description	
❑ Communications Plan		❑ Refined and updated Architecture Principles, if applicable
❑ Organizational Model for Enterprise Architecture	❑ Develop Target Business Architecture Description	❑ Draft Architecture Definition Document containing content updates:
❑ Tailored Architecture Framework		❖ Baseline Business Architecture (detailed), if appropriate
❑ Approved Statement of Architecture Work	❑ Perform Gap Analysis	❖ Target Business Architecture (detailed with Business Capabilities, Value Streams, and Organization Map as core artifacts)
❑ Architecture Principles, including business principles, when pre-existing		
❑ Enterprise Continuum	❑ Define candidate roadmap components	❖ Views corresponding to selected viewpoints addressing key stakeholder concerns
❑ Architecture Repository		
❑ Architecture Vision, including:	❑ Resolve impacts across the Architecture Landscape	❑ Draft Architecture Requirements Specification including content updates:
❖ Refined key high-level stakeholder requirements		❖ Gap Analysis results
❑ Draft Architecture Definition Document, including:	❑ Conduct formal stakeholder review	❖ Technical requirements
❖ Baseline Business Architecture (high-level)		❖ Updated business requirements
❖ Baseline Data Architecture (high-level)	❑ Finalize the Business Architecture	❑ Business Architecture components of an Architecture Roadmap
❖ Baseline Application Architecture (high-level)		
❖ Baseline Technology Architecture (high-level)	❑ Create Architecture Definition Document	
❖ Target Business Architecture (high-level)		
❖ Target Data Architecture (high-level)		
❖ Target Application Architecture (high-level)		
❖ Target Technology Architecture (high-level)		

Level=2 : L.O.= 4.4b : Explain how to apply Phase B and how it contributes to the architecture development work.
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 42 : §5.2.2

Key Outputs and Outcomes
What the Enterprise values and consumes is typically different than what the EA produces. EAs deliver essential output.
It is provided as:
• views
• roadmaps
• architecture specifications
• controls
• other useful things

Architecture is developed, and the EA Landscape populated.
To do this, Practitioners require a set of essential knowledge.

5.2.2 Essential ADM Output and Knowledge
A summary of the essential outcome and output is provided in Table 4. Keep in mind that the essential output is what stakeholders, sponsor, and boss' boss' boss wants. No-one wants an architecture; they want guidance on planning and executing an effective change. Practitioners use an architected approach to providing the best available guidance on effective change. The essential outcomes and outputs are derived from the objectives of the phase – the statement of why a Practitioner should perform this activity.
What the Enterprise values and consumes is typically different than what the Practitioner produces. Practitioners deliver an essential output. It is provided as views, roadmaps, architecture specifications, controls, and other useful things. Architecture is developed, and the EA Landscape populated. To do this, Practitioners require a set of essential knowledge. The Enterprise consumes effective guidance about, and the ability to govern, change.
Read Table 4 in conjunction with Table 3 to confirm whether for a particular purpose the output of the phase is already in existence, needs to be created, or is extraneous to the current Architecture Project. Good Practitioners will adjust their work accordingly. Table 4 lists only key outputs and outcomes. For an exhaustive list, refer to the TOGAF Standard. In order to achieve these outcomes, the Practitioner may have to perform more activities or create more deliverables than those listed in the table below. The intent is to keep the focus on what is pursued, not what is done.
Table 4: Essential ADM Outputs, Outcomes, and Required Knowledge

Phase B – Business Architecture – 11/11

Phase	Output & Outcome	Essential Knowledge
Phase B, Phase C, & Phase D	A set of domain architectures approved by the stakeholders for the problem being addressed, with a set of gaps, and work to clear the gaps understood by the stakeholders.	How does the current Enterprise fail to meet the preferences of the stakeholders? What must change to enable the Enterprise to meet the preferences of the stakeholders? (Gaps) What work is necessary to realize the changes, that is consistent with the additional value being created? (Work Package) How stakeholder priority and preference adjust in response to value, effort, and risk of change. (Stakeholder Requirements)

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No LO – for context only

Notes:

Modules Level 2:

00 - Course Introduction

08 - The Context for Enterprise Architecture

09 - Stakeholder Management

10 - Phase A

- 11 - Architecture Development

12 - Implementing the Architecture

13 - Architecture Change Management

14 - Requirements Management

15 - Supporting the ADM Work

16 - Closure

Notes:

Phase C – Information Systems Architecture – 01/12

Q-7.3,p21
A-1.11,p16

Phases
Steps
Classic View

B - Business
C - { Application, Data
D - Technology

Associated with each step is a generic list of tasks.
This will be adapted as fitting for each project.

The order is not very important.

It is important that at the end of the phase there is a ✓ in every box [of the adapted list] or a reason why not!

9. Create/update Architecture Definition Document

8. Finalize the Application/Data Architecture

7. Conduct formal stakeholder review

6. Resolve impacts across the Architecture Landscape

5. Define candidate roadmap components

4. Perform Gap Analysis

3. Develop Target Application/Data Architecture Description

2. Develop Baseline Application/Data Architecture Description

1. Select reference models, viewpoints, and tools

Architecture Development Method : Page 67 : §6.5

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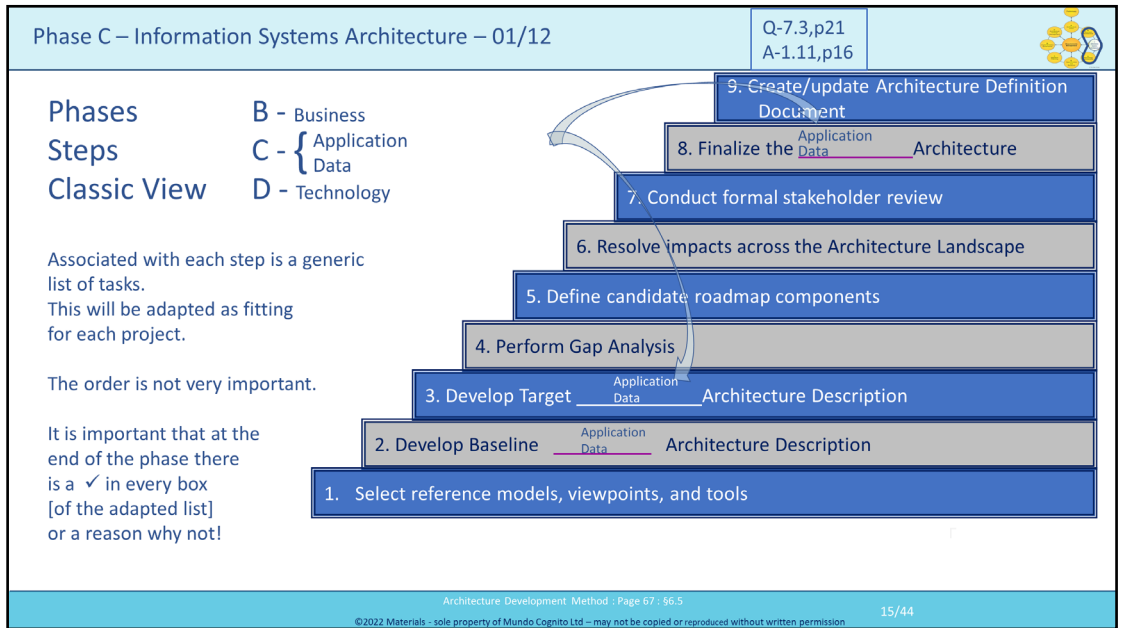
No LO – for context only
Objectives

Modules Level 2:

Phase C – Information Systems Architecture – 02/12

Objectives

Develop Target Information Systems Architectures

o How Information Systems Architecture will enable:
- Business Architecture
- Architecture Vision
o By addressing:
- Statement of Architecture Work
- Stakeholder concerns

Identify candidate Architecture Roadmap components

o Based upon gaps between the:
- Baseline Information Systems Architectures - (Data and Application)
- Target Information Systems Architectures - (Data and Application)

Architecture Development Method : Page 58 : §5.1

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No LO – for context only
Objectives

Notes:

Notes:

Phase C – Information Systems Architecture – 03/12
Q-7.3,p20
A-1.10,p14

Inputs - Data

o Architecture reference materials
o TOGAF® Series Guide: Information Architecture — Customer Master Data Management
o The Open Group Guide: Information Architecture: Business Intelligence & Analytics and Metadata Management Reference Models

o Request for Architecture Work
o Capability Assessment
o Communications Plan

o Organizational Model for Enterprise Architecture including:
  ▪ Scope of organizations impacted
  ▪ Maturity assessment, gaps, and resolution approach
  ▪ Roles and responsibilities for architecture team(s)
  ▪ Constraints on architecture work
  ▪ Budget requirements
  ▪ Governance and support strategy

o Tailored Architecture Framework including:
  ▪ Tailored Architecture method
  ▪ Tailored Architecture content (deliverables and artifacts)
  ▪ Configured and deployed tools
o Data principles
o Statement of Architecture Work
o Architecture Vision
o Architecture Repository including:
  ▪ Re-usable building blocks (in particular, definitions of current data)
  ▪ Publicly available reference models
  ▪ Organization-specific reference models
  ▪ Organization standards
o Draft Architecture Definition Document, which may include Baseline and/or Target Architectures of any architecture domain
o Draft Architecture Requirements Specification, including:
  ▪ Gap Analysis results (from Business Architecture)
o Relevant technical requirements that will apply to this phase
o Business Architecture components of an Architecture Roadmap

Architecture Development Method : Page 59 : §6.2

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Level=2 : L.O.= 4.5a : Explain the information that is relevant to Phase C (Data and Applications) to produce outputs relevant to the architecture development.
See : TOGAF® Standard – Architecture Development Method : Page 59 : §6.2

Inputs
This section defines the inputs to Phase C (Data Architecture).

6.2.1 Reference Materials External to the Enterprise
■ Architecture reference materials (see the TOGAF Standard — Architecture Content)
■ TOGAF® Series Guide: Information Architecture — Customer Master Data Management
■ The Open Group Guide: Information Architecture: Business Intelligence & Analytics and
Metadata Management Reference Models
6.2.2 Non-Architectural Inputs
■ Request for Architecture Work (see the TOGAF Standard — Architecture Content)
■ Capability Assessment (see the TOGAF Standard — Architecture Content)
■ Communications Plan (see the TOGAF Standard — Architecture Content)
TOGAF® Standard — Architecture Development Method 59
Inputs Phase C: Information Systems Architectures — Data Architecture
6.2.3 Architectural Inputs
■ Organizational Model for Enterprise Architecture (see the TOGAF Standard — Architecture
Content), including:
— Scope of organizations impacted
— Maturity assessment, gaps, and resolution approach
— Roles and responsibilities for architecture team(s)
— Constraints on architecture work
— Budget requirements
— Governance and support strategy
■ Tailored Architecture Framework (see the TOGAF Standard — Architecture Content),
including:
— Tailored architecture method
— Tailored architecture content (deliverables and artifacts)
— Configured and deployed tools
■ Data principles (see the TOGAF Standard — ADM Techniques), if existing
■ Statement of Architecture Work (see the TOGAF Standard — Architecture Content)
■ Architecture Vision (see the TOGAF Standard — Architecture Content)
■ Architecture Repository (see the TOGAF Standard — Architecture Content),
... CONTINUES ... SEE REFERENCE SPECIFIED

TOGAF® Standard, 10th Edition

Phase C – Information Systems Architecture – 04/12

Q-7.3,p21
A-1.10,p14

Inputs - Application

o Architecture reference materials

o Request for Architecture Work
o Capability Assessment
o Communications Plan

o Organizational Model for Enterprise Architecture, including:
  - Scope of organizations impacted
  - Maturity assessment, gaps, and resolution approach
  - Constraints on Architecture Work
  - Budget requirements
  - Governance and support strategy
o Tailored Architecture Framework, including:
  - Tailored Architecture method
  - Tailored Architecture content (deliverables and artifacts)
  - Configured and deployed tools

o Application principles
o Statement of Architecture Work
o Architecture Vision
o Architecture Repository, including:
  - Re-usable building blocks
  - Publicly available reference models
  - Organization-specific reference models
  - Organization standards
o Draft Architecture Definition Document, which may include Baseline and/or Target

o Draft Architecture Requirements Specification, including:
  - Gap Analysis results (from Business Architecture and Data Architecture)
  - Relevant technical requirements that will apply to this phase
  - Business and Data Architecture components of an Architecture Roadmap, if available

Architecture Development Method : Page 71 : §7.2
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Notes:

Level=2 : L.O.= 4.5b : Explain the information that is relevant to Phase C (Data and Applications) to produce outputs relevant to the architecture development.
See : TOGAF® Standard – Architecture Development Method : Page 71 : §7.2

7.2 Inputs
This section defines the inputs to Phase C (Application Architecture).

7.2.1 Reference Materials External to the Enterprise
■ Architecture reference materials (see the TOGAF Standard — Architecture Content)
7.2.2 Non-Architectural Inputs
■ Request for Architecture Work (see the TOGAF Standard — Architecture Content)
■ Capability Assessment (see the TOGAF Standard — Architecture Content)
■ Communications Plan (see the TOGAF Standard — Architecture Content)
7.2.3 Architectural Inputs
■ Organizational Model for Enterprise Architecture (see the TOGAF Standard — Architecture
Content), including:
— Scope of organizations impacted
— Maturity assessment, gaps, and resolution approach
TOGAF® Standard — Architecture Development Method 71
Inputs Phase C: Information Systems Architectures — Application Architecture
— Roles and responsibilities for architecture team(s)
— Constraints on architecture work
— Budget requirements
— Governance and support strategy
■ Tailored Architecture Framework (see the TOGAF Standard — Architecture Content), including:
— Tailored architecture method
— Tailored architecture content (deliverables and artifacts)
— Configured and deployed tools
■ Application principles (see the TOGAF Standard — ADM Techniques), if existing
■ Statement of Architecture Work (see the TOGAF Standard — Architecture Content)
■ Architecture Vision (see the TOGAF Standard — Architecture Content)
■ Architecture Repository (see the TOGAF Standard — Architecture Content), including:
— Re-usable building blocks
— Publicly available reference models
— Organization-specific reference models
— Organization standards
... CONTINUES ... SEE REFERENCE SPECIFIED

TOGAF® Standard, 10th Edition

TOGAF® Standard, 10th Edition

Notes:

| Phase C – Information Systems Architecture – 05/12 | | Q-7.2,p20 A-1.10,p14 |

Essential outcome and output - Summary

Phase	Output & Outcome	Essential Knowledge
Phase B, Phase C, & Phase D	A set of domain architectures approved by the stakeholders for the problem being addressed, with a set of gaps, and work to clear the gaps understood by the stakeholders.	How does the current Enterprise fail to meet the preferences of the stakeholders? What must change to enable the Enterprise to meet the preferences of the stakeholders? (Gaps) What work is necessary to realize the changes, that is consistent with the additional value being created? (Work Package) How stakeholder priority and preference adjust in response to value, effort, and risk of change. (Stakeholder Requirements)

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Level=2 : L.O.= 4.5c : Explain the information that is relevant to Phase C (Data and Applications) to produce outputs relevant to the architecture development.
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 42 : §5.2.2

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A summary of the essential outcome and output is provided in Table 4. Keep in mind that the essential output is what stakeholders, sponsor, and boss' boss' boss wants. No-one wants an architecture; they want guidance on planning and executing an effective change. Practitioners use an architected approach to providing the best available guidance on effective change. The essential outcomes and outputs are derived from the objectives of the phase – the statement of why a Practitioner should perform this activity.

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Read Table 4 in conjunction with Table 3 to confirm whether for a particular purpose the output of the phase is already in existence, needs to be created, or is extraneous to the current Architecture Project. Good Practitioners will adjust their work accordingly. Table 4 lists only key outputs and outcomes. For an exhaustive list, refer to the TOGAF Standard. In order to achieve these outcomes, the Practitioner may have to perform more activities or create more deliverables than those listed in the table below. The intent is to keep the focus on what is pursued, not what is done.

Table 4: Essential ADM Outputs, Outcomes, and Required Knowledge Phase Output & Outcome Essential Knowledge

Phase B, Phase C, & Phase D
A set of domain architectures approved by the stakeholders for the problem being addressed, with a set of gaps, and work to clear the gaps understood by the stakeholders.
How does the current Enterprise fail to meet the preferences of the stakeholders?
What must change to enable the Enterprise to meet the preferences of the stakeholders? (Gaps)
What work is necessary to realize the changes, that is consistent with the additional value being created? (Work Package)
How stakeholder priority and preference adjust in response to value, effort, and risk of change. (Stakeholder Requirements)

Notes:

Phase C – Information Systems Architecture – 06/12

Key Outputs and Outcomes

What the Enterprise values and consumes is typically different than what the EA produces. EAs deliver essential output provided as

VIEWS   ROADMAPS   ARCHITECTURE SPECIFICATIONS   CONTROLS   OTHER USEFUL THINGS

Architecture is developed, and the EA landscape populated.
To do this, practitioners require a set of essential knowledge.

Phase	Output & Outcome	Essential Knowledge
Phase C	A set of domain architectures approved by the stakeholders for the problem being addressed, with a set of gaps, and work to clear the gaps understood by the stakeholders.	How does the current Enterprise fail to meet the preferences of the stakeholders? What must change to enable the Enterprise to meet the preferences of the stakeholders? (Gaps) What work is necessary to realize the changes, that is consistent with the additional value being created? (Work Package) How stakeholder priority and preference adjust in response to value, effort, and risk of change. (Stakeholder Requirements)

A Practitioners' Approach to Developing Enterprise Architecture Following the ADM : Page 42 : §5.2.2
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See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 42 : §5.2.2

Key Outputs and Outcomes
What the Enterprise values and consumes is typically different than what the EA produces. EAs deliver essential output.
It is provided as:
• views
• roadmaps
• architecture specifications
• controls
• other useful things

Architecture is developed, and the EA Landscape populated.
To do this, Practitioners require a set of essential knowledge.

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Modules Level 2:

Notes:

Phase C – Information Systems Architecture – 07/12 — Q-7.3,p21 / A-1.11,p16

Approach

Data Structure
- Data at rest — data in stores
- Data in motion — data in transactions or services/APIs
- Data in use — data at the border of the application (e.g., GUI)
- Open data — data that the organization provides for public usage

All can be used in data exchange models

Key Considerations

Data Management
- A clear definition of which application components serve as the system of record
- Will there be an enterprise-wide standard
- Clearly understand how data entities are:
  - utilized by business capabilities, business functions, processes, application services
  - created, stored, transported, and reported
- Data transformations required to support
  - information between applications
data integration with customers/suppliers

Governance
- Structure: whether the enterprise has the necessary organizational capabilities to manage data entity aspects of transformation
- Management system: necessary to manage the governance aspects of data entities throughout its lifecycle
- People: addresses what data-related skills and roles the enterprise requires.

Repository
What relevant Data Architecture resources are available e.g. generic data models relevant to the particular industry.

Migration
- Data Architecture should
  - identify data migration requirements
  - provide indicators as to the level of transformation/cleansing
  - utilize enterprise-wide common data definitions

Level=2 : L.O.= 4.6a : Explain how to apply Phase C and how it contributes to the architecture development work.
See : TOGAF® Standard – Architecture Development Method : Page 67 : 6.5

6.5 Approach
6.5.1 Data Structure
A Data Architecture should be able to handle:
■ Data at rest — data in stores
■ Data in motion — data in transactions or services/APIs
■ Data in use — data at the border of the application (e.g., GUI)
■ Open data — data that the organization provides for public usage and which it is voluntarily or legally required to provide

Different alternate ways of working with these types of Data Architecture will be added.
Data Architecture is created by using three metamodel entities: data entity, logical data component, and physical data component.
Data entities can be used to create conceptual data models to help the IT developers understand the concepts they will be dealing with. Often the entity relationship models also contain some requirements on the relations (e.g., a customer can only have one address).
Logical data components can be used to create logical data models. Often it is important for the IT area to have a clear view of all data that is used in the IT environment. The logical data model is often used as a requirement on the data stored in applications (at rest), data moved between applications (in motion), or data at the user interface of applications (data in use).

Physical data components are clusters of logical data components that have been implemented by some earlier project (links to, for example, XML message, database schemas) or requirements for new implementation projects.
All three data entities can be used in data exchange models for data passed between/ into/out of IS services, logical application components, or physical application components. All data entities can have quality attributes for specific situations.

6.5.2 Key Considerations for Data Architecture
6.5.2.1 Data Management
When an enterprise has chosen to undertake large-scale architectural transformation, it is important to understand and address data management issues. A structured and comprehensive approach to data management enables the effective use of data to

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Modules Level 2:

Notes:

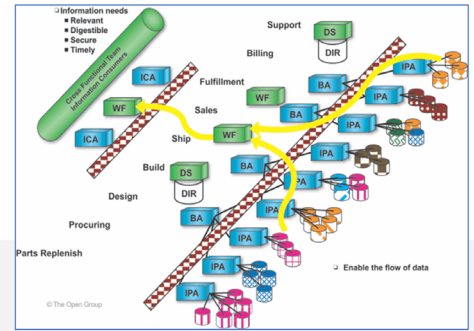Phase C – Information Systems Architecture – 08/12

Approach

Architecture Repository
- o Generic business models and related application models relevant to the industry sector
- o Application models relevant to common high-level business functions, such as electronic commerce, supply chain management, etc.

The Open Group - Reference Model
- o Integrated Information Infrastructure (III-RM) focuses on
  - the application-level components
  - services
  that are necessary to provide an integrated information infrastructure.

see: TOGAF® Series Guide: The TOGAF Integrated Information Infrastructure Reference Model (III-RM)

Architecture Development Method : Page 79 : §7.5
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... CONTINUES ... SEE REFERENCE SPECIFIED Level=2 : L.O.= 4.6b : Explain how to apply Phase C and how it contributes to the architecture development work.
See : TOGAF® Standard – Architecture Development Method : Page 79 : 7.5

7.5 Approach
7.5.1 Architecture Repository
As part of this phase, the architecture team will need to consider what relevant Application
Architecture resources are available in the Architecture Repository (see the TOGAF Standard —
Architecture Content).
In particular :
■ Generic business models and related application models relevant to the organization's
industry sector
■ Application models relevant to common high-level business functions, such as electronic
commerce, supply-chain management, etc.

The Open Group has a Reference Model for Integrated Information Infrastructure (III-RM) — see the TOGAF® Series Guide: The TOGAF Integrated Information Infrastructure Reference Model (III-RM) — that focuses on the application-level components and services necessary to provide an integrated information infrastructure.

TOGAF® Standard, 10th Edition

Phase C – Information Systems Architecture – 9/12

Step 1: Select Reference Models, Viewpoints, and Tools
- Determine overall Modelling Process.
- For each viewpoint, select the models needed to support the specific view required - e.g.:
  - The TM Forum (Telecommunications industry)
  - The OMG (Healthcare, Transportation, Finance, etc.)
- Confirm all stakeholders' concerns are addressed.
- Identify required catalogs of application building blocks.
- Identify required matrices.
- Identify required diagrams.
- Identify types of requirements to be collected.
- Identify requirements to be met by the Architecture.
- Formalize the application-focused statement.
- Provide requirements input for the data and technology architectures.

Step 2: Develop Baseline Business Architecture Description
- If possible, identify the relevant current Data ABBs, drawing on the Architecture Repository.
- If not, develop new architecture models:
  - use the models identified within Step 1 as a guideline

Step 3: Develop Target Business Architecture Description
- If possible, identify the relevant Application Architecture building blocks, drawing on the Architecture Repository.
- If not, develop a new architecture model.
- Use the models identified within Step 1 as a guideline.

Step 4: Perform Gap Analysis
- Verify the Architecture Models for internal consistency and accuracy.
- Perform trade-off analysis to resolve conflicts (if any) among views:
  - Validate models to support the principles, objectives, constraints
    - Note changes to the viewpoint represented in the selected models from the Architecture Repository, and document
      - Identify gaps between the baseline and target using the standard Gap Analysis technique

Step 5: Define Candidate Roadmap Components
- The initial Business Architecture roadmap is raw material to support more detailed definition of a consolidated, cross-discipline roadmap within the Opportunities & Solutions phase.

Step 6: Resolve Impacts Across the Architecture Landscape
Assure Architecture artifacts in the Architecture identify:
- Does this Architecture impact on any pre-existing architectures?
- Have recent changes been made that impact this Business Architecture?
- Any opportunities to leverage work from this Business Architecture?
- Does this Business Architecture impact other projects ?
- Will this Business Architecture be impacted by other projects?

Step 7: Conduct Formal Stakeholder Review
- Check the original motivation for the architecture project and the Statement of Architecture Work against the proposed Application Architecture. Conduct an impact analysis to:
- Identify any areas where the Business and Data Architecture may need to change to cater for changes in the Application Architecture. If the impact is significant, revisit the Business and Data Architectures.

Step 8: Finalize the Business Architecture
- Select standards for each of the ABBs, reusing where possible.
- Fully document each ABB.
- Cross check the overall architecture against the business goals.
- Document final requirements traceability report.
- Document final mapping of the architecture within the Architecture Repository.
- Finalize all the work products.

Step 9: Create/Update Architecture Definition Document
- Document the rationale for all building block decisions in the architecture definition document.
- Prepare the Data Architecture sections of the architecture definition document report.
- If appropriate, use reports and/or graphics generated by modelling tools to demonstrate key views of the architecture. Route the document for review by relevant stakeholders and incorporate feedback.

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Notes:

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Level=2 : L.O.= 4.6a : Explain how to apply Phase C and how it contributes to the architecture development work.
See : TOGAF® Standard – Architecture Development Method : Page 67 : §6.5

Phases B - Business
Steps   C -
Classic View   D - Technology
Associated with each step is a generic list of tasks.
This will be adapted as fitting for each project.
The order is not very Important.
It is important that at the end of the phase there is a ✓ in every box [of the adapted list] or a reason why not!

6.3 Phases B, C, and D – Developing the Architecture

Practitioners often find it surprising that the steps outlined in the TOGAF Standard to develop architecture in Phases B, C, and D are identical. The steps are identical because the approach to developing an architecture, confirming the work product developed fits, and confirming approval are identical. These steps are also mandatory. Steps can be skipped, but the final outcome could be at risk.
What changes from purpose to purpose, domain to domain, project to project, and EA team to EA team is the level of detail, precision, and formality. All Practitioners should use the steps as a checklist.

Phase C – Information Systems Architecture – 10/12

Essential outcome and output - Summary

Phase	Output & Outcome	Essential Knowledge
Phase B, Phase C, & Phase D	A set of domain architectures approved by the stakeholders for the problem being addressed, with a set of gaps, and work to clear the gaps understood by the stakeholders.	How does the current Enterprise fail to meet the preferences of the stakeholders? What must change to enable the Enterprise to meet the preferences of the stakeholders? (Gaps) What work is necessary to realize the changes, that is consistent with the additional value being created? (Work Package) How stakeholder priority and preference adjust in response to value, effort, and risk of change. (Stakeholder Requirements)

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Notes:

Level=2 : L.O.= 4.6c : Explain the information that is relevant to Phase C (Data and Applications) to produce outputs relevant to the architecture development.
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 42 : §5.2.2

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TOGAF® Standard, 10th Edition

Notes:

Phase C – Information Systems Architecture – 11/12

Key Outputs and Outcomes

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VIEWS   ROADMAPS   ARCHITECTURE SPECIFICATIONS   CONTROLS   OTHER USEFUL THINGS

Architecture is developed, and the EA Landscape populated.
To do this, practitioners require a set of essential knowledge.

Phase	Output & Outcome	Essential Knowledge
Phase C	A set of domain architectures approved by the stakeholders for the problem being addressed, with a set of gaps, and work to clear the gaps understood by the stakeholders.	How does the current Enterprise fail to meet the preferences of the stakeholders? What must change to enable the Enterprise to meet the preferences of the stakeholders? (Gaps) What work is necessary to realize the changes, that is consistent with the additional value being created? (Work Package) How stakeholder priority and preference adjust in response to value, effort, and risk of change. (Stakeholder Requirements)

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Notes:

Phase C – Information Systems Architecture – 12/12

o Update the Architecture Vision phase deliverables:
  • Statement of Architecture Work
  • Validated application principles, or new application principles

o Draft Architecture Definition Document:
  • Baseline Application Architecture, Approved
  • Target Application Architecture, Approved
  • Views addressing stakeholder concerns

o Draft Architecture Requirements Specification:
  • Gap analysis results
  • Applications interoperability requirements
  • Relevant technical requirement
  • Constraints on the Technology Architecture about to be designed
  • Updated business requirements
  • Updated data requirements

o Application Architecture components of an Architecture Roadmap

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Notes:

Phase D – Technology Architecture – 01/12

Q-7.2,p20
A-1.10,p14

Objectives

Develop the Target Technology Architecture that enables the Business and IS Architectures and the Architecture Vision, in a way that addresses the Statement of Architecture Work and stakeholder concerns

Identify candidate Architecture Roadmap components based upon gaps between the Baseline and Target Data Architectures
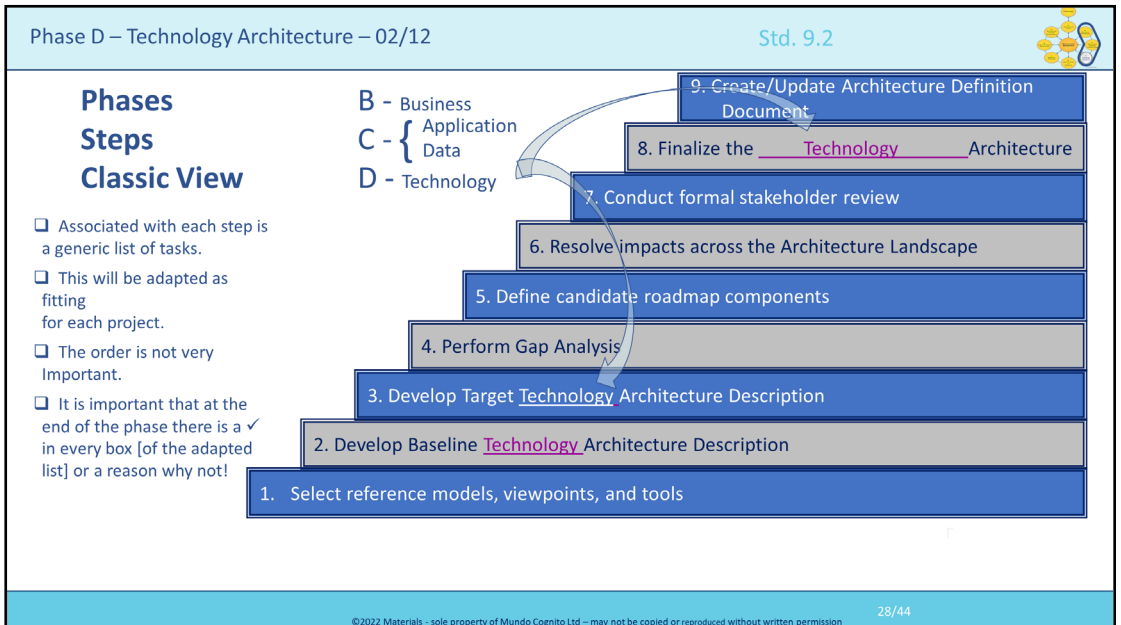
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Context

Modules Level 2:

Phase D – Technology Architecture – 02/12   Std. 9.2

Phases
Steps
Classic View

B - Business
C - { Application
     Data
D - Technology

❑ Associated with each step is a generic list of tasks.
❑ This will be adapted as fitting for each project.
❑ The order is not very Important.
❑ It is important that at the end of the phase there is a ✓ in every box [of the adapted list] or a reason why not!

9. Create/Update Architecture Definition Document

8. Finalize the _____Technology_____ Architecture

7. Conduct formal stakeholder review

6. Resolve impacts across the Architecture Landscape

5. Define candidate roadmap components

4. Perform Gap Analysis

3. Develop Target Technology Architecture Description

2. Develop Baseline Technology Architecture Description

1. Select reference models, viewpoints, and tools

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Context – included for 9.2 upgraders

Notes:

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Notes:

Level=2 : L.O.= 4.7a : Explain the information needed in Phase D to produce outputs relevant to the architecture development.
See : TOGAF® Standard – Architecture Development Method : Page 82 : §8.2

8.2 Inputs
This section defines the inputs to Phase D.

8.2.1 Reference Materials External to the Enterprise
■Architecture reference materials (see the TOGAF Standard — Architecture Content)
■Product information on candidate products
8.2.2 Non-Architectural Inputs
■Request for Architecture Work (see the TOGAF Standard — Architecture Content)
■Capability Assessment (see the TOGAF Standard — Architecture Content)
■Communications Plan (see the TOGAF Standard — Architecture Content)
8.2.3 Architectural Inputs
■Organizational Model for Enterprise Architecture (see the TOGAF Standard — Architecture
Content), including:
—Scope of organizations impacted
—Maturity assessment, gaps, and resolution approach
—Roles and responsibilities for architecture team(s)
—Constraints on architecture work
—Budget requirements
—Governance and support strategy
■Tailored Architecture Framework (see the TOGAF Standard — Architecture Content), including:
—Tailored architecture method
—Tailored architecture content (deliverables and artifacts)
—Configured and deployed tools
■Technology principles (see the TOGAF Standard — ADM Techniques), if existing
■Statement of Architecture Work (see the TOGAF Standard — Architecture Content)
■Architecture Vision (see the TOGAF Standard — Architecture Content)
■Architecture Repository(see the TOGAF Standard — Architecture Content), including:
—Re-usable building blocks
—Publicly available reference models
—Organization-specific reference models
—Organization standards
■Draft Architecture Definition Document, which may include Baseline and/or Target
... CONTINUES ... SEE REFERENCE SPECIFIED

Modules Level 2:

Phase D – Technology Architecture – 04/12

Essential outcome and output - Summary

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Notes:

Phase D – Technology Architecture – 05/12

Key Outputs and Outcomes

What the Enterprise values and consumes is typically different than what the EA produces. EAs deliver essential output.

It is provided as:

| VIEWS | ROADMAPS | ARCHITECTURE SPECIFICATIONS | CONTROLS | OTHER USEFUL THINGS |

Architecture is developed, and the EA Landscape populated.
To do this, practitioners require a set of essential knowledge.

Phase	Output & Outcome	Essential Knowledge
Phase D	A set of domain architectures approved by the stakeholders for the problem being addressed, with a set of gaps, and work to clear the gaps understood by the stakeholders.	How does the current Enterprise fail to meet the preferences of the stakeholders? What must change to enable the Enterprise to meet the preferences of the stakeholders? (Gaps) What work is necessary to realize the changes, that is consistent with the additional value being created? (Work Package) How stakeholder priority and preference adjust in response to value, effort, and risk of change. (Stakeholder Requirements)

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5.2.2 Essential ADM Output and Knowledge
A summary of the essential outcome and output is provided in Table 4. Keep in mind that the essential output is what stakeholders, sponsor, and boss' boss' boss wants. No-one wants an architecture; they want guidance on planning and executing an effective change. Practitioners use an architected approach to providing the best available guidance on effective change. The essential outcomes and outputs are derived from the objectives of the phase – the statement of why a Practitioner should perform this activity.

What the Enterprise values and consumes is typically different than what the Practitioner produces. Practitioners deliver an essential output. It is provided as views, roadmaps, architecture specifications, controls, and other useful things. Architecture is developed, and the EA Landscape populated. To do this, Practitioners require a set of essential knowledge. The Enterprise consumes effective guidance about, and the ability to govern, change.

Read Table 4 in conjunction with Table 3 to confirm whether for a particular purpose the output of the phase is already in existence, needs to be created, or is extraneous to the current Architecture Project. Good Practitioners will adjust their work accordingly. Table 4 lists only key outputs and outcomes. For an exhaustive list, refer to the TOGAF Standard. In order to achieve these outcomes, the Practitioner may have to perform more activities or create more deliverables than those listed in the table below. The intent is to keep the focus on what is pursued, not what is done.

Table 4: Essential ADM Outputs, Outcomes, and Required Knowledge Phase Output & Outcome Essential Knowledge

Phase B, Phase C, & Phase D
A set of domain architectures approved by the stakeholders for the problem being addressed, with a set of gaps, and work to clear the gaps understood by the stakeholders.
How does the current Enterprise fail to meet the preferences of the stakeholders?
What must change to enable the Enterprise to meet the preferences of the stakeholders? (Gaps)
What work is necessary to realize the changes, that is consistent with the additional value being created? (Work Package)
How stakeholder priority and preference adjust in response to value, effort, and risk of change. (Stakeholder Requirements)

Modules Level 2:

Notes:

Phase D – Technology Architecture – 06/12

Approach

Emerging Technologies

• The evolution of new technologies is a major driver for change in enterprises looking for new and innovative ways of operating and improving their business.

Architecture Repository

• Consider what relevant Technology Architecture resources are available in the Architecture Repository

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Context
Approach
Emerging Technologies
The evolution of new technologies is a major driver for change in enterprises looking for new innovative ways of operating and improving their business.
• Stakeholders need to both anticipate and be open to technology-driven change.
• Solution development methods are also evolving to challenge traditional development methods.
• Without a strong Enterprise Architecture approach, the rapid adoption of changing technologies will cause discontinuities across the enterprise.
• Technology Architecture may both drive business capabilities and respond to information system requirements at the same time.

Architecture Repository
Consider what relevant Technology Architecture resources are available in the Architecture Repository :
• Existing IT services as documented in the IT repository or IT service catalog
• The adopted technical reference model, if applicable
• Generic technology models relevant to the organization's industry sector
• Technology models relevant to Common Systems Architectures
• The Open Group has a Reference Model for Integrated Information Infrastructure (IIIRM)
• See: The TOGAF Integrated Information Infrastructure Reference Model (III-RM)
    • that focuses on the application-level components and underlying services necessary
      to provide an integrated information infrastructure.

Notes:

Phase D – Technology Architecture – 07/12

Steps

Technology Architecture

1. Select reference models, viewpoints, and tools
2. Develop Baseline Technology Architecture Description
3. Develop Target Technology Architecture Description
4. Perform Gap Analysis
5. Define candidate roadmap components
6. Resolve impacts across the Architecture Landscape
7. Conduct formal stakeholder review
8. Finalize the Technology Architecture
9. Create/Update Architecture Definition Document

Spiral staircase in the Taihang Mountains, China

Architecture Development Method : Page 91 : §8.5
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Level=2 : L.O.= 4.8a : Explain how to apply Phase D and how it contributes to the architecture development work.
See : TOGAF® Standard – Architecture Development Method : Page 91 : §8.5

Steps

Technology Architecture
- Select reference models, viewpoints, and tools
- Develop Baseline Technology Architecture Description
- Develop Target Technology Architecture Description
- Perform Gap Analysis
- Define candidate roadmap components
- Resolve impacts across the Architecture Landscape
- Conduct formal stakeholder review
- Finalize the Technology Architecture

8.5 Approach
8.5.1 Emerging Technologies
The evolution of new technologies is a major driver for change in enterprises looking for new Innovative ways of operating and improving their business. The Technology Architecture needs to capture the transformation opportunities available to the enterprise through the adoption of New Technology.
 While the Enterprise Architecture is led by business concerns, drivers for change are often found within evolving technology capabilities. As more digital innovations reach the market, stakeholders need to both anticipate and be open to technology-driven change. Part of Digital Transformation has arisen due to the convergence of telecommunications and computer capabilities which have opened up new ways of implementing infrastructures.
Solution development methods are also evolving to challenge traditional development methods and are putting pressure on the shared services and common use benefits of the traditional Enterprise Architecture approach. Without a strong Enterprise Architecture approach, the rapid adoption of changing technologies will cause discontinuities across the enterprise.
The flexibility of the TOGAF ADM enables technology change to become a driver and strategic resource rather than a recipient of Change Requests. As a result, the Technology Architecture may both drive business capabilities and respond to information system requirements at the
... CONTINUES ... SEE REFERENCE SPECIFIED

Modules Level 2:

Phase D – Technology Architecture – 08/12

Step 1: Select Reference Models, Viewpoints, and Tools

❑ Review/generate and validate the technology.
❑ Select Technology Architecture resources (models, patterns,…).
❑ Select relevant Technology Architecture viewpoints.
❑ Identify appropriate tools and techniques to be used for data capture, modeling, and analysis, in association with the selected viewpoints.
❑ For each viewpoint, select the models needed to support the specific view required, using the selected tool or method. Confirm all stakeholders' concerns are addressed. If not, create new models to address concerns not covered, or augment existing models.

Step 2: Develop Baseline Business Architecture Description

❑ Review/generate and validate technology principles.
❑ Select Technology Architecture resources (reference models, patterns).
❑ Select relevant Technology Architecture viewpoints.
❑ Identify appropriate tools and techniques to be used for data capture, modelling, and analysis, in association with the selected viewpoints.

Step 3: Develop Target Business Architecture Description

❑ If possible, identify the relevant Business Architecture building blocks, drawing on the Architecture Repository.
❑ Where new architecture models need to be developed use the models identified within Step 1 as a guideline.

Step 4: Perform Gap Analysis

❑ Verify the architecture models for internal consistency and accuracy.
❑ Perform trade-off analysis to resolve conflicts (if any) among views:
 ❖ Validate models support the principles, objectives, constraints
 ➢ Note changes to the viewpoint represented in the selected models from the Architecture Repository, and document
 ✓ Identify gaps between the baseline and target using the standard Gap Analysis technique
❑ Test architecture models for completeness against requirements.
❑ Identify gaps between the baseline and target using Gap Analysis technique

Step 5: Define Candidate Roadmap Components

❑ The initial Business Architecture roadmap is raw material to support a more detailed definition of a consolidated, cross-discipline roadmap within the Opportunities & Solutions phase.

Step 6: Resolve Impacts Across the Architecture Landscape

Assure architecture artifacts in the Architecture identify:
❑ Does this Architecture impact on any pre-existing architectures?
❑ Have recent changes been made that impact Business Architecture?
❑ Any opportunities to leverage work from this Business Architecture?
❑ Does this Business Architecture impact other projects ?
❑ Will this Business Architecture be impacted by other projects?

Step 7: Conduct Formal Stakeholder Review

❑ This is a formal review of the model and building blocks selected.
❑ Compare proposed business architecture against the SOW.
❑ It is possible to loop back to earlier steps if necessary.

Step 8: Finalize the Business Architecture

❑ Select standards for each of the ABBs, reusing where possible.
❑ Fully document each ABB.
❑ Cross check the overall architecture against the business goals.
❑ Document final requirements traceability report.
❑ Document final mapping of the architecture within the Architecture Repository.
❑ Publish reusable ABBs.

Step 9: Create/Update Architecture Definition Document

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Notes:

Level=2 : L.O.= 4.8a : Explain how to apply Phase D and how it contributes to the architecture development work.
See : TOGAF® Standard – Architecture Development Method : Page 91 : §8.5

8.5 Approach
8.5.1 Emerging Technologies
The evolution of new technologies is a major driver for change in enterprises looking for new Innovative ways of operating and improving their business. The Technology Architecture needs to capture the transformation opportunities available to the enterprise through the adoption of New Technology.
While the Enterprise Architecture is led by business concerns, drivers for change are often found within evolving technology capabilities. As more digital innovations reach the market, stakeholders need to both anticipate and be open to technology-driven change. Part of Digital Transformation has arisen due to the convergence of telecommunications and computer capabilities which have opened up new ways of implementing infrastructures.
Solution development methods are also evolving to challenge traditional development methods and are putting pressure on the shared services and common use benefits of the traditional Enterprise Architecture approach. Without a strong Enterprise Architecture approach, the rapid adoption of changing technologies will cause discontinuities across the enterprise.
The flexibility of the TOGAF ADM enables technology change to become a driver and strategic resource rather than a recipient of Change Requests. As a result, the Technology Architecture may both drive business capabilities and respond to information system requirements at the same time.

8.5.2 Architecture Repository
As part of Phase D, the architecture team will need to consider what relevant Technology Architecture resources are available in the Architecture Repository(see the TOGAF Standard —Architecture Content).
In particular :
■Existing IT services as documented in the IT repository or ITservice catalog
■The adopted technical reference model, if applicable
■Generic technology models relevant to the organization's industry sector
... CONTINUES ... SEE REFERENCE SPECIFIED

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Notes:

Phase D – Technology Architecture – 09/12

Outputs

Refined and updated versions of the Architecture Vision phase deliverables	Draft Architecture Definition Document
Draft Architecture Requirements Specification	Technology Architecture components of an Architecture Roadmap
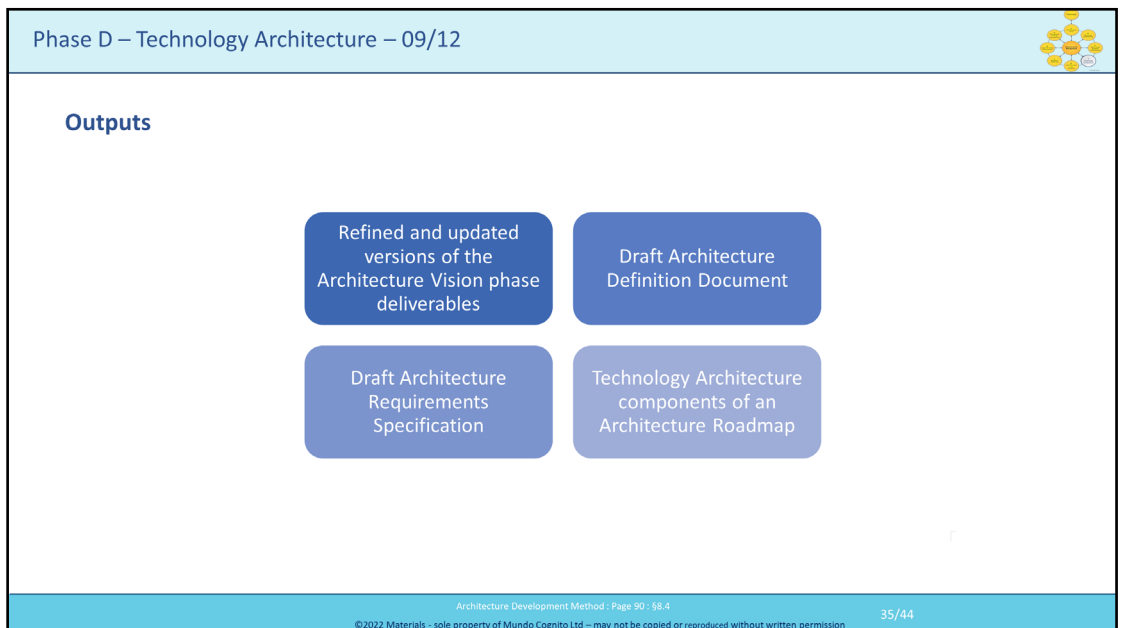
Level=2 : L.O.= 4.8b : Explain how to apply Phase D and how it contributes to the architecture development work.
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 42 : §5.2.2

Outputs
• Refined and updated versions of the Architecture Vision phase deliverables:
  • Statement of Architecture Work
  • Validated technology principles, or new technology principles
• Draft Architecture Definition Document:
  • Baseline Technology Architecture, Approved, if appropriate
  • Target Technology Architecture, Approved, including:
  • Technology Components and their relationships to information systems
  • Technology platforms and their decomposition, showing the combinations of Technology required to realize a particular technology "stack"
  • Environments and locations — a grouping of the required technology into Computing environments (e.g., development, production)
  • Expected processing /distribution load across technology
  • Physical (network) communications
  • Hardware and network specifications
  • Views corresponding to the selected viewpoints addressing key stakeholder concerns
• Draft Architecture Requirements Specification:
  • Gap Analysis results
  • Requirements output from Phases B and C
  • Updated technology requirements
• Technology Architecture components of an Architecture Roadmap
  • The TOGAF Standard — Architecture Content contains a detailed description of
    architectural artifacts which might be produced in this phase.

8.4 Outputs
The outputs of Phase D may include, but are not restricted to:
■Refined and updated versions of the Architecture Vision phase deliverables, where applicable:
—Statement of Architecture Work (see the TOGAF Standard — Architecture Content), updated if necessary
—Validated technology principles, or new technology principles (if generated here)
■Draft Architecture Definition Document (see the TOGAF Standard — Architecture Content), including:... CONTINUES ... SEE REFERENCE SPECIFIED

TOGAF® Standard, 10th Edition

Modules Level 2:

Notes:

Essential outcome and output - Summary

Phase	Output & Outcome	Essential Knowledge
Phase B, Phase C, & Phase D	A set of domain architectures approved by the stakeholders for the problem being addressed, with a set of gaps, and work to clear the gaps understood by the stakeholders.	How does the current Enterprise fail to meet the preferences of the stakeholders? What must change to enable the Enterprise to meet the preferences of the stakeholders? (Gaps) What work is necessary to realize the changes, that is consistent with the additional value being created? (Work Package) How stakeholder priority and preference adjust in response to value, effort, and risk of change. (Stakeholder Requirements)

Level=2 : L.O.= 4.8b : Explain how to apply Phase D and how it contributes to the architecture development work.
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 42 : §5.2.2

5.2.2 Essential ADM Output and Knowledge
A summary of the essential outcome and output is provided in Table 4. Keep in mind that the essential output is what stakeholders, sponsor, and boss' boss' boss wants. No-one wants an architecture; they want guidance on planning and executing an effective change. Practitioners use an architected approach to providing the best available guidance on effective change. The essential outcomes and outputs are derived from the objectives of the phase – the statement of why a Practitioner should perform this activity.
What the Enterprise values and consumes is typically different than what the Practitioner produces. Practitioners deliver an essential output. It is provided as views, roadmaps, architecture specifications, controls, and other useful things. Architecture is developed, and the EA Landscape populated. To do this, Practitioners require a set of essential knowledge. The Enterprise consumes effective guidance about, and the ability to govern, change.
Read Table 4 in conjunction with Table 3 to confirm whether for a particular purpose the output of the phase is already in existence, needs to be created, or is extraneous to the current Architecture Project. Good Practitioners will adjust their work accordingly. Table 4 lists only key outputs and outcomes. For an exhaustive list, refer to the TOGAF Standard. In order to achieve these outcomes, the Practitioner may have to perform more activities or create more deliverables than those listed in the table below. The intent is to keep the focus on what is pursued, not what is done.
Table 4: Essential ADM Outputs, Outcomes, and Required Knowledge Phase Output & Outcome Essential Knowledge

Phase B, Phase C, & Phase D
A set of domain architectures approved by the stakeholders for the problem being addressed, with a set of gaps, and work to clear the gaps understood by the stakeholders.
How does the current Enterprise fail to meet the preferences of the stakeholders?
What must change to enable the Enterprise to meet the preferences of the stakeholders? (Gaps)
What work is necessary to realize the changes, that is consistent with the additional value being created? (Work Package)
How stakeholder priority and preference adjust in response to value, effort, and risk of change. (Stakeholder Requirements)

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Notes:

Phase D – Technology Architecture – 11/12

Key Outputs and Outcomes

What the Enterprise values and consumes is typically different than what the EA produces. EAs deliver essential output provided as:

VIEWS   ROADMAPS   ARCHITECTURE SPECIFICATIONS   CONTROLS   OTHER USEFUL THINGS

Architecture is developed, and the EA Landscape populated.
To do this, practitioners require a set of essential knowledge.

Phase	Output & Outcome	Essential Knowledge
Phase D	A set of domain architectures approved by the stakeholders for the problem being addressed, with a set of gaps, and work to clear the gaps understood by the stakeholders.	How does the current Enterprise fail to meet the preferences of the stakeholders? What must change to enable the Enterprise to meet the preferences of the stakeholders? (Gaps) What work is necessary to realize the changes, that is consistent with the additional value being created? (Work Package) How stakeholder priority and preference adjust in response to value, effort, and risk of change. (Stakeholder Requirements)

Level=2 : L.O.= 4.8b : Explain how to apply Phase D and how it contributes to the architecture development work.
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 42 : §5.2.2

Key Outputs and Outcomes
What the Enterprise values and consumes is typically different than what the EA produces. EAs deliver essential output.
It is provided as:
•   views
•   roadmaps
•   architecture specifications
•   controls
•   other useful things

Architecture is developed, and the EA Landscape populated.
To do this, Practitioners require a set of essential knowledge.

5.2.2 Essential ADM Output and Knowledge
A summary of the essential outcome and output is provided in Table 4. Keep in mind that the essential output is what stakeholders, sponsor, and boss' boss' boss wants. No-one wants an architecture; they want guidance on planning and executing an effective change. Practitioners use an architected approach to providing the best available guidance on effective change. The essential outcomes and outputs are derived from the objectives of the phase – the statement of why a Practitioner should perform this activity.
What the Enterprise values and consumes is typically different than what the Practitioner produces. Practitioners deliver an essential output. It is provided as views, roadmaps, architecture specifications, controls, and other useful things.
A summary of the
architecture; they want guidance on planning and executing an effective change. Practitioners use an architected approach to providing the best available guidance on effective change. The
essential outcomes and outputs are derived from the objectives of the phase – the statement of why a Practitioner should perform this activity.
What the Enterprise values and consumes is typically different than what the Practitioner produces. Practitioners deliver an essential output. It is provided as views, roadmaps,
architecture specifications, controls, and other useful things. Architecture is developed,
... CONTINUES ... SEE REFERENCE SPECIFIED

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Phase D – Technology Architecture – 12/12

Phase	Output & Outcome	Essential Knowledge
Phase B, Phase C, & Phase D	A set of domain architectures approved by the stakeholders for the problem being addressed, with a set of gaps, and work to clear the gaps understood by the stakeholders.	How does the current Enterprise fail to meet the preferences of the stakeholders? What must change to enable the Enterprise to meet the preferences of the stakeholders? (Gaps) What work is necessary to realize the changes, that is consistent with the additional value being created? (Work Package) How stakeholder priority and preference adjust in response to value, effort, and risk of change. (Stakeholder Requirements)

A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 42 : §5.2.2
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Notes:

Level=2 : L.O.= 4.6c : Explain the information that is relevant to Phase C (Data and Applications) to produce outputs relevant to the architecture development.
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 42 : §5.2.2

Key Outputs and Outcomes
What the Enterprise values and consumes is typically different than what the EA produces. EAs deliver essential output.
It is provided as:
• views
• roadmaps
• architecture specifications
• controls
• other useful things
Architecture is developed, and the EA Landscape populated.
To do this, Practitioners require a set of essential knowledge.

5.2.2 Essential ADM Output and Knowledge
A summary of the essential outcome and output is provided in Table 4. Keep in mind that the essential output is what stakeholders, sponsor, and boss' boss' boss wants. No-one wants an architecture; they want guidance on planning and executing an effective change. Practitioners use an architected approach to providing the best available guidance on effective change. The essential outcomes and outputs are derived from the objectives of the phase – the statement of why a Practitioner should perform this activity.
What the Enterprise values and consumes is typically different than what the Practitioner produces. Practitioners deliver an essential output. It is provided as views, roadmaps, architecture specifications, controls, and other useful things. Architecture is developed, and the EA Landscape populated. To do this, Practitioners require a set of essential knowledge. The Enterprise consumes effective guidance about, and the ability to govern, change.
Read Table 4 in conjunction with Table 3 to confirm whether for a particular purpose the output of the phase is already in existence, needs to be created, or is extraneous to the current Architecture Project. Good Practitioners will adjust their work accordingly.
Table 4 lists only key outputs and outcomes. For an exhaustive list, refer to the TOGAF Standard. In order to achieve these outcomes, the Practitioner may have to perform more activities or create more deliverables than those listed in the table below. The intent is to keep the focus on what is pursued, not what is done.

Architecture Phases - Outputs – 01/05

Business

o Refined and updated versions of the Architecture Vision phase deliverables, including:
- Statement of Architecture Work
- Validated business principles, business goals, and business drivers updated
- Architecture Principles

o Draft Architecture Definition Document including:
- Baseline Business Architecture, approved, if appropriate
- Target Business Architecture, approved, including:
  • Organization structure — identifying business locations and relating them to organizational units.
  • Business goals and objectives — for the enterprise and each organizational unit.
  • Business functions —detailed, recursive step involving successive decomposition of major functional areas.
  • Business capabilities — the abilities that business needs to possess in order to achieve its goals/objectives.
  • Business services — the services that support the business by encapsulating elements of business behavior.
  • Products — outputs generated by the business to be offered to customers.
  • Business processes - including measures and deliverables.
  • Business roles - including development and modification of skills requirements.
  • Business data model.
  • Correlation of organization/business functions and business capabilities.
  • Views corresponding to the selected viewpoints addressing key stakeholder concerns.

o Draft Architecture Requirements Specification including such Business Architecture requirements as:
- Gap Analysis results
- Technical requirements
  • Identifying, categorizing, and prioritizing the implications for work in the remaining architecture domains.
  • Listing the specific models that are expected to be produced.

o Business Architecture components of an Architecture Roadmap

Notes:

Level=2 : L.O.= 4.9a : Explain the outputs of Phases B, C, and D necessary to proceed with the architecture development work.
See : TOGAF® Standard – Architecture Development Method : Page 49 : §4.4

The outputs of Phase B may include, but are not restricted to:

■ Refined and updated versions of the Architecture Vision phase deliverables, where applicable, including:

— Statement of Architecture Work (see the TOGAF Standard — Architecture Content), updated if necessary

— Validated business principles, business goals, and business drivers (see the TOGAF Standard — Architecture Content), updated if necessary

— Architecture Principles (see the TOGAF Standard — Architecture Content)

■ Draft Architecture Definition Document (see the TOGAF Standard — Architecture Content), including:

– Baseline Business Architecture, Approved, if appropriate

– Target Business Architecture, Approved, including:

– Organization structure — identifying business locations and relating them to organizational units

– Business goals and objectives — for the enterprise and each organizational unit

– Business functions — a detailed, recursive step involving successivedecomposition of major functional areas into sub-functions

– Business capabilities — the abilities that a business needs to possess or exchange to achieve its goals and objectives

– Business services — the services that support the business by encapsulating a unique "element of business behavior"; a service offered external to the enterprise may be supported by business services

– Products — output generated by the business to be offered to customers; products include materials and/or services

– Business processes, including measures and deliverables

– Business roles, including development and modification of skills requirements

– Business data model

– Correlation of organization/business functions and business capabilities — relate business capabilities to organizational units in the form of a matrix report

– Views corresponding to the selected viewpoints addressing key stakeholder concerns

■ Draft Architecture Requirements Specification (see the TOGAF Standard — Architecture
Content), including such Business Architecture requirements as:
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Architecture Phases - Outputs – 02/05

Data

○ Refined and updated versions of the Architecture Vision phase deliverables, where applicable:
  ▪ Statement of Architecture Work, updated if necessary.
  ▪ Validated data principles or new data principles (if generated here).
○ Draft Architecture Definition including:
  ▪ Baseline Data Architecture, approved, if appropriate.
  ▪ Target Data Architecture, approved, including:
    • Business data model.
    • Logical data model.
    • Data management process models.
    • Data entity/Business function matrix.
  ▪ Views corresponding to viewpoints addressing stakeholder concerns.
○ Draft Architecture Requirements Specification including such Data Architecture requirements as:
  ▪ Gap Analysis results.
  ▪ Data interoperability requirements.
  ▪ Relevant technical requirements that will apply to this evolution of the architecture development cycle.
  ▪ Constraints on the Technology Architecture about to be designed.
  ▪ Updated business requirements, if appropriate.
  ▪ Updated application requirements, if appropriate.
Data Architecture components of an Architecture Roadmap.

Architecture Development Method : Page 66 : §6.4
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Level=2 : L.O.= 4.9b : Explain the outputs of Phases B, C, and D necessary to proceed with the architecture development work.
See : TOGAF® Standard – Architecture Development Method : Page 66 : §6.4

6.4 Outputs
The outputs of Phase C (Data Architecture) may include, but are not restricted to:
■ Refined and updated versions of the Architecture Vision phase deliverables, where applicable:
– Statement of Architecture Work (see the TOGAF Standard — Architecture Content), updated if necessary
– Validated data principles (see the TOGAF Standard — ADM Techniques), or new data principles (if generated here)
■ Draft Architecture Definition Document (see the TOGAF Standard — Architecture Content),
including:
– Baseline Data Architecture, Approved, if appropriate
– Target Data Architecture, Approved, including:
– Business data model
– Logical data model
– Data management process models
– Data Entity/Business Function matrix
– Views corresponding to the selected viewpoints addressing key stakeholder concerns
■ Draft Architecture Requirements Specification (see the TOGAF Standard — Architecture Content), including such Data Architecture requirements as:
— Gap Analysis results
— Data interoperability requirements
— Relevant technical requirements that will apply to this evolution of the architecture development cycle
— Constraints on the Technology Architecture about to be designed
— Updated business requirements, if appropriate
— Updated application requirements, if appropriate
■ Data Architecture components of an Architecture Roadmap (see the TOGAF Standard — Architecture Content)
The TOGAF Standard — Architecture Content contains a detailed description of architectural artifacts which might be produced in this phase.

Notes:

Architecture Phases - Outputs – 03/05

Application

o Refined and updated versions of the Architecture Vision phase deliverables, where applicable:
- Statement of Architecture Work updated if necessary.
- Validated application principles, or new application principles (if generated here).
- Application Architecture Outputs.

o Draft Architecture Definition Document including:
- Baseline Application Architecture, approved, if appropriate.
- Target Application Architecture, approved.
- Views corresponding to the selected viewpoints, addressing key stakeholder concerns.

o Draft Architecture Requirements including such Application Architecture requirements as:
- Gap Analysis results.
- Applications interoperability requirements.
- Relevant technical requirements that will apply to this evolution of the architecture development cycle.
- Constraints on the Technology Architecture about to be designed.
- Updated business requirements, if appropriate.
- Updated data requirements, if appropriate.

o Application Architecture components of an Architecture

Level=2 : L.O.= 4.9c : Explain the outputs of Phases B, C, and D necessary to proceed with the architecture development work.
See : TOGAF® Standard – Architecture Development Method : Page 78 : §7.4

7.4 Outputs
The outputs of Phase C (Application Architecture) may include, but are not restricted to:
■ Refined and updated versions of the Architecture Vision phase deliverables, where applicable:
–   Statement of Architecture Work (see the TOGAF Standard — Architecture Content), updated if necessary
–   Validated application principles, or new application principles (if generated here)
■ Draft Architecture Definition Document (see the TOGAF Standard — Architecture Content),
including:
–   Baseline Application Architecture, Approved, if appropriate
–   Target Application Architecture, Approved
–   Views corresponding to the selected viewpoints, addressing key stakeholder concerns
■ Draft Architecture Requirements Specification (see the TOGAF Standard — Architecture
Content), including such Application Architecture requirements as:
–   Gap Analysis results
–   Applications interoperability requirements
–   Relevant technical requirements that will apply to this evolution of the architecture development cycle
–   Constraints on the Technology Architecture about to be designed
–   Updated business requirements, if appropriate
–   Updated data requirements, if appropriate
■ Application Architecture components of an Architecture Roadmap (see the TOGAF Standard — Architecture Content)

Modules Level 2:

Notes:

Architecture Phases - Outputs – 04/05

Technology

○ Refined and updated versions of the Architecture Vision phase deliverables, where applicable:
  ▪ Statement of Architecture Work, updated if necessary.
  ▪ Validated technology principles, or new technology principles (if generated here).
○ Draft Architecture Definition Document including:
  ▪ Baseline Technology Architecture, approved, if appropriate.
  ▪ Target Technology Architecture, approved, including:
    ▪ Technology components and their relationships to information systems.
    ▪ Technology platforms and their decomposition, e.g. combinations of technology required for a particular "stack".
    ▪ Environments and locations: a grouping of technology into computing environments (e.g. development, production).
    ▪ Expected processing load and distribution of load across technology components.
    ▪ Physical (network) communications.
    ▪ Hardware and network specifications.
  ▪ Views corresponding to the selected viewpoints addressing key stakeholder concerns.
○ ▪ Draft Architecture Requirements Specification including such Technology Architecture requirements as:
  ▪ Gap Analysis results.
  ▪ Requirements output from Phases B and C.
  ▪ Updated technology requirements.
○ ▪ Technology Architecture components of an Architecture

Level=2 : L.O.= 4.9d : Explain the outputs of Phases B, C, and D necessary to proceed with the architecture development work.
See : TOGAF® Standard – Architecture Development Method : Page 90 : §8.4

8.4 Outputs
The outputs of Phase D may include, but are not restricted to:
■ Refined and updated versions of the Architecture Vision phase deliverables, where applicable:
–   Statement of Architecture Work (see the TOGAF Standard — Architecture Content), updated if necessary
–   Validated technology principles, or new technology principles (if generated here)
■ Draft Architecture Definition Document (see the TOGAF Standard — Architecture Content),
including:
–   Baseline Technology Architecture, Approved, if appropriate
–   Target Technology Architecture, Approved, including:
–   Technology Components and their relationships to information systems
–   Technology platforms and their decomposition, showing the combinations of technology required to realize a particular technology "stack"
–   Environments and locations — a grouping of the required technology into computing environments (e.g., development, production)
–   Expected processing load and distribution of load across technology components
–   Physical (network) communications
–   Hardware and network specifications
–   Views corresponding to the selected viewpoints addressing key stakeholder concerns
■ Draft Architecture Requirements Specification (see the TOGAF Standard — Architecture
Content), including such Technology Architecture requirements as:
–   Gap Analysis results
–   Requirements output from Phases B and C
–   Updated technology requirements
■ Technology Architecture components of an Architecture Roadmap (see the TOGAF Standard — Architecture Content)

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Essential outcome and output - Summary

Phase	Output & Outcome	Essential Knowledge
Phase B, Phase C, & Phase D	A set of domain architectures approved by the stakeholders for the problem being addressed, with a set of gaps, and work to clear the gaps understood by the stakeholders.	How does the current Enterprise fail to meet the preferences of the stakeholders? What must change to enable the Enterprise to meet the preferences of the stakeholders? (Gaps) What work is necessary to realize the changes, that is consistent with the additional value being created? (Work Package) How stakeholder priority and preference adjust in response to value, effort, and risk of change. (Stakeholder Requirements)

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Notes:

Level=2 : L.O.= 4.9e : Explain the outputs of Phases B, C, and D necessary to proceed with the architecture development work.
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 42 : §5.2.2

5.2.2 Essential ADM Output and Knowledge

A summary of the essential outcome and output is provided in Table 4. Keep in mind that the essential output is what stakeholders, sponsor, and boss' boss' boss wants. No-one wants an architecture; they want guidance on planning and executing an effective change. Practitioners use an architected approach to providing the best available guidance on effective change. The essential outcomes and outputs are derived from the objectives of the phase – the statement of why a Practitioner should perform this activity.

What the Enterprise values and consumes is typically different than what the Practitioner produces. Practitioners deliver an essential output. It is provided as views, roadmaps, architecture specifications, controls, and other useful things. Architecture is developed, and the EA Landscape populated. To do this, Practitioners require a set of essential knowledge. The Enterprise consumes effective guidance about, and the ability to govern, change.

Read Table 4 in conjunction with Table 3 to confirm whether for a particular purpose the output of the phase is already in existence, needs to be created, or is extraneous to the current Architecture Project. Good Practitioners will adjust their work accordingly. Table 4 lists only key outputs and outcomes. For an exhaustive list, refer to the TOGAF Standard. In order to achieve these outcomes, the Practitioner may have to perform more activities or create more deliverables than those listed in the table below. The intent is to keep the focus on what is pursued, not what is done.

Table 4: Essential ADM Outputs, Outcomes, and Required Knowledge Phase Output & Outcome Essential Knowledge

Phase B, Phase C, & Phase D
A set of domain architectures approved by the stakeholders for the problem being addressed, with a set of gaps, and work to clear the gaps understood by the stakeholders.
How does the current Enterprise fail to meet the pderferences of the stakeholders?
What must change to enable the Enterprise to meet the preferences of the stakeholders? (Gaps)
What work is necessary to realize the changes, that is consistent with the additional value being created? (Work Package)
How stakeholder priority and preference adjust in response to value, effort, and risk of change. (Stakeholder Requirements)

Modules Level 2:

Summary of Module 11

The Learning points covered in Module 11 are:

4.5a/b: Explain the information relevant to Phase C (Data and Applications) to produce outputs relevant to the Architecture Development.	4.6a/c: Explain how to apply Phase C and how it contributes to the Architecture Development work.	4.7a/b: Explain the information needed in Phase D to produce outputs relevant to the Architecture Development.
4.8a/b: Explain how to apply Phase D and how it contributes to the Architecture Development work.	4.9a/e: Explain the outputs of Phases B, C, and D necessary to proceed with the Architecture Development work.	

This represents 42.5% of the course coverage.

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Notes:

Modules Level 2:

00 - Course Introduction

08 - The Context for Enterprise Architecture

09 - Stakeholder Management

10 - Phase A

- 11 - Architecture Development

12 - Implementing the Architecture

13 - Architecture Change Management

14 - Requirements Management

15 - Supporting the ADM Work

16 - Closure

Notes:

End of Teaching Slides

End of

Module 11

Architecture Development

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Modules Level 2:

Module Title

Module 12/17

TOGAF® EA Training - Practitioner
TOGAF® Standard, 10th Edition

Module 12

Implementing the Architecture

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Notes:

Modules Level 2:

- 00 - Course Introduction
- 08 - The Context for Enterprise Architecture
- 09 - Stakeholder Management
- 10 - Phase A
- 11 - Architecture Development
- **12 - Implementing the Architecture**
- 13 - Architecture Change Management
- 14 - Requirements Management
- 15 - Supporting the ADM Work
- 16 - Closure

Course Module Index

Course Module Index

#	Topic – Level 1	✔
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2	Module 01 - Overview	✔
3	Module 02 - Concepts	✔
4	Module 03 - Introduction to the ADM	✔
5	Module 04 - Introduction to the ADM - Techniques	✔
6	Module 05 – Applying ADM	✔
7	Module 06 - Architecture Governance	✔
8	Module 07 – Architecture Content	✔
#	**Topic – Level 2**	**✔**
9	Module 00 - Course Introduction	✔
10	Module 08 - The Context for Enterprise Architecture	✔
11	Module 09 – Stakeholder Management	✔
12	Module 10 – Phase A	✔
13	Module 11 – Architecture Development	✔
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Notes:

Modules Level 2:

00 - Course Introduction

08 - The Context for Enterprise Architecture

09 - Stakeholder Management

10 - Phase A

11 - Architecture Development

- 12 - Implementing the Architecture

13 - Architecture Change Management

14 - Requirements Management

15 - Supporting the ADM Work

16 - Closure

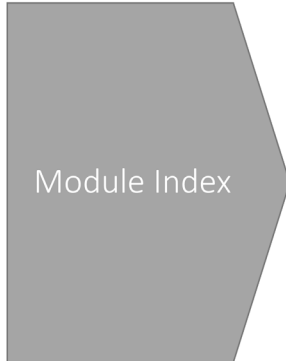## Notes:

Module Index

Module Index

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Notes:

The Realization Phases

The point of EA is to produce a detailed description of something that can be created.

As with plans produced by any design system, it is not sufficient to just pass these to 'the builders' in the hope of flawless creation.

It is the Enterprise Architect who 'signs off' that the output from the builders [developers] maps accurately to the design.

A formal process and understanding of relationships are needed to assure this happens.

Preliminary

A Architecture Vision

H Architecture Change Management

B Business Architecture

G Implementation Governance

Requirements Management

C Information Systems Architecture

F Migration Planning

E Opportunities and Solutions

D Technology Architecture

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Notes:

Risk and Security Considerations – 01/03

Phase E – Opportunities and Solutions

It is imperative that security and risk are evaluated:

- Ensure the stakeholders' security/risk concerns are addressed
- Confirm that risk owners are consulted
- The security building blocks defined in the previous phases become SBBs
- Verify the efficacy of existing security services and controls

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Level=2 : L.O.= 5.1a : Explain the risk and security considerations for the three Phases (E, F and G).
See : TOGAF® Series Guide: Integrating Risk and Security within a TOGAF® Enterprise Architecture : Page 24 : §5.6

Phase E – Opportunities and Solutions
It is imperative that security and risk are evaluated:
- Ensure the stakeholders' security and risk concerns are addressed in the analysis
- Confirm that risk owners are consulted
- The value expected to be delivered by work packages includes:
  - measures related to security and risk value to ensure the roadmap addresses the complete set of business goals and drivers
- The security building blocks defined in the previous phases become SBBs in this phase so that more specific implementation-oriented requirements and specifications are defined.
  A whole solution design might be needed at this stage.
- The Security Services Catalog of the Baseline Security Architecture contains:
  - existing security services or security building blocks that meet the requirements
- For example, if the requirement exists for application access control, an existing central authentication service might be used to fill that in.
- The efficacy of existing security services and controls earmarked for re-use must be verified to ensure that the end-state contains security measures, which work and integrate well.

5.6 Phase E: Opportunities and Solutions
In defining the roadmap, where the sequence of gaps to be addressed is determined, it is imperative that security and risk are evaluated. Ensure the stakeholders' security and risk concerns are addressed in the analysis. Confirm that risk owners are consulted.
The value expected to be delivered by work packages should include measures related to security and risk value to ensure the roadmap addresses the complete set of business goals and drivers.
The security building blocks defined in the previous phases become SBBs in this phase so that more specific implementation-oriented requirements and specifications are defined. A whole solution design might be needed at this stage.
The Security Services Catalog of the Baseline Security Architecture probably contains existing security services or security building blocks that meet the requirements. For example, if the requirement exists for application access control, an existing central authentication service might be used to fill that in. The efficacy of existing security
... CONTINUES ... SEE REFERENCE SPECIFIED

Modules Level 2:

Notes:

Risk and Security Considerations – 02/03

Phase F – Migration Planning

The migration strategy includes:
- ❑ A Risk Assessment
- ❑ A Risk Mitigation Plan

In Phase F, the Risk Mitigation Plan **is limited to the transition**.

These concepts have already been mentioned in earlier phases of the ADM. Include regression planning - to reverse out a failed migration.

Include a security impact analysis to understand impacts of the change.

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Level=2 : L.O.= 5.1b : Explain the risk and security considerations for the three Phases (E, F and G).
See : TOGAF® Series Guide: Integrating Risk and Security within a TOGAF® Enterprise Architecture : Page 25 : §5.7

Phase F: Migration Planning
The migration strategy includes:
- a risk assessment
- a Risk Mitigation Plan

In Phase F, the Risk Mitigation Plan **is limited to the transition**.
These concepts have already been mentioned in earlier phases of the ADM. Migration of live environments should always include regression planning so that there is a way to reverse out a failed migration.
This is an essential part of risk management.
In addition, migration planning includes a security impact analysis to understand impacts of the target state of the change.

5.7 Phase F: Migration Planning
Migration is itself a business process that needs to be secured. The migration strategy should include a risk assessment and a Risk Mitigation Plan. In Phase F, the Risk Mitigation Plan is limited to the transition. These concepts have already been mentioned in earlier phases of the ADM. Migration of live environments should always include regression planning so that there is a way to reverse out a failed migration. This is an essential part of risk management.
In addition, migration planning should include a security impact analysis to understand any security impacts of the target state of the change.

Notes:

Risk and Security Considerations – 03/03

Phase G – Implementation Governance

Security Architecture implementation governance provides assurance that the detailed design and implemented processes and systems adhere to the overall Security Architecture.

This ensures that deviations from Architecture Principles and implementation guidelines do not create any unacceptable risk.

The following artifacts are relevant in this phase:

❑ Security Audit
❑ Security Training and Awareness

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Þ Q-35
Level=2 : L.O.= 5.1c : Explain the risk and security considerations for the three Phases (E, F and G).
See : TOGAF® Series Guide: Integrating Risk and Security within a TOGAF® Enterprise Architecture : Page 25 : §5.8

Phase G: Implementation Governance
Security Architecture implementation governance provides assurance that the detailed design and implemented processes and systems adhere to the overall Security Architecture.
This ensures that deviations from Architecture Principles and implementation guidelines don't create any unacceptable risk.
The following artifacts are relevant in this phase:
• Security Audit: security reviews of implemented processes, technical designs, developed code, and configurations against policies and requirements, security testing, comprising functional security testing, performance testing, and penetration testing.
• Security Training and Awareness: sufficient training is provided to ensure correct deployment, configuration, and operations of security-relevant subsystems and components; including awareness training of all users and non-privileged operators of the system and/or its components. It is critical for a proper, continuous, and secure performance. In many control frameworks, security training must be followed and results documented to demonstrate due diligence. Substantiated corrective actions or sanctions are needed in cases where exploits or errors compromise security objectives.

5.8 Phase G: Implementation Governance
Security Architecture implementation governance provides assurance that the detailed design and implemented processes and systems adhere to the overall Security Architecture. This ensures that deviations from Architecture Principles and implementation guidelines don't create any unacceptable risk.
The following artifacts are relevant in this phase.
5.8.1 Security Audit
Location in the Architecture Framework: Enterprise Security Architecture: ISM.
Security audit includes security reviews of implemented processes, technical designs, developed code, and configurations against policies and requirements. It also includes security testing, comprising functional security testing, performance testing, and penetration testing.
5.8.2 Security Training and Awareness
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Phase E – Opportunities and Solutions – 01/13

Phase E – Opportunities and Solutions

Is so named because …

❑ Phase E involves consolidating identified gaps into work packages.
❑ Those collectively are the opportunities - for delivering the Target Architecture.
❑ The gaps between the baseline (current) architecture and the target (future) architecture are the opportunities.
❑ Take those requirements, put them into the roadmap and draft implementation plan and that's the solution element.
  ❖ Key is to understand what is solution, and how it differs from architecture
  ❖ Simply – architecture is an abstract view of solution

Phase E generates the first complete version of the Architecture Roadmap – by combining the analysis and suggestions from the Architecture Development phases – B, C & D.

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Phase E – Opportunities and Solutions
Is so named because …
• Phase E involves consolidating the identified gaps into work packages.
• These collectively are the opportunities - for delivering the Target Architecture by implementing specific solutions.
• The gaps between the baseline (current) architecture and the target (future) architecture are the opportunities.
• Then you take those requirements and put them into the roadmap and draft an implementation plan, and that's the solution element.
  • key is to understand what is solution and how it differs from architecture.
  • simply – architecture is an abstract view of solution.
Phase E generates the first complete version of the Architecture Roadmap – by combining the analysis and suggestions from the Architecture Development phases – B, C & D.

Modules Level 2:

Notes:

Phase E – Opportunities and Solutions – 02/13

Objectives

Generate	Generate the initial complete version of the Architecture Roadmap, based upon the Gap Analysis and candidate Architecture Roadmap components from Phases B, C, and D
Determine	Determine whether an incremental approach is required - if so, identify Transition Architectures that will deliver continuous business value*
Define	Define the overall solution building blocks to finalize the Target Architecture based on the Architecture Building Blocks (ABBs)

* Remember the **Value Chain** …

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Objectives
- Generate the initial complete version of the Architecture Roadmap, based upon the Gap Analysis and candidate Architecture Roadmap components from Phases B, C, and D.
- Determine whether an incremental approach is required, and if so, identify Transition Architectures that will deliver continuous business value*.
- Define the overall solution building blocks to finalize the Target Architecture based on the Architecture Building Blocks (ABBs)

* Remember the Value Chain …

Notes:

Phase E – Opportunities and Solutions – 03/13

Approach

This is the first phase concerning implementation

It takes into account the complete set of gaps between the Target and Baseline Architectures in all architecture domains

It logically groups changes into Work Packages*

It builds a best-fit roadmap based upon:
- ❑ Stakeholder requirements
- ❑ The enterprise's business transformation readiness
- ❑ Identified opportunities and solutions
- ❑ Identified implementation constraints

The following four concepts are key to transitioning from developing to delivering a Target Architecture:
- ❑ Architecture Roadmap
- ❑ Work Packages*
- ❑ Transition Architectures
- ❑ Implementation and Migration Plan

*A Work Package can be the whole program, project, or even part of the project.

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Approach
- This is the first phase concerning implementation
- It takes into account the complete set of gaps between the Target and Baseline Architectures in all architecture domains
- It logically groups changes into Work Packages*
- It builds a best-fit roadmap based upon:
  - Stakeholder requirements
  - The enterprise's business transformation readiness
  - Identified opportunities and solutions
  - Identified implementation constraints
- The following four concepts are key to transitioning from developing to delivering a Target Architecture:
  - Architecture Roadmap
  - Work Packages*
  - Transition Architectures
  - Implementation and Migration Plan

*A Work Package can be whole program, project or even part of project.

Notes:

Phase E – Opportunities and Solutions – 04/13

Steps

The TOGAF® Standard includes a generic set of Steps.
The main benefits of having 'tick lists' are threefold:

1. You can see clearly what must be done and organize resources accordingly.

2. Management is less arduous – there is a clear list of what must be done and to what precision.

3. You clearly know when you have finished.

Phase E comprises a lot of work and considerable effort in terms of synchronising, typically coordinating the efforts of many internal and external stakeholders.

The TOGAF® Standard generic set of Steps is in the next slides. Consider these as a template from which to construct the set that is tailored to your specific Architecture cycle.

Illustration steps

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Steps
The TOGAF® Standard includes a generic set of Steps.
The main benefits of having 'tick lists' are threefold:
- You can see clearly what must be done and organize resources accordingly
- Management is less arduous – there is a clear list of what must be done and to what precision.
- You clearly know when you have finished.
Phase E comprises a lot of work and with considerable effort into synchronising, typically coordinating the efforts of many internal and external stakeholders.
The TOGAF® Standard generic set of Steps are contained in the next slides. Consider these as a template from which to construct the set that is tailored to your specific Architecture cycle.

Notes:

Phase E – Opportunities and Solutions – 05/13

Phase E
Steps: Classic View

❑ Associated with each step is a generic list of tasks.
❑ This will be adapted as fitting for each project.
❑ The order is not very Important.
❑ It is important that at the end of the phase there is a ✓ in every box [of the adapted list] or a reason why not!

11. Create Architecture Roadmap & Implementation and Migration Plan

10. Identify Transition Architecture

9. Identify and group major work packages

8. Formulate Implementation & Migration Strategy

7. Confirm readiness and risk for business transformation

6. Refine and validate dependencies

5. Consolidate and reconcile interoperability requirements

4. Review consolidated requirements across related business functions

3. Review and consolidate Gap Analysis results from Phases B to D

2. Determine business constraints for implementation

1. Determine corporate change attributes

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Phase E
Steps - Classic View
Associated with each step is a generic list of tasks.
This will be adapted as fitting for each project.
The order is not very Important.
It is important that at the end of the phase there is a ✓ in every box [of the adapted list] or a reason why not!

Notes:

Phase E – Opportunities and Solutions – 06/13

Step 1: Determine Corporate Change Attributes
❑ Create an Implementation Factor Assessment and Deduction Matrix
❑ Assess Transition Capabilities of Corporate and Partner Organizations
❑ Assess Transition Capabilities of the Enterprise and IT Organization

Step 2: Determine Business Constraints for Implementation
❑ Review Corporate Plan
❑ Review Corporate Line-of-Business Strategies Plans
❑ Review the Enterprise Architecture Maturity Assessment

Step 3: Review and Consolidate Gap Analysis Results from Phases B to D
❑ Create a Consolidated Gaps, Solutions, and Dependencies Matrix
❑ Review the Phase B, and D Gap Analysis Results
❑ Rationalize the Consolidated Gaps, Solutions, and Dependencies Matrix

Step 4: Review Consolidated Requirements Across Related Business Functions
❑ Assess the requirements, gaps, solutions, and factors to identify a minimal set of requirements for work changes
❑ This functional perspective leads to the satisfaction of multiple requirements through the provision of shared solutions and services

Step 5: Define Candidate Roadmap Components
❑ Consolidate Interoperability Requirements identified in previous phases
❑ Identify any constraints on Interoperability required by the potential set of solutions

Step 6: Refine and Validate Dependencies
❑ Refine the initial dependencies ensuring any constraints on the Implementation and Migration Plans are identified
❑ Key dependencies include:
   ❖ Existing implementations of Business Services
   ❖ Existing implementations of Information Systems Services
❑ Dependencies should be used to determine the sequence of implementation and coordination required
❑ They can also be used to identify logical increments of deliverables and when they can be delivered
❑ Once complete, document as part of the Architecture Roadmap and any necessary Transition Architectures

Step 7: Confirm Readiness and Risk for Business Transformation
❑ Review the Business Transformation Readiness Assessment previously conducted in Phase A
❑ Determine the impact on the Architecture Roadmap and the Implementation and Migration Strategy
❑ It is important to identify, classify, and mitigate risks associated with the transformation effort
❑ Risks should be documented in the Consolidated Gaps, Solutions, and Dependencies matrix

Þ Q-37
Level=2 : L.O.= 5.2a : Describe the steps (Phase E) to create the Implementation and Migration Strategy.
See : TOGAF® Standard – Architecture Development Method : Page 95 : §9.3

9.3 Steps
The level of detail addressed in Phase E will depend on the scope and goals of the overall architecture effort.
The order of the steps in Phase E, as well as the time at which they are formally started and completed, should be adapted to the situation at hand in accordance with the established Architecture Governance.
All activities that have been initiated in these steps must be closed

The steps in Phase E are as follows:
■Determine/confirm key corporate change attributes (see Section 9.3.1)
■Determine business constraints for implementation (see Section 9.3.2)
■Review and consolidate Gap Analysis results from Phases B to D (see Section 9.3.3)
■Review consolidated requirements across related business functions (see Section 9.3.4)
■Consolidate and reconcile interoperability requirements (see Section 9.3.5)
■Refine and validate dependencies (see Section 9.3.6)
■Confirm readiness and risk for business transformation (see Section 9.3.7)
■Formulate Implementation and Migration Strategy (see Section 9.3.8)
■Identify and group major work packages (see Section 9.3.9)
■Identify Transition Architectures (see Section 9.3.10)
■Create the Architecture Roadmap & Implementation and Migration

Notes:

Phase E – Opportunities and Solutions – 07/13

Step 8: Formulate Implementation and Migration Strategy
❑ Determine an Overall Strategic Approach to implementing the solutions and/or exploiting opportunities:
  ❖ Greenfield
  ❖ Revolutionary
  ❖ Evolutionary
❑ Determine an Implementation Approach:
  ❖ Quick win (snapshots)
  ❖ Achievable targets
  ❖ Value chain method (e.g., NASCIO methodology)
❑ These approaches and identified dependencies should become the basis for the creation of work packages

Step 9: Identify and Group Major Work Packages
❑ Use the Consolidated Gaps, Solutions, and Dependencies matrix together with the Implementation Factor Assessment and Deduction matrix, to logically group activities into work packages
❑ Fill in the "Solution" column in the Consolidated Gaps, Solutions, and Dependencies matrix to recommend the proposed solution
❑ Indicate for every gap/activity whether the solution should be a new development, based on an existing product, and/or a solution that can be purchased
❑ Classify every current system:
  ❖ Mainstream Systems
  ❖ Contain Systems
  ❖ Replace Systems
❑ Analyze the work packages with respect to Business Transformation and group them into portfolios and projects

Step 10: Identify Transition Architectures
❑ Applicable when the scope of change to implement the Target Architecture requires an incremental approach
❑ Identifies one or more clear targets along with the roadmap for realizing the Target Architecture
❑ Development must be based upon the preferred implementation approach, the Consolidated Gaps, Solutions, and Dependencies matrix, the listing of projects and portfolios, as well as the enterprise's capacity for creating and absorbing change

Step 11: Create the Architecture Roadmap & Implementation and Migration Plan
❑ Consolidate the work packages and Transition Architectures into the Architecture Roadmap, Version 0.1:
  ❖ The Architecture Roadmap must demonstrate how the selection and timeline of Transition Architectures and work packages realizes the Target Architecture
❑ The Implementation and Migration Plan, Version 0.1 must be aligned to the Architecture Roadmap and sufficient to identify the necessary projects and resource requirements to realize the roadmap
❑ Update the Architecture Vision, Architecture Definition Document, and Architecture Requirements Specification, if necessary

Level=2 : L.O.= 5.2a : Describe the steps (Phase E) to create the Implementation and Migration Strategy.
See : TOGAF® Standard – Architecture Development Method : Page 95 : §9.3

9.3 Steps
The level of detail addressed in Phase E will depend on the scope and goals of the overall architecture effort.
The order of the steps in Phase E, as well as the time at which they are formally started and completed, should be adapted to the situation at hand in accordance with the established Architecture Governance.

All activities that have been initiated in these steps must be closed.

The steps in Phase E are as follows:
■Determine/confirm key corporate change attributes (see Section 9.3.1)
■Determine business constraints for implementation (see Section 9.3.2)
■Review and consolidate Gap Analysis results from Phases B to D (see Section 9.3.3)
■Review consolidated requirements across related business functions (see Section 9.3.4)
■Consolidate and reconcile interoperability requirements (see Section 9.3.5)
■Refine and validate dependencies (see Section 9.3.6)
■Confirm readiness and risk for business transformation (see Section 9.3.7)
■Formulate Implementation and Migration Strategy (see Section 9.3.8)
■Identify and group major work packages (see Section 9.3.9)
■Identify Transition Architectures (see Section 9.3.10)
■Create the Architecture Roadmap & Implementation and Migration Plan

Notes:

Phase E – Opportunities and Solutions – 08/13 | Q-8.1,p24 / A-1.12,p18

Formulate Implementation and Migration Strategy

Three basic approaches:

Greenfield: a completely new implementation

Revolutionary: a radical change

Evolutionary: a strategy of convergence

Architecture Development Method : Page 98 : §9.3.8
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Level=2 : L.O.= 5.3a : Describe three basic approaches to implementation.
See : TOGAF® Standard – Architecture Development Method : Page 98 : §9.3.8

It is worth pointing out that Evolutionary is only evolutionary when seen from the CEOs office!
For the guy on the ground who loses their job due to 'an evolutionary change' it is definitely 'Revolutionary!
The on-the-ground reality is that Evolutionary is a string of fire-crackers as opposed to a big bang.

9.3.8 Formulate Implementation and Migration Strategy
Create an overall Implementation and Migration Strategy that will guide the implementation of the Target Architecture, and structure any Transition Architectures. The first activity is to deter mine an overall strategic approach to implementing the solutions and/or exploiting opportunities.

There are three basic approaches as follows:
■Greenfield: a completely new implementation
■Revolutionary: a radical change (i.e., switch on, switch off)
■Evolutionary: a strategy of convergence, such as parallel running or a phased approach to introduce new capabilities

Next, determine an approach for the overall strategic direction that will address and mitigate the risks identified in the Consolidated Gaps, Solutions and Dependencies matrix. The most common implementation methodologies are:
■Quick win (snapshots)
■Achievable targets
■Value chain method

These approaches and the identified dependencies should become the basis for the creation of the work packages. This activity terminates with agreement on the Implementation and Migration Strategy for the enterprise.

Modules Level 2:

Notes:

Determine an approach for the overall strategic direction

The most common implementation methodologies are:

Quick win (snapshots)

Achievable targets

Value chain method

Level=2 : L.O.= 5.3a : Describe three basic approaches to implementation.
See : TOGAF® Standard – Architecture Development Method : Page 98 : §9.3.8

Methodologies as opposed to strategies …
Determine an approach for the overall strategic direction that will address and mitigate the risks identified in the Consolidated Gaps, Solutions, and Dependencies matrix. The most
common implementation methodologies are:
• Quick win (snapshots)
  Among the high-performing new leaders, one attribute stood out: a strong focus on results. In fact, most of them had managed to secure a "quick win"—a new and visible contribution to the success of the business made early in their tenure. Those who had achieved a quick win scored on average nearly 20% higher than those who hadn't.
  A quick win is a crucial form of reassurance to the leaders' bosses, who hope they have made the right promotion decision; to team members deciding whether to place confidence in their new manager; and to peers trying to determine whether an equal has joined their ranks. *The Quick Wins Paradox,* Mark E. Van Buren and Todd *Sa*fferstone*,* Harvard Business Review (January 2009)
• Achievable targets
  Achievable goals are the pinnacle of a smart goal-setting strategy. Sure, you should be able to achieve your goals, generally speaking. Yet, there is a lot more to achievable goals. This is because goals are high-productivity enablers. By itself, goal-setting provides structure to individual or team efforts.
  And making sure that goals are achievable builds on that. Most of all, achievable goals motivate. They become a milestone. One that requires resilience. To put it simply, achievable goals are something people feel. Achievable goals reward because they feel like the achievement that they are.
• Value chain method
  Porter's Value Chain focuses on systems, and how inputs are changed into the outputs purchased by consumers.
  Using this viewpoint, Porter described a chain of activities common to all businesses.
  To identify and understand your company's value chain, follow the steps on the next slide …

9.3.8 Formulate Implementation and Migration Strategy
Create an overall Implementation and Migration Strategy that will guide the implementation of the Target Architecture, and structure any Transition Architectures.
… CONTINUES … SEE REFERENCE SPECIFIED

Notes:

Phase E – Opportunities and Solutions – 10/13

Porter's Value Chain*

Support Activities

Firm Infrastructure

Human Resource Management

Technology Development

Procurement

Margin

Inbound Logistics | Operations | Outbound Logistics | Marketing & Sales | Service

Primary Activities

Step 1: Identify sub-activities for each primary activity
Three different types of sub-activities:
☐ Direct activities create value by themselves
☐ Indirect activities allow direct activities to run smoothly
☐ Quality assurance activities ensure that direct and indirect activities meet the necessary standards

Step 2: Identify sub-activities for each support activity
☐ For each of the support activities, determine the sub-activities that create value within each primary activity
☐ Then identify value-creating sub-activities

Step 3: Identify Links
☐ Find the connections between all of the value activities you identify

Step 4: Look for opportunities to increase value
☐ Review each of the sub-activities and links that you've identified, and think about how you can change or enhance them

* See also IT4IT Reference Architecture, a standard of the Open Group

Architecture Development Method : Page 98 : §9.3.8
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[Specifically duplicated to refresh Value Chain in Learning Studies]

Level=2 : L.O.= 5.3a : Describe three basic approaches to implementation.
See : TOGAF® Standard – Architecture Development Method : Page 98 : §9.3.8

Porter's Value Chain
Step 1 – Identify sub-activities for each primary activity
For each primary activity, determine which specific sub-activities create value. There are three different types of sub-activities:
• Direct activities create value by themselves. For example, in a book publisher's marketing and sales activity, direct sub-activities include making sales calls to bookstores, advertising, and selling online.
• Indirect activities allow direct activities to run smoothly. For the book publisher's sales and marketing activity, indirect sub-activities include managing the sales force and keeping customer records.
• Quality assurance activities ensure that direct and indirect activities meet the necessary standards. For the book publisher's sales and marketing activity, this might include proofreading and editing advertisements.
Step 2 – Identify sub-activities for each support activity.
• For each of the Human Resource Management, Technology Development and Procurement support activities, determine the sub-activities that create value within each primary activity. For example, consider how human resource management adds value to inbound logistics, operations, outbound logistics, and so on. As in Step 1, look for direct, indirect, and quality assurance sub-activities.
• Then identify the various value-creating sub-activities in your company's infrastructure. These will generally be cross-functional in nature, rather than specific to each primary activity. Again, look for direct, indirect, and quality assurance activities.
Step 3 – Identify links
Find the connections between all of the value activities you've identified. This will take time, but the links are key to increasing competitive advantage from the value chain framework. For example, there's a link between developing the sales force (an HR investment) and sales volumes. There's another link between order turnaround times, and service phone calls from frustrated customers waiting for deliveries.
Step 4 – Look for opportunities to increase value
Review each of the sub-activities and links that you've identified, and think about how you can change or enhance it to maximize the value you offer to customers (customers of support activities can be internal as well as external).

... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Phase E – Opportunities and Solutions – 11/13   Q-8.1,p24   A-1.12,p18

Step 9: Identify and Group Major Work Packages

- ❑ Use the Consolidated Gaps, Solutions, and Dependencies matrix to logically group activities into work packages
- ❑ Fill in the "Solution" column in the Consolidated Gaps, Solutions, and Dependencies matrix to recommend the proposed solution mechanisms
- ❑ Classify every current system
- ❑ Analyze the work packages with respect to Business Transformation and group into portfolios and projects

What is Work Package?

- ❑ A work package is the smallest unit of a Work Breakdown Structure, small enough to help the Project Manager estimate the duration and the cost

Measuring Work Package Performance with Earned Value Management

- ❑ The performance of a work package can be measured by the earned value
- ❑ Earned Value Measurement develops and monitors three key dimensions for each work package

Þ Q-40   [specifically duplicated for Learning Studies]
Level=2 : L.O.= 5.4a : Explain how to identify and group work packages.
See: TOGAF® Standard – Architecture Development Method : Page 95 : §9.3

Step 9: Identify and Group Major Work Packages
- Use the Consolidated Gaps, Solutions, and Dependencies matrix together with the Implementation Factor Assessment and Deduction matrix, to logically group activities into work packages.
- Fill in the "Solution" column in the Consolidated Gaps, Solutions, and Dependencies matrix to recommend the proposed solution mechanisms. Indicate for every gap/activity whether the solution should be oriented towards a new development, or be based on an existing product, and/or use a solution that can be purchased. An existing system may resolve the requirement with minor enhancements. For new development this is a good time to determine whether the work should be conducted in-house or through a contract. Indicate for every gap/activity whether the solution should be a new development, or based on an existing product, and/or a solution that can be purchased.
- Classify every current system
  - Mainstream Systems
  - Contain Systems
  - Replace Systems
- Analyze the Work Packages with respect to Business Transformation and group into portfolios and projects.

What is Work Package?
A work package is the smallest unit of a Work Breakdown Structure. When preparing a Work Breakdown Structure, deliverables are generally broken down into smaller, more manageable chunks of work. This process of deconstruction continues until the deliverables are small enough to be considered work packages. Each of these packages should be small enough to help the Project Manager estimate the duration and the cost. Work packages are scheduled, cost estimated, monitored, and controlled.

Measuring Work Package Performance with Earned Value Management
The performance of a work package can be measured by the earned value if there is an integrated baseline against which the performance of the work packages can be measured for the duration of the project.
Earned Value Measurement develops and monitors three key dimensions for each work package.
  - Planned Value - is the authorized budget allocated to the work to be accomplished for the work package.
  - ... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Phase E – Opportunities and Solutions – 12/13

Step 10: Identify Transition Architectures

❑ Where the scope of change to implement the Target Architecture requires an incremental approach, one or more Transition Architectures may be necessary

❑ Development of Transition Architectures must be based upon the preferred implementation approach, the Consolidated Gaps, Solutions, and Dependencies matrix, the listing of projects and portfolios, as well as the enterprise's capacity for creating and absorbing change

❑ Determine where the difficult activities are, and unless there are compelling reasons, implement them after other activities

Transition Architecture:

❑ Shows the enterprise at incremental states

❑ Is used to allow for individual work packages and projects to be grouped into managed portfolios and programs

❑ Represents the implementation sequence and priority

❑ Does not have to be uniform in duration

Komborero Makoni, JD Group, ZA

Level=2 : L.O.= 5.5a : Explain how to create and document Transition Architectures.
See :TOGAF® Standard – Architecture Development Method : Page 95 : §9.3

Step 10: Identify Transition Architectures
• Where the scope of change to implement the Target Architecture requires an incremental approach, then one or more Transition Architectures may be necessary. These provide an ability to identify clear targets along the roadmap to realizing the Target Architecture. The Transition Architectures should provide measurable business value. The time-span between successive Transition Architectures does not have to be of uniform duration.
• Development of Transition Architectures must be based upon the preferred implementation approach, the Consolidated Gaps, Solutions, and Dependencies matrix, the listing of projects and portfolios, as well as the enterprise's capacity for creating and absorbing change.
• Determine where the difficult activities are, and unless there are compelling reasons, implement them after other activities that most easily deliver missing capability.

Transition architecture:
• Shows the enterprise at incremental states, reflecting periods of transition that sit between the Baseline and the Target
• Used to allow for individual work packages and projects to be grouped into managed portfolios and programs, illustrating the business value at each stage
• Represents the sequence and priority with which the architecture transformation is implemented
• Does not have to be uniform in duration

9.3 Steps
The level of detail addressed in Phase E will depend on the scope and goals of the overall architecture effort.
The order of the steps in Phase E, as well as the time at which they are formally started and completed, should be adapted to the situation at hand in accordance with the established Architecture Governance.
All activities that have been initiated in these steps must be closed during the Create the Architecture Roadmap & Implementation and Migration Plan step (see Section 9.3.11).

The steps in Phase E are as follows:
▪Determine/confirm key corporate change attributes (see Section 9.3.1)
... CONTINUES ... SEE REFERENCE SPECIFIED

Modules Level 2:

Notes:

Phase E – Opportunities and Solutions – 13/13

Outputs of Phase E

STATEMENT OF ARCHITECTURE WORK	ARCHITECTURE VISION	DRAFT ARCHITECTURE DEFINITION DOCUMENT, DRAFT ARCHITECTURE REQUIREMENTS SPECIFICATION	CONSOLIDATED GAPS, SOLUTIONS, AND DEPENDENCIES ASSESSMENT	CAPABILITY ASSESSMENT	REQUEST FOR ARCHITECTURE WORK	COMMUNICATIONS PLAN
ORGANIZATIONAL MODEL FOR ENTERPRISE ARCHITECTURE	GOVERNANCE MODELS AND FRAMEWORKS	TAILORED ARCHITECTURE FRAMEWORK	STATEMENT OF ARCHITECTURE WORK	ARCHITECTURE VISION	ARCHITECTURE REPOSITORY	CHANGE REQUESTS FOR EXISTING PROGRAMS AND PROJECTS

Phase	Output & Outcome	Essential Knowledge
Phase E: Opportunities & Solutions	A set of work packages that address the set of gaps, with an indication of value produced and effort required, and dependencies between the work packages to reach the adjusted target.	Dependency between the set of changes. (Work Package & Gap dependency). Value, effort, and risk associated with each change and work package. How stakeholder priority and preference adjust in response to value, effort, and risk of change.

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Outputs of Phase E:

- Statement of Architecture Work
- Architecture Vision
- Draft Architecture Definition Document, including:
  - Transition Architectures, if any
- Draft Architecture Requirements Specification
- Consolidated Gaps, Solutions and Dependencies Assessment
- Capability Assessment, including:
  - Business Capability Assessment
  - IT Capability Assessment
- Architecture Roadmap, including:
  - Work Package portfolio
  - Identification of Transition Architectures
  - Implementation Factor Assessment and Deduction Matrix
- Implementation & Migration Plan (outline)
- Request for Architecture Work
- Communications Plan
- Organizational Model for Enterprise Architecture
- Governance Models and Frameworks
- Tailored Architecture Framework
- Statement of Architecture Work
- Architecture Vision
- Architecture Repository
- Change Requests for existing programs and projects

Modules Level 2:

Notes:

Phase F – Migration Planning – 01/12

Steps

The TOGAF® Standard includes a generic set of Steps.

The main benefits of having 'tick lists' are threefold:

- You can see clearly what must be done and organize resources accordingly.
- Management is less arduous – there is a clear list of what must be done, and to what level of precision.
- You clearly know when you have finished.

While Phase E can be considered as the phase where the overall Program, necessary to realize the Architecture, is worked out …

Phase F is about the creation of a viable Implementation and Migration Plan in cooperation with the portfolio and project managers.

The TOGAF® Standard generic set of Steps is described in the following slides. Consider these as a template from which to construct the set that is tailored to your specific Architecture cycle.

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Steps
The main benefits of having 'tick lists' are threefold:
- You can see clearly what must be done and organize resource accordingly.
- Management is less arduous – there is a clear list of what must be done, and to what precision.
- You clearly know when you have finished.

While Phase E can be considered as the Phase where the overall Program, necessary to realize the Architecture, is worked out …
Phase F is about the creation of a viable Implementation and Migration Plan in co-operation with the portfolio and project managers.
The TOGAF® Standard generic set of Steps are in the next slides. Consider these as a template from which to construct the set that is tailored to your specific Architecture cycle.

TOGAF® Standard, 10th Edition

Notes:

Phase F – Migration Planning – 02/12

Phase F
Steps: Classic View

❑ Associated with each step is a generic list of tasks.
❑ This will be adapted as fitting for each project.
❑ The order is not very Important.
❑ It is important that at the end of the phase there is a ✓ in every box [of the adapted list] or a reason why not!

7. Complete the Architecture Development Cycle and document Lessons Learned

6. Complete the Implementation & Migration Plan

5. Confirm Architecture Roadmap and Architecture Definition Document

4. Prioritize migration projects by means of conducting a cost/benefit assessment and risk validation

3. Estimate resource requirements, project timings, and availability/delivery vehicle

2. Assign a business value to each work package

1. Confirm management framework interactions for the Implementation & Migration Plan

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Phase F
Steps - Classic View
Associated with each step is a generic list of tasks.
This will be adapted as fitting for each project.
The order is not very Important.
It is important that at the end of the phase there is a ✓ in every box
[of the adapted list] or a reason why not!

Notes:

Phase F – Migration Planning – 03/12

Step 1: Confirm Management Framework Interactions for the Implementation and Migration Plan
- ❑ Coordinate the Implementation and Migration Plan with the management frameworks in use within the organization
- ❑ The outcome of this step may well be that the Implementation and Migration Plan could be part of a different plan produced by another framework with Enterprise Architecture participation

Step 2: Assign a Business Value to Each Work Package
- ❑ Establish what constitutes business value within the organization, how measured, and apply this to each of the projects (/increments)
- ❑ If Capability-Based Planning is used, then business values assign the business values for deliverables
- ❑ Use the work packages as a basis for identifying projects
- ❑ Risks are assigned to the projects by aggregating risks
- ❑ Estimate the business value for each project using the Business Value Assessment Technique

Step 3: Estimate Resource Requirements, Project Timings, and Availability/Delivery Vehicle
- ❑ Determine costs to create the capability
- ❑ Determine costs to run and sustain the capability
- ❑ Identify opportunities to offset costs
- ❑ Assign resources to each activity and aggregate them

Step 4: Prioritize the Migration Projects by means of conducting a Cost/Benefit Assessment and Risk Validation
- ❑ Prioritize projects by their business delta value
- ❑ Determine the net benefit of all of the SBBs
- ❑ Verify that the risks have been effectively mitigated and factored in
- ❑ Gain the requisite consensus

Step 5: Complete the Implementation and Migration Plan
- ❑ Update the Architecture Roadmap including any Transition Architectures
- ❑ If the implementation approach has shifted as a result of confirming the implementation increments, update the Architecture Definition Document

Step 6: Complete the Implementation and Migration Plan
- ❑ Integrate all of the projects and activities into a project plan
- ❑ Any Transition Architectures will act as portfolio milestones
- ❑ All external dependencies should be captured and included
- ❑ Project plans may be included in the Implementation/Migration Plan

Step 7: Complete the Architecture Development Cycle and Document Lessons Learned.
- ❑ Determine costs to create the capability
- ❑ Determine costs to run and sustain the capability
- ❑ Identify opportunities to offset costs
- ❑ Assign resources to each activity and aggregate them

Þ Q-43
Level=2 : L.O.= 5.6a : Explain the impact of the migration projects on the organization and the coordination required.
See: TOGAF® Standard – Architecture Development Method : Page 106 : §10.3

Step 1:Confirm Management Framework Interactions for the Implementation and Migration Plan
- Coordinate the Implementation and Migration Plan with the management frameworks in use within the organization:
  - Business Planning
  - Enterprise Architecture
  - Portfolio/Project Management
  - Operations Management
- The outcome of this step may well be that the Implementation and Migration Plan could be part of a different plan produced by another framework with Enterprise Architecture participation

Step 2: Assign a Business Value to Each Work Package
- Establish what constitutes business value within the organization, how it is measured, and apply this to each of the project (/increments)
- If Capability-Based Planning used, then business values associated with the capabilities and associated increments are be used to assign the business values for deliverables
- Use the work packages as a basis of identifying projects that will be in the Implementation and Migration Plan
- Risks are assigned to the projects by aggregating risks identified in the Consolidated Gaps, Solutions, and Dependencies Matrix
- Estimate the business value for each project using the Business Value Assessment Technique

Step 3: Estimate Resource Requirements, Project Timings, and Availability/Delivery Vehicle
- Determine costs to create the capability
- Determine costs to run and sustain the capability
- Identify opportunities to offset costs by decommissioning existing systems
- Assign resources to each activity and aggregate them at the project increment and project level

Step 4: Prioritize the Migration Projects through the Conduct of a Cost/Benefit Assessment and Risk Validation
- Prioritize the projects by ascertaining their business value against the cost of delivering them

... CONTINUES ... SEE REFERENCE SPECIFIED

Modules Level 2:

00 - Course Introduction

08 - The Context for Enterprise Architecture

09 - Stakeholder Management

10 - Phase A

11 - Architecture Development

- 12 - Implementing the Architecture

13 - Architecture Change Management

14 - Requirements Management

15 - Supporting the ADM Work

16 - Closure

Notes:

Phase F – Migration Planning – 04/12

Outputs

| Implementation and Migration Plan (detailed) |
| Finalized Architecture Definition Document |
| Finalized Architecture Requirements Specification |
| Finalized Architecture Roadmap |
| Re-Usable ABBs |
| Requests for Architecture Work for a new iteration of the ADM (if any) |
| Implementation Governance Model |
| Change Requests |

Illustration Output

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Outputs
- Implementation and Migration Plan (detailed)
- Finalized Architecture Definition Document, including:
  - Finalized Transition Architectures, if any
- Finalized Architecture Requirements Specification
- Finalized Architecture Roadmap
- Re-Usable ABBs
- Requests for Architecture Work for a new iteration of the ADM (if any)
- Implementation Governance Model
- Change Requests

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Phase F – Migration Planning – 05/12

Key Outputs and Outcomes

For an exhaustive list, refer to the TOGAF Standard. In order to achieve these outcomes the Practitioner may have to perform more activities or create more deliverables than those listed in the table below. The intent is to keep the focus on what is pursued, not what is done.

Phase	Output & Outcome	Essential Knowledge
Phase F: Implementation and Migration Plan	An approved set of projects, containing the objective and any necessary constraints, resources required, and start and finish dates.	Resources available to undertake the change. How stakeholder priority and preference adjust in response to value, effort, and risk of change. (Stakeholder Requirements).

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Notes:

Level=2 : L.O.= 5.6b : Explain the impact of the migration projects on the organization and the coordination required.
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 42 : §5.2.2

Key outputs and outcomes
For an exhaustive list, refer to the TOGAF Standard. In order to achieve these outcomes, the Practitioner may have to perform more activities or create more deliverables than those listed in the table below. The intent is to keep the focus on what is pursued, not what is done.

5.2.2 Essential ADM Output and Knowledge
A summary of the essential outcome and output is provided in Table 4. Keep in mind that the essential output is what stakeholders, sponsor, and boss' boss' boss wants. No-one wants an architecture; they want guidance on planning and executing an effective change. Practitioners use an architected approach to providing the best available guidance on effective change. The essential outcomes and outputs are derived from the objectives of the phase – the statement of why a Practitioner should perform this activity.
What the Enterprise values and consumes is typically different than what the Practitioner produces. Practitioners deliver an essential output. It is provided as views, roadmaps,
architecture specifications, controls, and other useful things. Architecture is developed, and the EA Landscape populated. To do this, Practitioners require a set of essential knowledge. The Enterprise consumes effective guidance about, and the ability to govern, change.
Read Table 4 in conjunction with Table 3 to confirm whether for a particular purpose the output of the phase is already in existence, needs to be created, or is extraneous to the current Architecture Project. Good Practitioners will adjust their work accordingly.
Table 4 lists only key outputs and outcomes. For an exhaustive list, refer to the TOGAF Standard. In order to achieve these outcomes, the Practitioner may have to perform more activities or create more deliverables than those listed in the table below. The intent is to keep the focus on what is pursued, not what is done.

Notes:

Phase F – Migration Planning – 06/12

Topic	Mapping to TOGAF ADM Phase
Ascertain Dependencies	Partial Capability Level Phase A Program context: ○ Verify recency ○ Validate stakeholders, outcomes, timeline ○ Define project context in EA landscape Partial Capability Level Phases B, C, and D Enterprise context: ○ Assess the readiness of the Enterprise to absorb proposed solution ○ Assess the ability of the solution provider to deliver the solution ○ Ascertain the scope of change of the Implementation Project Program context: ○ Elaborate architecture definition ○ Elaborate architecture specification ○ Define approach to minimize dependencies ○ Define risk controls
Balance Options and Suppliers	Partial Capability Level Phases B, C, and D For each capability: ○ Define the solution boundary and conditions for integration ○ Validate continuity in EA landscape ○ Create domain-specific work packages Partial Capability Level Phase E For each project in the portfolio: ○ Identify candidate ABBs and SBBs ○ Gather estimates ○ Develop project timelines ○ Trade-off impact with superior architecture ○ Update roadmap ○ Update risk matrix ○ Update work package and architecture specification

Topic	Mapping to TOGAF ADM Phase
Finalize Scope and Budget	Partial Capability Level Phase F For each project in the portfolio: ○ Finalize estimates and timeline ○ Update Enterprise roadmap ○ Populate governance and approval plan Partial Capability Level Phase G For each project in the portfolio: ○ Perform architecture review ○ Confirm stakeholder approval Level Phase A For each project in the portfolio: ○ Candidate proof-of-concept work packages (as needed) ○ Candidate Statement of Work ○ Finalize stakeholder list ○ Draft success measures
Prepare for Solution Delivery Governance	Partial Program Level Phase F Program context: ○ Initiate completion of architecture work ○ Define target Solution Architectures ○ Finalize effort and resource estimates ○ Define variance measures in project-specific governance model ○ Update risk matrix

A Practitioners' Approach to Developing Enterprise Architecture Following the ADM : Page 78 : §9
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Level=2 : L.O.= 5.6c : Explain the impact of the migration projects on the organization and the coordination required.
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 78 : §9

9. Walk Through Architecture to Support Project
In this context, the architecture is used to clarify the purpose and value of the project, identify requirements to address synergy and future dependency, assure compliance with architectural governance, and to support integration and alignment between projects.
This chapter describes development of architecture for one project within a portfolio. The effort starts with identifying the context, the superior architecture that defines the visions, the scope, and the value the project should deliver. Without initial exploration about where the project sits inside of the EA Landscape, Architecture to Support Project is in a volatile state. It is the responsibility of the Practitioners working in the Architecture Project to gather hints of uncovered barriers to the project. The project lies inside the roadmap at some linear point in a sequence of work packages. There are many hints from the roadmap alone of where to see danger ahead and who to ask about any unknown warning signs.
The purpose is to highlight the level of detail, time, and breadth during the ADM cycle phases for developing an EA as a focus of support to project architecture and governance. Most of the effort happens in the context of Phase F.

Table 8 summarizes the activities and use of appropriate steps from the ADM phases. The content of the table is discussed in detail in the rest of this chapter.

Table 8: Summary Table: ADM Phases and Architecture to Support Project For Architecture to Support Project, the critical focus points are:
•   Scoping:
— What is the origin for the receipt of a Request for Architecture Work?
— Where will I have overlap? Who are my neighbours (EA Landscape)?
— Where do I look (EA Landscape: depth, breadth, detail)?
— Are my stakeholders/portfolio guidance still relevant (recency)?
•   Domain-specific stakeholders' concerns and architecture elaboration:
— Viewpoints/Stakeholder Map
— What do I need to know/solve for?
... CONTINUES ... SEE REFERENCE SPECIFIED

TOGAF® Standard, 10th Edition

Realizing the Solution

Contractually, this is the post-rollout warranty period, putting the solution in the hands of the beneficiaries.

The engagement of the Architecture Practitioner comes to a conclusion when the solution is put to 'Successful usage' - the first 30, 60, or 90 days.

The EA initiates a Gap Analysis between the realized architecture and the Baseline Architecture.

Closure of the Architecture Project is achieved when the Implementation EA accepts the superior architecture.

The oversight provided by the EA is retained until solution delivery.

Document the Lessons Learned.

Document controls and constraints that accelerated the overall delivery.

Update the cascading impact of the project on the EA Landscape and roadmap.

Validate, close, and update the Enterprise backlog.

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Notes:
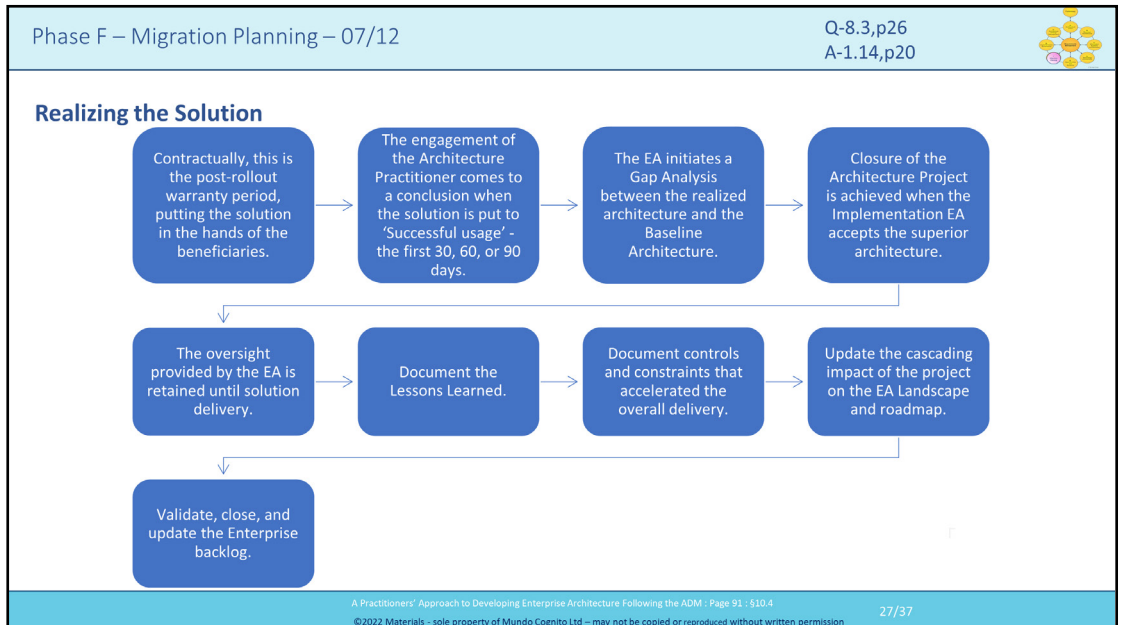
Level=2 : L.O.= 5.6d : Explain the impact of the migration projects on the organization and the coordination required.
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 91 : §10.4
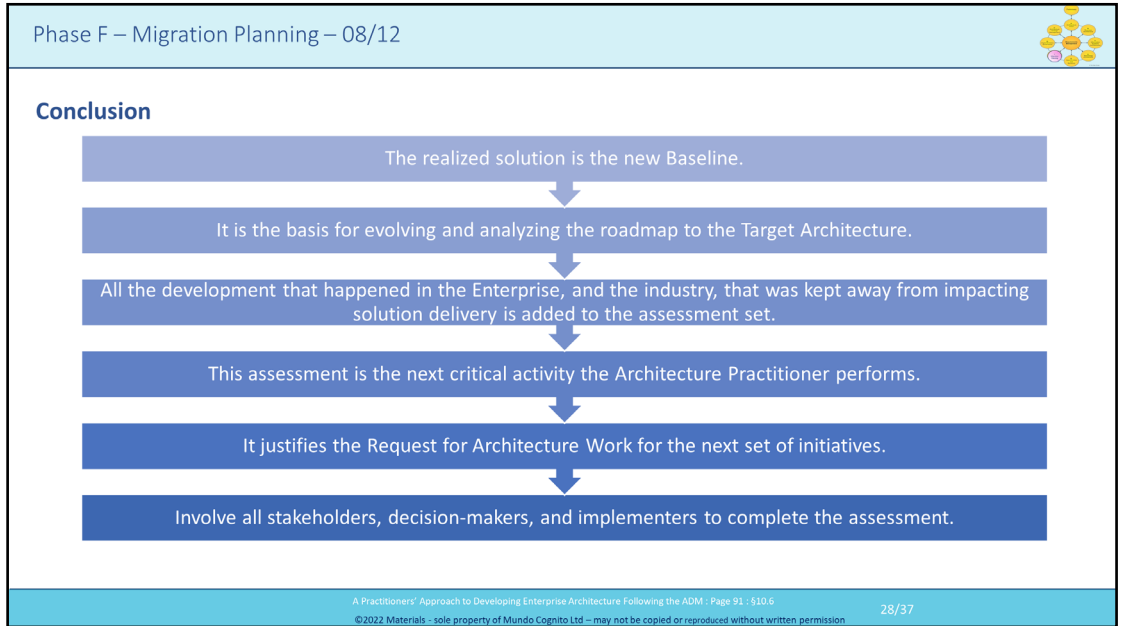
Realizing the Solution
- Contractually, this is the post-rollout, warranty period.
- It is the period of putting the solution in the hands of the beneficiaries:
  - customers
  - end-users
  - support personnel
  - partner set
- The engagement of the Architecture Practitioner comes to a conclusion when the solution is put to use.
- 'Successful usage' may be defined as the first 30, 60, or 90 days.
- The EA initiates a Gap Analysis between the realized architecture and the Baseline Architecture.
- At the end of this analysis a determination can be made about releasing key resources:
  - the project manager
  - the implementation architect
  - supplier representative
  - technology resources
  - etc.
- Closure of the Architecture Project is achieved when the Implementation EA accepts the superior architecture.
- The oversight provided by the EA is retained until the solution delivery completion criteria are met.
- Document the lessons learned
- Document controls and constraints that accelerated overall delivery of the solution.
- Update the cascading impact of the project to the EA Landscape and roadmap.
- As needed, validate, close and update the Enterprise backlog.

10.4 Realizing the Solution
Contractually, this is the post-rollout, warranty period. Depending on the solution delivery method used in the Enterprise, this may be a parallel path to Guiding Delivery. It is the period of putting the solution in the hands of the beneficiaries (customers, end-users, support personnel, partners, etc.). The engagement of the Architecture Practitioner comes to a conclusion or shifts... CONTINUES ... SEE REFERENCE SPECIFIED

Modules Level 2:

Notes:

Phase F – Migration Planning – 08/12

Conclusion

The realized solution is the new Baseline.

It is the basis for evolving and analyzing the roadmap to the Target Architecture.

All the development that happened in the Enterprise, and the industry, that was kept away from impacting solution delivery is added to the assessment set.

This assessment is the next critical activity the Architecture Practitioner performs.

It justifies the Request for Architecture Work for the next set of initiatives.

Involve all stakeholders, decision-makers, and implementers to complete the assessment.

Þ Q-46
Level=2 : L.O.= 5.6e : Explain the impact of the migration projects on the organization and the coordination required.
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 91 : §10.6

Conclusion
- Many Architecture Practitioners fail in their role when supporting solution delivery.
- The realized solution is the new Baseline.
- It is the basis for evolving and analyzing the roadmap to the Target Architecture.
- All the development that happened in the Enterprise, and the industry, that were kept away from impacting solution delivery is added to the assessment set.
- This assessment is the next critical activity the Architecture Practitioner performs. It is this work that justifies closure of the current Architecture Project, Implementation Project, and resources.
- It also justifies the Request for Architecture Work for the next set of initiatives to achieve the subsequent Target Transition State (n+1).
- Involve all stakeholders, decision-makers, and implementers to complete the assessment, and gain the sign-off to close the effort.

Notes:

| Phase F – Migration Planning – 09/12 | Q-8.1,p24 |
| | A-1.12,p18 |

Assigning a Business Value to each Work Package:

Address :
- Performance Evaluation Criteria
- Return-on-Investment Criteria
- Business Value

Business value is used by portfolio and capability managers to allocate resources

Critical Success Factors (CSFs) are established to define the success of a project

Measures of Effectiveness (MOE) are performance criteria, and many corporations include them in the CSFs

Strategic Fit based upon the overall Enterprise Architecture (all tiers) will be the critical factor for allowing the approval of any new project

Use the work packages as a basis for identifying projects that will be in the Implementation and Migration Plan

Risks should then be assigned to the projects and the project increments

Estimate the business value for each project using the Business Value Assessment Technique.

Level=2 : L.O.= 5.7a : Explain why and how business value is assigned to each work package.
See : TOGAF® Standard – Architecture Development Method : Page 107 : §10.3.2

Assigning a Business Value to Each Work Package
- Assign a business value to each work package. Establish:
  - what constitutes business value within the organization
  - how value can be measured
then apply this to each one of the projects and project increments.
- Address :
  - Performance Evaluation Criteria are used by portfolio and capability managers to approve and monitor the progress of the architecture transformation
  - Return-on-Investment Criteria have to be detailed and signed off by the various executive stakeholders
  - Business Value has to be defined as well as techniques, such as the value chain, which are to be used to illustrate the role in achieving tangible business outcomes
- Business value is used by portfolio and capability managers to allocate resources and, in conjunction with ROI, can be used to determine whether an endeavour proceeds, is delayed, or is cancelled.
- Critical Success Factors (CSFs) are established to define success for a project and/or project increment to provide managers and implementers with a gauge as to what constitutes a successful implementation.
- Measures of Effectiveness (MOE) are often performance criteria and many corporations include them in the CSFs and, if treated discretely, it should be clear how these criteria are grouped.
- Strategic Fit based upon the overall Enterprise Architecture (all tiers) will be the critical factor for allowing the approval of any new project or initiative, and for determining the value of any deliverable.
- Use the work packages as a basis of identifying projects that will be in the Implementation and Migration Plan – and may require adjustment of the Architecture Roadmap and Architecture Definition Document.
- Risks should then be assigned to the projects and project increments by aggregating risks identified Phase E:
  - Estimate the business value for each project using the Business Value Assessment.

10.3.2 Assign a Business Value to Each Work Package
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Phase F – Migration Planning – 10/12

Conclusion

EAs must:
- ❑ Understand/analyze possible ways to improve the complex system against a set of often contradictory preferences
- ❑ Represent the system in a set of models, the architecture – describing the system as components and relationships

Through multiple Architecture Projects, the EA Landscape is gradually populated.

EAs should not expect stakeholders to understand the models' specialized language.

EAs communicate with three broad communities - that use the architecture differently:
- ❑ Stakeholders
- ❑ Implementers
- ❑ Decision-makers

Informal communication is the most important communication that will be undertaken and provides confidence that cannot be underestimated.

Level=2 : L.O.= 5.7b : Explain why and how business value is assigned to each work package.
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 22 : §3.4

Conclusion
EAs must:
- Understand/analyze possible ways to improve the complex system against a set of often contradictory preferences.
- Represent the system in a set of models, the architecture – describing the system as components and relationships

Through multiple Architecture Projects, the EA Landscape is gradually populated.
Using an architecture requires translation of the models to a form that is useful to non-specialists. EAs should not expect stakeholders to understand the models' specialized language, structure, and limitations.

EAs communicate with three broad communities - that use the architecture differently.
- Stakeholders: are presented with views that address their concerns enabling them to:
  - understand the architecture
  - engage in trade-off decisions
  - approve the Target Architecture
- Implementers: need to understand:
  - where their project fits within the roadmap
  - its role in producing value
  - what work packages and gaps they are responsible for
  - associated gaps they are not responsible for
  - how conformance will be assessed
- Decision-makers: communication often falls into the category of "other useful things".

All EAs need to keep in mind that informal communication is the most important communication that will be undertaken. An effectively communicated architecture is one that provides confidence.
Confidence that the architecture and associated roadmap of change is the guidance the Enterprise should follow cannot be underestimated.

Modules Level 2:

Phase F – Migration Planning – 11/12

Outputs

Implementation and Migration Plan (detailed)

Finalized Architecture Definition Document, including:

❑   Finalized Transition Architectures, if any

Finalized Architecture Requirements Specification

Finalized Architecture Roadmap

Re-Usable ABBs

Requests for Architecture Work for a new iteration of the ADM (if any)

Implementation Governance Model

Change Requests

Illustration Output

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Notes:

Level=2 : L.O.= 5.6e : Explain the impact of the migration projects on the organization and the coordination required.
See: TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 91 : §10.6

Outputs
- Implementation and Migration Plan (detailed)
- Finalized Architecture Definition Document, including:
  - Finalized Transition Architectures, if any
- Finalized Architecture Requirements Specification
- Finalized Architecture Roadmap
- Re-Usable ABBs
- Requests for Architecture Work for a new iteration of the ADM (if any)
- Implementation Governance Model
- Change Requests

10.6 Conclusion
Many Architecture Practitioners fail in their role when supporting solution delivery. It is quite normal to confuse their role with SME, auditor, stakeholder, and proxy for the Enterprise stakeholder and decision-maker. Review Chapter 11 and Section 15.2.
The realized solution is the new baseline. It is the basis for evolving and analyzing the roadmap to the Target Architecture. All the development that happened in the Enterprise, and the industry, that were kept away from impacting solution delivery is added to the assessment set.
This assessment is the next critical activity the Architecture Practitioner performs. It is this work that justifies closure of the current Architecture Project, Implementation Project, and resources.
It also justifies the Request for Architecture Work for the next set of initiatives to achieve the target transition state (n+1). Involve all stakeholders, decision-makers, and implementers to complete the assessment, and gain the sign-off to close the effort.

Notes:

Phase F – Migration Planning – 12/12

This table is intended to represent a scenario where a strategist uses the same concepts, methods, techniques, and frameworks to develop EA in order to develop a roadmap that supports the direction of an Enterprise.

Purpose	Breadth	Detail	Time	Recency
Architecture to Support Strategy	No pattern. Some with broad impact some with narrow.	Not very detailed. Typically more guidance than constraint.	Typically looking ahead for a 3 to 10-year period - current Architecture to Support Strategy tends to have a short timeframe.	Typically the need to update and keep this architecture current is highly variable.
Architecture to Support Portfolio	Will cover single subjects (the Portfolio).	Typically not very detailed.	Typically valid for 2 to 5-year period when Target. A portfolio without a view to the future is pointless.	Typically the need to update and keep this architecture current is highly variable.
Architecture to Support Project	Narrow breadth, typically discrete Projects within a Portfolio.	Typically detailed. Typically more constraint than guidance is developed.	Typically detailed. Typically, more constraint than guidance is developed.	Typically will be retained in the EA Landscape for an extended period after transition from Target to Current.
Architecture to Support Solution Delivery	Typically very narrow breadth.	Most detailed EA. Will contain the most detailed constraint.	Typically valid as a Target for <2 years. Will have very long-lived timeframes as current (post realization).	Typically will be retained in the EA Landscape for an extended period after transition from Target to Current.

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Þ Q-49
Level=2 : L.O.= 5.7c : Explain why and how business value is assigned to each work package.
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 13 : §3.2.2

This table is intended to represent a scenario where a strategist uses the same concepts, methods, techniques, and frameworks to develop EA in order to develop a roadmap that supports the direction of an Enterprise.

3.2.2 Introduction to Purpose
A purpose-based EA Capability model identifies four purposes that typically frame the planning horizon, depth and breadth of an Architecture Project, and the contents of the EA Repository.
The purpose-based EA Capability model used in this Guide was introduced in the World-Class Enterprise Architecture White Paper (see Referenced Documents) and refined in the TOGAF® Leader's Guide to Establishing and Evolving an EA Capability (see Referenced Documents).
Figure 3: Purposes of Enterprise Architecture

Typically, there are four broad purposes of an EA Capability:
- EA to Support Strategy: Deliver EA to provide an end-to-end Target Architecture, and develop roadmaps of change over a three to ten-year period
  An architecture for this purpose will typically span many change programs or portfolios.
  In this context, architecture is used to identify change initiatives and supporting portfolio and programs. Set terms of reference, identify synergies, and govern the execution of strategy via portfolio and programs.
- EA to Support Portfolio: Deliver EA to support cross-functional, multi-phase, and multi-project Change initiatives
  An architecture for this purpose will typically span a single portfolio.
  In this context, Architecture is used to identify projects, and set their terms of reference, align their approaches, identify synergies, and govern their execution of projects.
- EA to Support Project: Deliver EA to support the Enterprise's project delivery method
  An architecture for this purpose will typically span a single project. In this context, the architecture is used to clarify the purpose and value of the project, identify requirements to
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Phase F – Migration Planning – 01/03

Prioritize the Migration Projects

Conduct a Cost/Benefit Assessment and Risk Validation

o Prioritize the projects by ascertaining their business value against the cost of delivery
o Review the risks
o Obtain stakeholders' agreement on a prioritization of the projects
o Formally review the risk assessment

Architecture Development Method : Page 108 : §10.3.4
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Level=2 : L.O.= 5.8a : Describe how to prioritize the migration projects (Phase F).
See : TOGAF® Standard – Architecture Development Method : Page 108 : §10.3.4

Note that we have left these couple of 'tail end' Phase F slides until the beginning of Phase G because though their content is Phase F, the stuff is important foundation for Phase G and sits equally well that way.

Prioritize the Migration Projects
Conduct a Cost/Benefit Assessment and Risk Validation
o Prioritize the projects by ascertaining their business value against the cost of delivering them:
  • determine the net benefit of all of the SBBs delivered by the projects
  • verify that the risks have been effectively mitigated and factored in
  • gain the requisite consensus to create a prioritized list of projects
This is the basis for resource allocation:
  • discover all costs
  • ensure decision-makers understand the net benefit over time
o Review the risks:
  • ensure that the risks for the project deliverables have been mitigated as much as possible
  • update project list with risk-related comments.
o Get stakeholders agreement on a prioritization of the projects:
  • Note: it is not unusual for a project to earn a high priority if it provides a critical deliverable on the path to some large benefit, even if the immediate benefit of the project itself is small
o Formally review the risk assessment:
  • revise it as necessary
  • understand residual risk associated with the prioritization

10.3.4 Prioritize the Migration Projects through the Conduct of a Cost/Benefit Assessment and Risk Validation
Prioritize the projects by ascertaining their business value against the cost of delivering them.
The approach is to first determine, as clearly as possible, the net benefit of all of the SBBs delivered by the projects, and then verify that the risks have been effectively mitigated and factored in. Afterwards, the intent is to gain the requisite consensus to create a prioritized list of projects that will provide the basis for resource allocation.
It is important to discover all costs, and to ensure that decision-makers understand the net benefit over time.
... CONTINUES ... SEE REFERENCE SPECIFIED

Phase F – Migration Planning – 02/03

Confirm Architecture Roadmap and Update Architecture Definition Document

- ○ Update the Architecture Roadmap including any Transition Architectures
- ○ Assess what the time spans between Transition Architectures should be
- ○ This will result in a revised Architecture Roadmap co-ordinating the concurrent instances of the Architectures
- ○ Use a Transition Architecture State Evolution Table to show the proposed state of the Domain Architectures at various levels of detail
- ○ Update the Architecture Definition Document

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Notes:

Level=2 : L.O.= 5.9a : Describe how to confirm the Architecture Roadmap (Phase F).
See: TOGAF® Standard – Architecture Development Method : Page 108 : §10.3.5

Confirm Architecture Roadmap and Update Architecture Definition Document
o   Update the Architecture Roadmap including any Transition Architectures
o   Assess what the time-spans between Transition Architecture should be
- taking into consideration:
  - • the increments in business value
  - • the increments in capability
  - • other factors, such as risk
When capability increments are finalized, consolidate the deliverables by project.
o   This will result in a revised Architecture Roadmap needed in order to co-ordinate the concurrent instances of the various architectures
o   Use a Transition Architecture State Evolution Table to show the proposed state of the domain architectures at various levels of detail
o   Update the Architecture Definition Document:
  - • This may include assigning project objectives and aligning projects and their deliverables with the Transition Architectures to create an Architecture Definition Increments Table

10.3.5 Confirm Architecture Roadmap and Update Architecture Definition Document
Update the Architecture Roadmap including any Transition Architectures. Review the work to date to assess what the time-spans between Transition Architecture should be, taking into consideration the increments in business value and capability and other factors, such as risk.
Once the capability increments have been finalized, consolidate the deliverables by project. This will result in a revised Architecture Roadmap.
This is needed in order to co-ordinate the development of several concurrent instances of the various architectures. A Transition Architecture State Evolution Table (see the TOGAF Standard — ADM Techniques) can be used to show the proposed state of the domain architectures at various levels of detail.
If the implementation approach has shifted as a result of confirming the implementation increments, update the Architecture Definition Document.
... CONTINUES ... SEE REFERENCE SPECIFIED

TOGAF® Standard, 10th Edition

Notes:

Phase F – Migration Planning – 03/03

Outputs - more detailed

The outputs of Phase F may include, but are not restricted to:

o Implementation and Migration Plan, Approved
o Finalized Architecture Definition
o Finalized Architecture Requirements Specification
o Finalized Architecture Roadmap
o Re-Usable ABBs
o Requests for Architecture Work for a new iteration of the ADM cycle (if any)
o Implementation Governance Model (if any)
o Change Requests for the Architecture Capability arising from lessons learned

Level=2 : L.O.= 5.10a : Explain the outputs necessary to proceed with the architecture implementation work.
See: TOGAF® Standard – Architecture Development Method : Page 109 : §10.4

Outputs - more detailed
The outputs of Phase F may include, but are not restricted to:
o Implementation and Migration Plan, Approved - including:
  • Implementation and Migration Strategy
  • Project and portfolio breakdown of the implementation
  • Allocation of work packages to project and portfolio
  • Capabilities delivered by projects
  • Relationship to Target and any Transition Architectures
  • Milestones and timing
  • Work breakdown structure
  • Project charters (optional)
  • Related work packages
  • Business value
  • Risk, issues, assumptions, dependencies
  • Resource requirements and costs
  • Benefits of migration
  • Estimated costs of migration options
o Finalized Architecture Definition Document - including:
  • Finalized Transition Architectures, if any
o Finalized Architecture Requirements Specification
o Finalized Architecture Roadmap
o Re-Usable ABBs
o Requests for Architecture Work for a new iteration of the ADM cycle (if any)
o Implementation Governance Model (if any)
o Change Requests for the Architecture Capability arising from lessons learned

10.4 Outputs
The outputs of Phase F may include, but are not restricted to:

... CONTINUES ... SEE REFERENCE SPECIFIED

Modules Level 2:

Summary of Module 12

The 15 Learning points covered in Module 14 are:

5.1a/c : Explain the risk and security considerations for the three Phases (E, F and G).

5.2a : Describe the steps (Phase E) to create the Implementation and Migration Strategy.

5.3a : Describe three basic approaches to implementation.

5.4a : Explain how to identify and group work packages.

5.5a : Explain how to create and document Transition Architectures.

5.6a/e : Explain the impact of the migration projects on the organization and the coordination.

5.7a/c : Explain why and how business value is assigned to each work package.

5.8a : Describe how to prioritize the migration projects (Phase F).

5.9a : Describe how to confirm the Architecture Roadmap (Phase F).

This represents 54.4% of the course coverage.

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Notes:

Modules Level 2:

End of Teaching Slides

End of

Module 12

Implementing the Architecture

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Notes:

Notes:

Module 13/16

TOGAF® EA Training - Practitioner
TOGAF® Standard, 10th Edition

Module 13

Architecture Change Management

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Modules Level 2:

00 - Course Introduction

08 - The Context for Enterprise Architecture

09 - Stakeholder Management

10 - Phase A

11 - Architecture Development

12 - Implementing the Architecture

- 13 - Architecture Change Management

14 - Requirements Management

15 - Supporting the ADM Work

16 - Closure

Course Module Index

#	Topic – Level 1	✓
1	Module 00 - Course Introduction	✓
2	Module 01 - Overview	✓
3	Module 02 - Concepts	✓
4	Module 03 - Introduction to the ADM	✓
5	Module 04 - Introduction to the ADM - Techniques	✓
6	Module 05 – Applying ADM	✓
7	Module 06 - Architecture Governance	✓
8	Module 07 – Architecture Content	✓
#	Topic – Level 2	✓
9	Module 00 - Course Introduction	✓
10	Module 08 - The Context for Enterprise Architecture	✓
11	Module 09 – Stakeholder Management	✓
12	Module 10 – Phase A	✓
13	Module 11 – Architecture Development	✓
14	Module 12 – Implementing the Architecture	✓
15	Module 13 – Architecture Change Management	
16	Module 14 – Requirements Management	
17	Module 15 – Supporting the ADM Work	
18	Module 16 – Closure	

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Notes:

Modules Level 2:

00 - Course Introduction

08 - The Context for Enterprise Architecture

09 - Stakeholder Management

10 - Phase A

11 - Architecture Development

12 - Implementing the Architecture

- 13 - Architecture Change Management

14 - Requirements Management

15 - Supporting the ADM Work

16 - Closure

Module Index

Module Index

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4	Phase G – Implementation Governance	4
5	Phase H – Architecture Change Management	21
6	Summary of Module 13	33

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Notes:

Notes:

Phase G – Implementation Governance – 01/18

Key outputs and outcomes

For an exhaustive list, refer to the TOGAF Standard

Phase	Output & Outcome	Essential Knowledge
Phase G: Implementation Governance	Completion of the projects to implement the changes necessary to reach the adjusted target state.	Purpose and constraints on the implementation team. (Gap, Architecture Requirement Specification, Control) How stakeholder priority and preference adjust in response to success, value, effort, and risk of change. (Stakeholder Requirements)

Level=2 : L.O.= 5.10b : Explain the outputs necessary to proceed with the architecture implementation work.
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 42 : §5.2.2

Key outputs and outcomes
For an exhaustive list, refer to the TOGAF Standard

5.2.2 Essential ADM Output and Knowledge
A summary of the essential outcome and output is provided in Table 4. Keep in mind that the essential output is what stakeholders, sponsor, and boss' boss' boss wants. No-one wants an architecture; they want guidance on planning and executing an effective change. Practitioners use an architected approach to providing the best available guidance on effective change. The essential outcomes and outputs are derived from the objectives of the phase – the statement of why a Practitioner should perform this activity.
What the Enterprise values and consumes is typically different than what the Practitioner produces. Practitioners deliver an essential output. It is provided as views, roadmaps,
architecture specifications, controls, and other useful things. Architecture is developed, and the EA Landscape populated. To do this, Practitioners require a set of essential knowledge. The Enterprise consumes effective guidance about, and the ability to govern, change.
Read Table 4 in conjunction with Table 3 to confirm whether for a particular purpose the output of the phase is already in existence, needs to be created, or is extraneous to the current Architecture Project. Good Practitioners will adjust their work accordingly. Table 4 lists only key outputs and outcomes. For an exhaustive list, refer to the TOGAF Standard. In order to achieve these outcomes, the Practitioner may have to perform more activities or create more deliverables than those listed in the table below. The intent is to keep the focus on what is pursued, not what is done.

Notes:

Phase G – Implementation Governance – 02/18

Objectives

○ Ensure compliance with the Target Architecture by implementation projects

○ Perform appropriate Architecture Governance functions for the solution and any implementation-driven architecture Change Requests
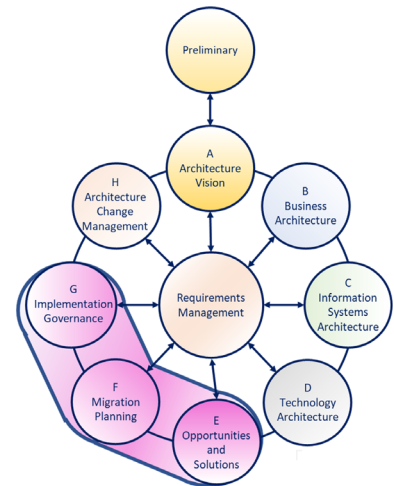
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Objectives
Ensure compliance with the Target Architecture by implementation projects
Perform appropriate Architecture Governance functions for the solution and any implementation-driven architecture Change Requests

Notes:
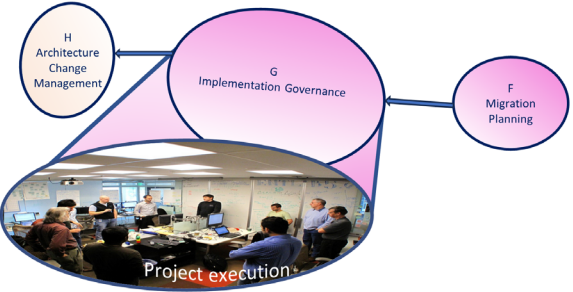
Phase G – Implementation Governance – 03/18

Approach

- Phase G relates the architecture to the implementation through the Architecture Contract
- The information for successful management of the projects must be brought together
- The development happens in parallel with Phase G

Approach
- Phase G relates the architecture to the implementation through the Architecture Contract
- The information for successful management of the projects must be brought together
- The development happens in parallel with Phase G

Notes:

Phase G – Implementation Governance – 04/18

Inputs

Reference Materials external to the Enterprise
o   Architecture reference materials

Non-Architectural Inputs
o   Request for Architecture Work
o   Capability Assessment

Architectural Inputs
o   Organizational Model for the Enterprise
o   Tailored Architecture Framework
o   Statement of Architecture Work
o   Architecture Vision
o   Architecture Repository
o   Architecture Definition Document
o   Architecture Requirements Specification
o   Architecture Roadmap
o   Architecture Governance Framework
o   Implementation Governance Model
o   Architecture Contract (standard)
o   Request for Architecture Work identified during Phases E and F
o   Implementation and Migration Plan

Illustration Input

Architecture Development Method : Page 112 : §11.2
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Level=2 : L.O.= 5.11a : Explain the inputs to Phase G.
See: TOGAF® Standard – Architecture Development Method : Page 112 : §11.2

11.2 Inputs
This section defines the inputs to Phase G.

11.2.1 Reference Materials External to the Enterprise
■Architecture reference materials (see the TOGAF Standard — Architecture Content)
11.2.2 Non-Architectural Inputs
■Request for Architecture Work (see the TOGAF Standard — Architecture Content)
■Capability Assessment (see the TOGAF Standard — Architecture Content)
11.2.3 Architectural Inputs
■Organizational Model for Enterprise Architecture (see the TOGAF Standard — Architecture Content), including:
—Scope of organizations impacted
—Maturity assessment, gaps, and resolution approach
—Roles and responsibilities for architecture team(s)
—Constraints on architecture work
—Budget requirements
—Governance and support strategy
■Tailored Architecture Framework (see TOGAF Standard — Architecture Content), including:
—Tailored architecture method
—Tailored architecture content (deliverables and artifacts)
—Configured and deployed tools
■Statement of Architecture Work (see the TOGAF Standard — Architecture Content)
■Architecture Vision (see the TOGAF Standard — Architecture Content)
■Architecture Repository (see the TOGAF Standard — Architecture Content), including:
—Re-usable building blocks
—Publicly available reference models
—Organization-specific reference models
—Organization standards
■Architecture Definition Document (see the TOGAF Standard — Architecture Content)
■Architecture Requirements Specification (see the TOGAF Standard — Architecture Content), including:
—Architectural requirements
—Gap Analysis results (from Business, Data, Application, and Technology Architectures)
■Architecture Roadmap (see the TOGAF Standard — Architecture Content)
■Architecture Governance Framework (see the TOGAF Standard — Enterprise Architecture ... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Phase G – Implementation Governance – 05/18   Std. 9.2

Phase G
Steps
Classic View

Associated with each step is a generic
list of tasks.
This will be adapted as fitting
for each project.

The order is not very Important.

It is important that at the
end of the phase there
is a ✓ in every box
[of the adapted list]
or a reason why not!

| 6. Do post-implementation review, close the implementation |
| 5. Implement business and IT operations |
| 4. Perform EA compliance reviews |
| 3. Guide development of solutions deployment |
| 2. Identify deployment resources and skills |
| 1. Confirm scope and priorities for deployment with the development management |

Phase G Steps - Classic View [included to calm people upgrading from 9.2]
Associated with each step is a generic list of tasks.
This will be adapted as fitting for each project.
The order is not very Important.
It is important that at the end of the phase there is a ✓ in every box [of the adapted list] or a reason why not!

Phase G – Implementation Governance – 06/18	Q-8.3,p26 A-1.13,p19

Steps

1. Confirm scope and priorities for deployment with the development management
2. Identify deployment resources and skills
3. Guide development of solutions deployment
4. Perform EA compliance reviews
5. Implement business and IT operations
6. Perform post-implementation review, close the implementation

Illustration steps

Notes:

Level=2 : L.O.= 5.12a : Explain how the Implementation Governance is executed (Phase G).
See : TOGAF® Standard – Architecture Development Method : Page 113 : §11.3

Steps
- Confirm scope and priorities for deployment with the development management
- Identify deployment resources and skills
- Guide development of solutions deployment
- Perform EA compliance reviews
- Implement business and IT operations
- Do post-implementation review, close the implementation

11.3 Steps
The level of detail addressed in Phase G will depend on the scope and goals of the overall architecture effort.
The order of the steps in Phase G, as well as the time at which they are formally started and completed, should be adapted to the situation at hand in accordance with the established Architecture Governance.

The steps in Phase G are as follows:
■Confirm scope and priorities for deployment with development management (see Section 11.3.1)
■Identify deployment resources and skills (see Section 11.3.2)
■Guide development of solutions deployment (see Section 11.3.3)
■Perform Enterprise Architecture Compliance reviews (see Section 11.3.4)
■Implement business and IT operations (see Section 11.3.5)
■Perform post-implementation review and close the implementation (see Section 11.3.6)

Notes:

Phase G – Implementation Governance – 07/18

Step 1: Confirm scope and priorities
- Review migration planning outputs and produce recommendations on deployment
- Identify Enterprise Architecture priorities for development teams
- Identify deployment issues and make recommendations
- Identify building blocks for replacement, update, etc.
- Perform Gap Analysis on Enterprise Architecture and solutions framework
- Produce a Gap Analysis report

Step 2: Identify deployment resources and skills
- Identify system development methods required for solutions development
- Ensure that the systems development method enables feedback to the architecture team on designs

Step 3: Guide development of solutions deployment
- Formulate project recommendations
- Document Architecture Contract
- Update Enterprise Continuum directory and repository for solutions
- Guide development of business & IT operating models for services
- Provide service requirements derived from EA
- Guide definition of business & IT operational requirements
- Carry out Gap Analysis: Solution Architecture vs. operations
- Produce Implementation Plan

Step 4: Perform EA compliance reviews
- Review ongoing implementation governance and architecture compliance for each BB
- Conduct post-development reviews
- Close development part of deployment projects

Step 5: Implement business and IT operations
- Carry out deployment projects, including: IT services delivery implementation; business services delivery implementation; skills development & training implementation; communications documentation publication
- Publish new Baseline Architectures in the Architecture Repository and update other repositories, such as operational configuration management stores

Step 6: Perform Post-Implementation Review and Close the Implementation
- Conduct post-implementation reviews
- Publish reviews and close projects

Architecture Development Method : Page 113 : §11.3

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Þ Q-38
Level=2 : L.O.= 5.12a : Explain how the Implementation Governance is executed (Phase G).
See: TOGAF® Standard – Architecture Development Method : Page 113 : §11.3

Step 1: Confirm scope and priorities
- Review migration planning outputs and produce recommendations on deployment
- Identify Enterprise Architecture priorities for development teams
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Step 4: Perform EA compliance reviews
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- Conduct post-development reviews
- Close development part of deployment projects

Step 5: Implement business and IT operations
- Carry out deployment projects including: IT services delivery implementation; business services delivery implementation; skills development & training implementation; communications documentation publication
- Publish new Baseline Architectures in the Architecture Repository and update other repositories, such as operational configuration management stores

11.3 Steps
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Phase G – Implementation Governance – 08/18

Managing Innovation, Creativity, and Circumstance

o Phase G provides a step for this activity where the EA provides guidance to the Implementation Project
o EAs focus on the scope of the Implementation Project, facilitating good decision-making
o EAs run constant micro-iterations exploring discrete statements of value through to the implementation
o EAs focus attention on the narrow set of concerns on the critical path to value realization
o When the organization jumps to Phase G, the EA will routinely need to act as the stakeholders' agent
o EAs must be aware of the danger in acting as both the architect and the stakeholders' agent
o Specialized reporting against the narrow set of concerns on the critical path to value

Illustration critical path

Level=2 : L.O.= 5.12b : Explain how the Implementation Governance is executed (Phase G).

See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 96 : §11.4

Managing Innovation, Creativity, and Circumstance
• Phase G provides a step for this activity where the EA provides guidance to the Implementation Project:
    • Implementers are expected to live within the constraints of the project
    • EAs are expected to look at the context of the project
• EAs focus on the scope of the Implementation Project, facilitating good decision-making in the context of:
    • Enterprise benefits realization
    • Ensuring the stakeholders and implementers understand the implications of their choices
    • Ensuring stakeholders and implementation teams understand what to expect in terms of:
        • value
        • benefit
• EAs run constant micro-iterations exploring discrete statements of value through to the implementation
• EAs focus attention on the narrow set of concerns on the critical path to value realization
• When the organization jumps to Phase G, the EA will routinely need to act as the stakeholders' agent
• EAs must be aware of the danger acting as both the architect and the stakeholders' agent – and guard against:
    • tunnel vision
    • personal bias
    • "tourist dashboard decisions"
• Specialized reporting against the narrow set of concerns on the critical path to value and the Implementation Project form the control that mitigates lack of preparation and failure to separate duties.

11.4 Managing Innovation, Creativity, and Circumstance
Top-down direction and planning provides part of the answer for a nimble organization. It provides the guidelines, constraints, and clarity required to make tactical decisions. Sometimes the correct decision is to embark on unplanned change.
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Phase G – Implementation Governance – 09/18

Roles, Duties, and Decision Rights

The roles involved in the governance of developing and using architecture, with different accountability and decision rights, are:

- **Stakeholder**: owner of the architecture.
- **Stakeholder Agent**: representative of the stakeholder.
- **Subject Matter Expert**: possesses specialized knowledge about the enterprise or the operating environment.
- **Implementer**: responsible for performing all change activity.
- **Architect**: developer of the Target Architecture.
- **Auditor**: performs systematic reviews of both the target and implementation.

The governance process does not have to be heavyweight - simply demonstrating sufficient traceability so that the organization can have confidence the target is the best path to reaching the enterprise's preferences.

Level=2 : L.O.= 5.12c : Explain how the Implementation Governance is executed (Phase G).

See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 109 : §15.1.2

Roles, Duties, and Decision Rights
The roles involved in the governance of developing and using architecture, with different accountability and decision rights are:
- **Stakeholder**: owner of the architecture:
  - Provides priority, preference, and direction. All decision rights about the Target Architecture are vested in the stakeholders.
- **Stakeholder Agent**: representative of the stakeholder
- **Subject Matter Expert**: possesses specialized knowledge about the Enterprise or the operating environment:
  - Provides knowledge, advice, and validation of interpretation.
- **Implementer**: responsible for performing all change activity:
  - Architecture Project Management: How to Manage an Architecture Project using the TOGAF® Framework and Mainstream Project Management Methods (scope of change is not relevant). Transformative capital projects and incremental operational changes are changes performed by an implementer. All decision rights about proposed implementation choices, such as design, product selection, and change sequence, are vested with the implementer.
- **Architect**: developer of the Target Architecture:
  - Provides recommendations when non-compliance with the target is determined.
- **Auditor**: performs systematic reviews of both the target and implementation:
  - Best performed at multiple stages to capture errors before the cost of correction exceeds potential value realization. All decision rights about compliance during the development of the architecture and implementation are vested with the implementer. Auditing can be performed within a formal structure such as an architecture governing board or by a peer reviewer. Auditing can also be self-performed but the role being performed needs to be clear in the mind of the individual and that they are acting in accordance with the role.

The governance process does not have to be heavyweight - simply demonstrating sufficient traceability that the organization can have confidence that the target is the best path to reaching the Enterprise's preferences.

Notes:

Phase G – Implementation Governance – 10/18

Q-8.3,p26
A-1.13,p19

Outputs

Architecture contract (signed)

Compliance assessments

Change requests

Architecture-compliant solutions deployed

Illustration Output

Architecture Development Method : Page 116 : §11.4
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Level=2 : L.O.= 5.13a : Explain the outputs necessary to support Architecture Governance.
See : TOGAF® Standard – Architecture Development Method : Page 116 : §11.4

Outputs
• Architecture Contract (signed)
• Compliance Assessments
• Change Requests
• Architecture-compliant solutions deployed, including:
 • Implemented system
 • Populated Architecture Repository
 • Recommendations and dispensations
 • Service delivery requirements
 • Performance metrics
 • SLAs
 • Architecture Vision
 • Architecture Definition Document
 • Transition Architecture
 • Business and IT operating models

11.4 Outputs
The outputs of Phase G may include, but are not restricted to:
■Architecture Contract (signed) (see the TOGAF Standard — Enterprise Architecture Capability and Governance), as recommended in the architecture-compliant implemented architectures
■Compliance Assessments (see the TOGAF Standard — Architecture Content)
■Change Requests (see the TOGAF Standard — Architecture Content)
■Architecture-compliant solutions deployed including:
—The architecture-compliant implemented system

Note:
The implemented system is actually an output of the development process. However, given the importance of this output, it is stated here as an output of the ADM. The direct involvement of architecture staff in implementation will vary according to organizational policy, as described in the TOGAF Standard — Enterprise Architecture Capability and Governance.
—Populated Architecture Repository
—Architecture compliance recommendations and dispensations
—Recommendations on service delivery requirements
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Phase G – Implementation Governance – 11/18

Key outputs and outcomes

For an exhaustive list, refer to the TOGAF Standard

Phase	Output & Outcome	Essential Knowledge
Phase G: Implementation Governance	Completion of the projects to implement the changes necessary to reach the adjusted target state.	Purpose and constraints on the implementation team. (Gap, Architecture Requirement Specification, Control) How stakeholder priority and preference adjust in response to success, value, effort, and risk of change. (Stakeholder Requirements)

Level=2 : L.O.= 5.13b : Explain the outputs necessary to support Architecture Governance.
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 42 : §5.2.2

Key outputs and outcomes
For an exhaustive list, refer to the TOGAF Standard.

5.2.2 Essential ADM Output and Knowledge
A summary of the essential outcome and output is provided in Table 4. Keep in mind that the essential output is what stakeholders, sponsor, and boss' boss' boss wants. No-one wants an architecture; they want guidance on planning and executing an effective change. Practitioners use an architected approach to providing the best available guidance on effective change. The essential outcomes and outputs are derived from the objectives of the phase – the statement of why a Practitioner should perform this activity.
What the Enterprise values and consumes is typically different than what the Practitioner produces. Practitioners deliver an essential output. It is provided as views, roadmaps,
architecture specifications, controls, and other useful things. Architecture is developed, and the EA Landscape populated. To do this, Practitioners require a set of essential knowledge. The Enterprise consumes effective guidance about, and the ability to govern, change.
Read Table 4 in conjunction with Table 3 to confirm whether for a particular purpose the output of the phase is already in existence, needs to be created, or is extraneous to the current Architecture Project. Good Practitioners will adjust their work accordingly. Table 4 lists only key outputs and outcomes. For an exhaustive list, refer to the TOGAF Standard. In order to achieve these outcomes, the Practitioner may have to perform more activities or create more deliverables than those listed in the table below. The intent is to keep the focus on what is pursued, not what is done.

Phase G – Implementation Governance – 12/18

Q-8.3,p26
A-1.13,p19

Contract, in the simplest definition, is an enforceable promise.

Contracts exist at 'boundaries' between parties to agree the behavioural interaction.

In business there are many 'boundaries', for example:
o   Between departments
o   Between roles
o   Between companies

The contract is a formal [written] agreed clarification of the parties'
o   Responsibilities
o   Obligations
o   Priorities
to each other, that they both 'sign-up' to.

Some instances of contracts are very important in EA work . . .

Illustration contract

Notes:

Þ Q-41
Level=2 : L.O.= 5.14a : Explain how Architecture Contracts are used to communicate with implementers.
See: TOGAF® Standard – Enterprise Architecture Capability and Governance : Page 29 : §5.2

Contract, in the simplest definition, is an enforceable promise.
The promise may be to do something or to refrain from doing something.
The making of a contract requires the mutual assent of two or more parties, ordinarily, one of them makes an offer and the other accepting.
If one of the parties fails to keep the promise, the other is entitled to redress.
Contracts exist at 'boundaries' between parties to agree the behavioural interaction.
In business there are many 'boundaries', for example:
•   between departments
•   between roles
•   between companies
The contract is a formal [written] agreed clarification of the parties':
•   Responsibilities
•   Obligations
•   Priorities
to each other and that they both 'sign-up' to.
Some instances of contracts are very important in EA work . . .

5.2.2 Contract between Architecture Design and Development Partners
This is a signed statement of intent on designing and developing the Enterprise Architecture, or significant parts of it, from partner organizations, including systems integrators, applications providers, and service providers.
Increasingly, the development of one or more architecture domains (Business, Data, Application, Technology) may be contracted out, with the enterprise's architecture function providing
oversight of the overall Enterprise Architecture, and co-ordination and control of the overall effort. In some cases even this oversight role may be contracted out, although most enterprises prefer to retain that core responsibility in-house.
Whatever the specifics of the contracting-out arrangements, the arrangements themselves will normally be governed by an Architecture Contract that defines the deliverables, quality, and fitness-for-purpose of the developed architecture, and the processes by which the partners in the architecture development will work together.
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Phase G – Implementation Governance – 13/18

Statement of Architecture Work

The Statement of Architecture Work is created as a deliverable of Phase A, and is effectively an Architecture Contract between the architecting organization and the sponsor of the Enterprise Architecture
(or the IT governance function, on behalf of the enterprise).

The typical contents of a Statement of Architecture Work are defined in the TOGAF Standard Architecture Content.

Level=2 : L.O.= 5.14a : Explain how Architecture Contracts are used to communicate with implementers.
See : TOGAF® Standard – Enterprise Architecture Capability and Governance : Page 29 : §5.2

Statement of Architecture Work
The Statement of Architecture Work is created as a deliverable of Phase A, and is effectively an Architecture Contract between the architecting organization and the sponsor of the Enterprise Architecture (or the IT governance function, on behalf of the enterprise).
The typical contents of a Statement of Architecture Work are defined in the TOGAF Standard Architecture Content.

5.2.1 Statement of Architecture Work
The Statement of Architecture Work is created as a deliverable of Phase A, and is effectively an
Architecture Contract between the architecting organization and the sponsor of the Enterprise
Architecture (or the IT governance function, on behalf of the enterprise).
The typical contents of a Statement of Architecture Work are as defined in the TOGAF Standard
—Architecture Content.

Notes:

Phase G – Implementation Governance – 14/18

Contract between Architecture Design and Development Partners

Increasingly, the development of one or more architectures may be contracted out - the enterprise's architecture function providing oversight, co-ordination, and control of the overall effort.
Most enterprises still prefer to retain that core responsibility in-house.
The arrangements will be governed by an Architecture Contract.

Typical contents of an Architecture Design and Development Contract are:
- o Architecture and strategic principles and requirements
- o Conformance requirements
- o Architecture development and management process and roles
- o Target architecture measures
- o Defined phases of deliverables
- o Prioritized joint workplan
- o Time window(s)
- o Architecture delivery and business metrics

The specific terms of contract will be defined at the appropriate stage of the ADM, depending on the particular work that is being contracted out.

Illustration partners

Level=2 : L.O.= 5.14a : Explain how Architecture Contracts are used to communicate with implementers.
See : TOGAF® Standard – Enterprise Architecture Capability and Governance : Page 29 : §5.2

5.2.2 Contract between Architecture Design and Development Partners
This is a signed statement of intent on designing and developing the Enterprise Architecture, or significant parts of it, from partner organizations, including systems integrators, applications providers, and service providers.
Increasingly, the development of one or more architecture domains (Business, Data, Application, Technology) may be contracted out, with the enterprise's architecture function providing oversight of the overall Enterprise Architecture, and co-ordination and control of the overall effort. In some cases even this oversight role may be contracted out, although most enterprises prefer to retain that core responsibility in-house.
Whatever the specifics of the contracting-out arrangements, the arrangements themselves will normally be governed by an Architecture Contract that defines the deliverables, quality, and fitness-for-purpose of the developed architecture, and the processes by which the partners in the architecture development will work together.

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

The template for this contract will normally be defined as part of the Preliminary Phase of the ADM, if not existing already, and the specific contract will be defined at the appropriate stage of the ADM, depending on the particular work that is being contracted out.

Notes:

Phase G – Implementation Governance – 15/18

Contract between Architecting Function and Business Stakeholders

When the Implementation and Migration Plan has been agreed (at the end of Phase F), the Architecture Contract is drawn up between the architecting function and the business stakeholders.

This Contract may include:
o Introduction and background
o The nature of the agreement
o Scope
o Strategic requirements
o Architecture deliverables
o Conformance requirements
o Architecture adopters
o Time window
o Architecture business metrics
o SLA

This contract is also used to manage changes to the Enterprise Architecture in Phase H.

Illustration agreement

Level=2 : L.O.= 5.14a : Explain how Architecture Contracts are used to communicate with implementers.
See: TOGAF® Standard – Enterprise Architecture Capability and Governance : Page 29 : §5.2

Contract between Architecting Function and Business Stakeholders
When the Implementation and Migration Plan has been agreed (at the end of Phase F), the Architecture Contract is drawn up between the architecting function and the business stakeholders who will build and deploy the architected business solutions.

A Business Stakeholder's Architecture Contract may include:
• Introduction and background
• The nature of the agreement
• Scope
• Strategic requirements
• Architecture deliverables that meet the business requirements
• Conformance requirements
• Architecture adopters
• Time window
• Architecture business metrics
• SLA
This contract is also used to manage changes to the Enterprise Architecture in Phase H.

5.2.3 Contract between Architecting Function and Business Stakeholders
When the Implementation and Migration Plan has been agreed (at the end of Phase F), an Architecture Contract may be drawn up between the architecting function and the business stakeholders who will subsequently be building and deploying the architected business solutions A business stakeholder's Architecture Contract may include:
■Introduction and background
■The nature of the agreement
■Scope
■Strategic requirements
■Architecture deliverables that meet the business requirements
■Conformance requirements
■Architecture adopters
■Time window
■Architecture business metrics
■SLA

This contract is also used to manage changes to the Enterprise Architecture in Phase H.

Notes:

Phase G – Implementation Governance – 16/18

Communicating with Implementers (Gap, Specification, and Control)

Implementers need explicit context, gap, architecture specification, and control.

The most critical aspects to an implementer are:
○ Implementation Project context
○ Scope
○ Conformance

It is essential to fulfil the purpose of the TOGAF Architecture Contract.

John Carver's policy governance approach is a helpful example for the EA to follow:*

○ Specifications should be exclusionary
○ Specification compliance should be reasonably assessed

If architecture does not constrain a choice, it is allowed.
   ○ EAs provide the big picture to guide projects
   ○ Requirement/specification pairs guide the projects to value

Illustration control

*ISBN 978-0470392522

Level=2 : L.O.= 5.14b : Explain how Architecture Contracts are used to communicate with implementers.
See: TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 19 : §3.3.2

Communicating with Implementers (Gap, Specification, and Control)
Implementers need explicit context, gap, architecture specification, and control.
The most critical aspects to an implementer are:
• **Implementation Project context:** where does the project fit within the roadmap, what value or value dependency will the project provide?
• **Scope:** what work packages and gaps is the Implementation Project responsible for, as well as what gaps associated with any architecture components, associated with the project scope is the project not responsible for?
• **Conformance:** what is the set of specific architecture specifications and controls the Implementation Project will be assessed against?

It is essential to fulfill the purpose of the TOGAF Architecture Contract - to link the Implementation Project to the target in terms of context, work required, and conformance test.
John Carver's policy governance approach is a helpful example for the EA to follow:
• Specifications should be exclusionary, highlighting what is prohibited, rather than mandating what is permitted.
• Specification compliance should be assessed through a reasonable interpretation test by a reasonable person.
The key concept is if the architecture does not constrain a choice, or prohibit a choice, that choice is allowed.
Best practice is always to link a specification to a requirement – allowing the design, or implementation, to be assessed against a requirement/specification pair.
Following this practice, every specification exists to deliver something, and the implementation can be value tested.

When EAs serve the implementation team well, the stakeholders are supported:
• EAs provide the big picture to guide projects implicitly to value production
• Requirement/specification pairs to guide the projects explicitly to value

3.2.2 Introduction to Purpose

... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Phase G – Implementation Governance – 17/18

Communicating with Decision-Makers (other useful things)

Decision-makers have a strong overlap with stakeholders.

Decision-maker communication will typically be aligned with:

- Timing
- Trade-off decisions
- Status
- Budget
- Compliance
- Confidence

Illustration budget

Level=2 : L.O.= 5.14b : Explain how Architecture Contracts are used to communicate with implementers.
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 19 : §3.3.2

Communicating with Implementers (Other Useful Things)
Decision-makers have a strong overlap with stakeholders - communication to decision-makers often falls into the category of "other useful things". Decision-maker communication will typically be aligned with:
- Timing - when can the decision-maker expect activity - change something, complete something, or start to obtain value.
- Trade-off decisions - communication about trade-off decisions is typically to explain the trade-off decision. Critical conversations on trade-off by prior and superior architecture will be happen in Phase F, G, and H, thus informing decision-makers.
- Status – the most important status conversations are about agreeing Architecture Vision in Phase A, resolving complex trade-off in Phases B, C, and D, and conclusions regarding the Roadmap's work packages in Phase E.
- Budget - conversations with stakeholders during architecture and roadmap development revolve around value, effort, and risk. In Phase F spend is brought to the fore. In Phase G budget control and availability will impact all Projects.
- Compliance - decisions on non-compliance are made by stakeholders. They approve the recommendation to enforce the target, grant relief, or change the architecture.
- Confidence - the most critical conversations with decision-makers are about the confidence they should have in the Roadmap and Implementation & Migration Plan, completing the change, and realizing the value.

All architecture is an approximation; no EA can underestimate the importance of confidence.

3.2.2 Introduction to Purpose
A purpose-based EA Capability model identifies four purposes that typically frame the planning horizon, depth and breadth of an Architecture Project, and the contents of the EA Repository.
The purpose-based EA Capability model used in this Guide was introduced in the World-Class Enterprise Architecture White Paper (see Referenced Documents) and refined in the TOGAF® Leader's Guide to Establishing and Evolving an EA Capability (see Referenced Documents).
... CONTINUES ... SEE REFERENCE SPECIFIED

Modules Level 2:

Notes:

Phase G – Implementation Governance – 18/18	Q-8.3,p26 A-1.14,p20

Balance Opportunity and Viability

o Potentially accelerating solutions might be available in the market
o Develop the Domain Architecture specifications to the extent needed to scout the market for options
o Develop a matrix to enable viability
o Identify where a solution may have to be invented
o The objectives of the Architecture to support portfolio are:
  • to maximize gain from available resources
  • to identify conditions where gain is achievable
  • to identify barriers to achieving the goal
  • to provide assurance of investment/reward ratio
o Revisit the dependencies across work packages
o Decisions driven here impact the distribution of limited resources

Illustration market

A Practitioners' Approach to Developing Enterprise Architecture Following the ADM : Page 73 : §8.3
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Þ Q-44

Level=2 : L.O.= 5.15a : Explain how to balance opportunity and viability.
See: TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 73 : §8.3

Balance Opportunity and Viability
• Potentially accelerating solutions might be available in the market – technological developments and environmental changes might present new options .
• Develop the Business, Information Systems, and Technology Architecture specifications to the extent needed to scout the market for options.
• For example – if the purpose is to transmit information digitally, identify whether imaging is (not) an acceptable option, leaving the option to innovate the right fit at the solution delivery stage. Also: is the transmission of data for record-keeping purposes or transaction management purposes?
This identifies attributes of the building blocks and potential reuse of solutions already employed.
• Develop a matrix of options, risks, and controls to enable viability analysis and trade-off with stakeholders:
  • Identify the list of standards and reference architecture that can be leveraged.
  • Capture all possible attributes to inform trade-off analysis.
• Identify pockets where a solution may have to be invented. In such a case, create new work packages to perform proof-of-concept validations before scaling out.
Note: proof-of-concept work is actually implementation, not architecture.
• The objectives of the Architecture to Support Portfolio are:
  • to maximize the mileage gained with available resources
  • to identify conditions under with projected mileage gain is achievable
  • to identify barriers to achieve the goal and build efforts to diminish the impact of such barriers
  • to provide assurance of investment-to-reward ratio being unaltered
• Revisit the dependencies across work packages:
  • identify the importance and impact of the work packages.
  • perform an opportunity analysis factoring viable options to approach the solution.
  • the validation of the portfolio and trade-off is based on grouping by theme, impact, importance.

Any decisions driven here impact the distribution of limited resources.

... CONTINUES ... SEE REFERENCE SPECIFIED

Modules Level 2:

Notes:

Phase H – Architecture Change Management – 01/11

Objectives

o Ensure that the Architecture Lifecycle is maintained

o Ensure that the Architecture Governance Framework is executed

o Ensure that the enterprise's Architecture Capability meets current requirements

Preliminary

A Architecture Vision

B Business Architecture

H Architecture Change Management

Requirements Management

C Information Systems Architecture

G Implementation Governance

D Technology Architecture

F Migration Planning

E Opportunities and Solutions

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Objectives

- Ensure that the architecture lifecycle is maintained
- Ensure that the Architecture Governance Framework is executed
- Ensure that the enterprise's Architecture Capability meets current requirements

Notes:

Phase H – Architecture Change Management – 02/11

Key outputs and outcomes

For an exhaustive list, refer to the TOGAF Standard

Phase	Output & Outcome	Essential Knowledge
Phase H: Architecture Change Management	Direction to proceed and start developing a Target Architecture that addresses perceived, real, or anticipated shortfalls in the Enterprise.	Gaps between approved target, or preference, and realization from prior work. (Value Realization) Changes in preference or priority. (Stakeholder Requirements)

Level=2 : L.O.= 5.13b : Explain the outputs necessary to support Architecture Governance.
See : TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 42 : §5.2.2

Key outputs and outcomes
For an exhaustive list, refer to the TOGAF Standard.

5.2.2 Essential ADM Output and Knowledge
A summary of the essential outcome and output is provided in Table 4. Keep in mind that the essential output is what stakeholders, sponsor, and boss' boss' boss wants. No-one wants an architecture; they want guidance on planning and executing an effective change. Practitioners use an architected approach to providing the best available guidance on effective change. The essential outcomes and outputs are derived from the objectives of the phase – the statement of why a Practitioner should perform this activity.
What the Enterprise values and consumes is typically different than what the Practitioner produces. Practitioners deliver an essential output. It is provided as views, roadmaps,
architecture specifications, controls, and other useful things. Architecture is developed, and the EA Landscape populated. To do this, Practitioners require a set of essential knowledge. The Enterprise consumes effective guidance about, and the ability to govern, change.
Read Table 4 in conjunction with Table 3 to confirm whether for a particular purpose the output of the phase is already in existence, needs to be created, or is extraneous to the current Architecture Project. Good Practitioners will adjust their work accordingly. Table 4 lists only key outputs and outcomes. For an exhaustive list, refer to the TOGAF Standard. In order to achieve these outcomes, the Practitioner may have to perform more activities or create more deliverables than those listed in the table below. The intent is to keep the focus on what is pursued, not what is done.

Notes:

Phase H – Architecture Change Management – 03/11

Approach

The goal of an Architecture Change Management process is to ensure that the architecture achieves its original target business value.

| This can be done by: | 1. Ensuring that changes to the architecture are properly managed |
| | 2. Supporting a dynamic architecture |

| The process will determine the circumstances under which: | 1. The architecture will be permitted to change after deployment |
| | 2. Another ADM cycle is triggered. |

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Approach

The goal of an Architecture Change Management process is to ensure that the architecture achieves its original target business value.

This can be done by:

- Ensuring that changes to the architecture are properly managed
- Supporting a dynamic architecture

The process will determine the circumstances under which:

- The architecture will be permitted to change after deployment, and the process for this.
- Another ADM cycle is triggered.

Notes:

Phase H – Architecture Change Management – 04/11

Q-9.1,p28
A-1.15,p21

Inputs

Reference Materials external to the enterprise:
- Architecture reference materials

Architectural Inputs:
- Organizational Model for the enterprise
- Tailored Architecture Framework
- Architecture Repository
- Architecture Requirements
- Change Request - technology changes
- Change Request - business changes

Non-Architectural Inputs:
- Request for Architecture Work

Architecture Development Method : Page 120 : §12.2
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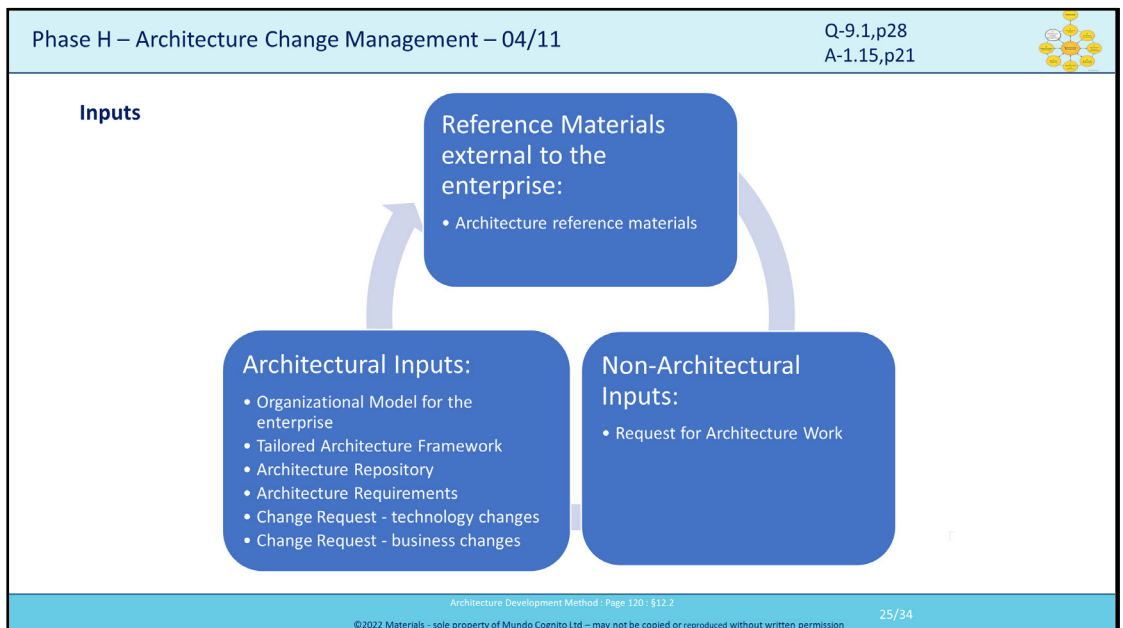
Level=2 : L.O.= 6.1a : Explain the inputs triggering change management: Change Requests
See: TOGAF® Standard – Architecture Development Method : Page 120 : §12.2

Inputs
Reference Materials External to the Enterprise:
- Architecture reference materials
Non-Architectural Inputs
- Request for Architecture Work
Architectural Inputs:
- Organizational Model for Enterprise - including:
  - Scope of organizations impacted
  - Maturity assessment, gaps, and resolution approach
  - Roles and responsibilities for architecture team(s)
  - Constraints on architecture work
  - Budget requirements
  - Governance and support strategy
- Tailored Architecture Framework - including:
  - Tailored architecture method
  - Tailored architecture content (deliverables and artifacts)
  - Configured and deployed tools
  - Statement of Architecture Work
  - Architecture Vision

12.2 Inputs
This section defines the inputs to Phase H.
12.2.1 Reference Materials External to the Enterprise
■Architecture reference materials (see the TOGAF Standard — Architecture Content)
12.2.2 Non-Architectural Inputs
■Request for Architecture Work (see the TOGAF Standard — Architecture Content)
12.2.3 Architectural Inputs
■Organizational Model for Enterprise Architecture (see the TOGAF Standard — Architecture Content), including:
—Scope of organizations impacted
—Maturity assessment, gaps, and resolution approach
—Roles and responsibilities for architecture team(s)
—Constraints on architecture work
—Budget requirements
—Governance and support strategy
... CONTINUES ... SEE REFERENCE SPECIFIED

TOGAF® Standard, 10th Edition

Notes:

Phase H - Steps
Classic View

Associated with each step is a generic list of tasks.
This will be adapted as fitting for each project.

The order is not very important.

It is important that at the end of the phase there is a ✓ in every box [of the adapted list] or a reason why not!

7. Activate the process to implement Change

6. Manage Governance Process

5. Develop Change Requirements to meet Performance Targets

4. Provide Analysis for Architecture Change Management

3. Manage Risks

2. Deploy Monitoring Tools

1. Establish Value Realization process

Level=2 : L.O.= 6.2b : Explain the activities necessary for effective change management (Stakeholder Management).
See: TOGAF® Standard – Architecture Development Method : Page 122 : §12.3

Phase H – Steps   included for familiarity for 9.2 opgraders
Classic View
Associated with each step is a generic list of tasks.
This will be adapted as fitting for each project.
The order is not very Important.
It is important that at the end of the phase there is a ✓ in every box [of the adapted list] or a reason why not!

12.3 Steps
The level of detail addressed in Phase H will depend on the scope and goals of the overall architecture effort.
The order of the steps in Phase H, as well as the time at which they are formally started and completed, should be adapted to the situation at hand in accordance with the established Architecture Governance.

The steps in Phase H are as follows:
■Establish value realization process (see Section 12.3.1)
■Deploy monitoring tools (see Section 12.3.2)
■Manage risks (see Section 12.3.3)
■Provide analysis for architecture change management (see Section 12.3.4)
■Develop change requirements to meet performance targets (see Section 12.3.5)
■Manage governance process (see Section 12.3.6)
■Activate the process to implement change (see Section 12.3.7)

Notes:

Phase H – Architecture Change Management – 06/11	Q-8.2,p29 A-1.16,p22

The level of detail addressed in Phase H will depend on the scope and goals of the overall architecture effort.
The order of the steps in Phase H as well as the time at which they are formally started/completed should be adapted to the situation at hand.

1. Establish Value Realization process
2. Deploy Monitoring Tools
3. Manage Risks
4. Provide Analysis for Architecture Change Management
5. Develop Change Requirements to meet Performance Targets
6. Manage Governance Process
7. Activate the process to implement Change

Illustration steps

Þ Q-47
Level=2 : L.O.= 6.2b : Explain the activities necessary for effective change management (Stakeholder Management).
See: TOGAF® Standard – Architecture Development Method : Page 122 : §12.3

The level of detail addressed in Phase H will depend on the scope and goals of the overall architecture effort.
The order of the steps in Phase H as well as the time at which they are formally started and completed should be adapted to the situation at hand
 in accordance with the established Architecture Governance:
- Establish Value Realization process
- Deploy Monitoring Tools
- Manage Risks
- Provide Analysis for Architecture Change Management
- Develop Change Requirements to meet Performance Targets
- Manage Governance Process
Activate the process to implement Change

12.3 Steps
The level of detail addressed in Phase H will depend on the scope and goals of the overall architecture effort.
The order of the steps in Phase H as well as the time at which they are formally started and completed should be adapted to the situation at hand in accordance with the established Architecture Governance.

The steps in Phase H are as follows:
■Establish value realization process (see Section 12.3.1)
■Deploy monitoring tools (see Section 12.3.2)
■Manage risks (see Section 12.3.3)
■Provide analysis for architecture change management (see Section 12.3.4)
■Develop change requirements to meet performance targets (see Section 12.3.5)
■Manage governance process (see Section 12.3.6)
■Activate the process to implement change (see Section 12.3.7)

Modules Level 2:

Notes:

Phase H – Architecture Change Management – 07/11   **Std. 9.2**

1. Establish Value Realization Process
- Influence business projects to exploit the Enterprise Architecture for value realization (outcomes)

2. Deploy Monitoring Tools
These are deployed and applied to enable following:
- Monitor technology changes which could impact the Baseline Architecture
- Monitor business changes which could impact the Baseline Architecture
- Business value tracking; e.g., investment appraisal method to determine value metrics for the business objectives
- Monitor Enterprise Architecture Capability maturity
- Track and assess asset management programs
- Track the Quality of Service (QoS) performances and usage
- Determine and track business continuity requirements

3. Manage Risks
- Manage Enterprise Architecture risks and provide recommendations for IT strategy

4. Provide Analysis for Architecture Change Management
Provide analysis for Architecture Change Management:
- Analyze performance
- Conduct Enterprise Architecture performance reviews with service management
  - Assess Change Requests and reporting to ensure the expected value realization and Service-Level Agree-ment (SLA) expectations of the customers are met

4. Provide Analysis for Architecture Change Management [cont.]
- Under take a Gap Analysis of the performance of the Enterprise Architecture
- Ensure change management requests adhere to the Enterprise Architecture Governance and framework

5. Develop Change Requirements to Meet Performance Targets
- Make recommendations on change requirements to meet performance targets and development of position to act

6. Manage Governance Process
Manage governance process and framework for architecture:
- Arrange meeting of Architecture Board (or other Governing Council)
- Hold meeting of the Architecture Board with the aim of the meeting being to decide on handling changes (technology and business and dispensations)

7. Activate the Process to Implement Change
Activate the architecture process to implement change:
- Produce a new Request for Architecture Work and request for investment
- Ensure any changes implemented in this phase are captured and documented in the Architecture Repository

Level=2 : L.O.= 6.2b : Explain the activities necessary for effective change management (Stakeholder Management).

See: TOGAF® Standard – Architecture Development Method : Page 122 : §12.3

12.3 Steps
The level of detail addressed in Phase H will depend on the scope and goals of the overall architecture effort.
The order of the steps in Phase H, as well as the time at which they are formally started and completed, should be adapted to the situation at hand in accordance with the established Architecture Governance.

The steps in Phase H are as follows:
- Establish value realization process (see Section 12.3.1)
- Deploy monitoring tools (see Section 12.3.2)
- Manage risks (see Section 12.3.3)
- Provide analysis for architecture change management (see Section 12.3.4)
- Develop change requirements to meet performance targets (see Section 12.3.5)
- Manage governance process (see Section 12.3.6)
- Activate the process to implement change (see Section 12.3.7)

Modules Level 2:

Phase H – Architecture Change Management – 08/11	Std. 9.2	Q-9.2,p29 A-1.16,p22

Outputs

o Architecture updates

o Changes to Architecture Framework and Principles

o New Request for Architecture Work

o Statement of Architecture Work

o Architecture Contract

o Compliance Assessments

Illustration Output

Notes:

Level=2 : L.O.= 6.3a : Explain the outputs relevant to proceed.
See: TOGAF® Standard – Architecture Development Method : Page 124 : §12.4

Outputs
- Architecture updates (for maintenance changes)
- Changes to architecture framework and principles (for maintenance changes)
- New Request for Architecture Work – to move to another cycle (for major changes)
- Statement of Architecture Work - updated if necessary
- Architecture Contract - updated if necessary
- Compliance Assessments - updated if necessary

12.4 Outputs
The outputs of Phase H may include, but are not restricted to:
■Architecture updates (for maintenance changes)
■Changes to architecture framework and principles (for maintenance changes)
■New Request for Architecture Work (see the TOGAF Standard — Architecture Content), to move to another cycle (for major changes)
■Statement of Architecture Work (see the TOGAF Standard — Architecture Content), updated if necessary
■Architecture Contract (see the TOGAF Standard — Enterprise Architecture Capability and Governance), updated if necessary
■Compliance Assessments (see the TOGAF Standard — Architecture Content), updated if necessary

Notes:

Phase H – Architecture Change Management – 09/11 — Std. 9.2

Coordination and Business Cycle in Action - 01/02

Each enterprise has a business cycle that plans and allocates resources – usually fixed by the fiscal year.
Do not waste time in the current cycle.
Usually not stated that the sponsor is looking to protect "future" decisions with EA.
Phase H demands that the EA should:
o Identify the bottom-up drivers for change and initiate the architecture work for the next target transition state (top-down driver)
o Ensure that the EA team is aligned with the organization's planning, budgeting, operational, and change processes

Architecture to support **Strategy** — Architecture to support **Portfolio** — Architecture to support **Project** — Architecture to support **Solution Delivery**

Budget Planning — Budget Preparation — Budget Allocation — Budget Control

Business Cycle and Architecture by Purpose

A Practitioners' Approach to Developing Enterprise Architecture Following the ADM : Page 105 : §14
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Level=2 : L.O.= 6.1a : Explain the inputs triggering change management: Change Requests
See: TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 105 : §14

Coordination and Business Cycle in Action - 01/02
Each Enterprise has a business cycle that plans and allocates resources, normally fixed by the fiscal year.
Do not waste time in the current cycle.
It is usually not stated that the sponsor is looking to protect "future" decisions with EA.
Phase H demands the EA to:
• Identify the bottom-up drivers for change due to:
  • improvements in available technologies
  • conditions controlling the operations or environment of the Enterprise
• Initiate the architecture work for the next target transition state (top-down driver)…
The EA team needs to be aligned with the organization's planning, budgeting, operational, and change processes.

14 Phase H (Coordination and Business Cycle in Action)
An EA is developed for one very simple reason: to guide effective change. The change can be materialized only when it is adequately supported with resources. Every Enterprise has a business cycle that plans and allocates resources, normally one fiscal year. The fiscal year dates are inflexible and decisions will be made with the data available and reasonable judgment.
If the EA Capability has been requested by the Enterprise, it is an acknowledgement of the fact that "implicit" architecture and the resulting judgments that drove investments and changes are not delivering what the Enterprise wants. It is likely that the EA effort was kicked off after the budget allocation for the current business cycle or with very limited time to influence the decisions of the current business cycle. Do not waste time in the current cycle. Stay happy with the "implicit acknowledgement" and focus on building the data for the next cycle. Though not stated, the sponsor is looking to protect "future" decisions with EA. The moment the Practitioner realizes they are late for the next cycle, shift the time investment to refurbish the résumé of the entire team (see Section 11.2).
Phase H demands the Practitioner to identify the bottom-up drivers for change; change due to
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Phase H – Architecture Change Management – 10/11

Q-9.1,p28
A-1.15,p21

The EA team is intentional about every effort, irrespective of the name used:
- Process improvement
- Operations
- Keep-The-Lights-On (KTLO)
- Growth
- Transformation
- etc.

Even though the superior architecture constrains the Architecture to support Portfolio and Project, nothing is committed and accepted as the next transition state until resources (budget) are allocated.

Distinguish between:
- Pet projects
- Random ideas

and legitimate initiatives to bridge a gap.

A practical approach would be to guide allocation of discretionary funds for exploratory work packages, until alignment with the roadmap can be rationalized and included in the portfolio.

Level=2 : L.O.= 6.1a : Explain the inputs triggering change management: Change Requests
See: TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 105 : §14

The EA team is intentional about every effort, irrespective of the name used:
- Process improvement
- Operations
- Keep-The-Lights-On (KTLO)
- Growth
- Transformation
- etc.

Even though the superior architecture constrains the Architecture to Support Portfolio and Project, nothing is committed and accepted as the next transition state until resources (budget) are allocated.
The EA identifies any random work packages and triggers a review, trade-off, and governance of the "new" portfolio.
Distinguish between
- Pet projects
- Random ideas

and legitimate initiatives to bridge a gap.
A practical approach would be to guide allocation of discretionary funds for exploratory work packages, until the alignment to roadmap can be rationalized and included in the portfolio.
The role being played by the EA at this stage is that of a mediator and negotiator.
The EA is responsible and accountable for the stability and integrity of the architecture.
At the time of finalizing the allocation of funds, good architecture will speak for itself and the EA need not be in the room to guide the decision - the decision-makers are already convinced of the need for the project and its outcome

14 Phase H (Coordination and Business Cycle in Action)
An EA is developed for one very simple reason: to guide effective change. The change can be materialized only when it is adequately supported with resources. Every Enterprise has a business cycle that plans and allocates resources, normally one fiscal year. The fiscal year dates are inflexible and decisions will be made with the data available and reasonable judgment.
If the EA Capability has been requested by the Enterprise, it is an acknowledgement of the fact that "implicit" architecture and the resulting judgments that drove investments and changes are
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Phase H – Architecture Change Management – 11/11

Key outputs and outcomes

For an exhaustive list, refer to the TOGAF Standard

Phase	Output & Outcome	Essential Knowledge
Phase H: Architecture Change Management	Direction to proceed and start developing a Target Architecture that addresses perceived, real, or anticipated shortfalls in the Enterprise	Gaps between approved target, or preference, and realization from prior work. (Value Realization) Changes in preference or priority. (Stakeholder Requirements)

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Þ Q-49
Level=2 : L.O.= 5.13b : Explain the outputs necessary to support Architecture Governance.
See: TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 42 : §5.2.2

5.2.2 Contract between Architecture Design and Development Partners
This is a signed statement of intent on designing and developing the Enterprise Architecture, or significant parts of it, from partner organizations, including systems integrators, applications providers, and service providers.
Increasingly, the development of one or more architecture domains (Business, Data, Application, Technology) may be contracted out, with the enterprise's architecture function providing oversight of the overall Enterprise Architecture, and co-ordination and control of the overall effort. In some cases even this oversight role may be contracted out, although most enterprises prefer to retain that core responsibility in-house.
Whatever the specifics of the contracting-out arrangements, the arrangements themselves will normally be governed by an Architecture Contract that defines the deliverables, quality, and fitness-for-purpose of the developed architecture, and the processes by which the partners in the architecture development will work together.

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
The template for this contract will normally be defined as part of the Preliminary Phase of the ADM, if not existing already, and the specific contract will be defined at the appropriate stage of the ADM, depending on the particular work that is being contracted out.

Modules Level 2:

Summary of Module 13

The 16 Learning points covered in Module 13 are:

5.9a : Describe how to confirm the Architecture Roadmap (Phase F).	5.10a/b : Explain the outputs necessary to proceed with the architecture implementation work.	5.12a/c : Explain how the Implementation Governance is executed (Phase G).
5.13a/b : Explain the outputs necessary to support Architecture Governance.	5.14a/b : Explain how Architecture Contracts are used to communicate with implementers.	5.15a : Explain how to balance opportunity and viability.
6.1a/c : Explain the activities necessary for effective change management (Stakeholder Management).	6.3a/b : Explain the outputs relevant to proceed.	

This represents 63.8% of the course coverage.

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Notes:

Modules Level 2:

End of Teaching Slides

End of

Module 13

Architecture Change Management

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Notes:

Module 14/16

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Module 14

Requirements Management

Notes:

Modules Level 2:

00 - Course Introduction

08 - The Context for Enterprise Architecture

09 - Stakeholder Management

10 - Phase A

11 - Architecture Development

12 - Implementing the Architecture

13 - Architecture Change Management

- 14 - Requirements Management

15 - Supporting the ADM Work

16 - Closure

Notes:

Course Module Index

Course Module Index

#	Topic – Level 1	✓
1	Module 00 - Course Introduction	✓
2	Module 01 - Overview	✓
3	Module 02 - Concepts	✓
4	Module 03 - Introduction to the ADM	✓
5	Module 04 - Introduction to the ADM - Techniques	✓
6	Module 05 – Applying ADM	✓
7	Module 06 - Architecture Governance	✓
8	Module 07 – Architecture Content	✓
#	Topic – Level 2	✓
9	Module 00 - Course Introduction	✓
10	Module 08 - The Context for Enterprise Architecture	✓
11	Module 09 – Stakeholder Management	✓
12	Module 10 – Phase A	✓
13	Module 11 – Architecture Development	✓
14	Module 12 – Implementing the Architecture	✓
15	Module 13 – Architecture Change Management	✓
16	Module 14 – Requirements Management	
17	Module 15 – Supporting the ADM Work	
18	Module 16 – Closure	

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Modules Level 2:

00 - Course Introduction

08 - The Context for Enterprise Architecture

09 - Stakeholder Management

10 - Phase A

11 - Architecture Development

12 - Implementing the Architecture

13 - Architecture Change Management

- 14 - Requirements Management

15 - Supporting the ADM Work

16 - Closure

Notes:

Module Index

Module Index

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Notes:

Requirements Management – 01/10

The process of managing architecture requirements:

- ○ Applies to all phases of the ADM cycle
- ○ Is central to the ADM process
- ○ Is a dynamic process addressing the identification of requirements, their storage and delivery to the phases
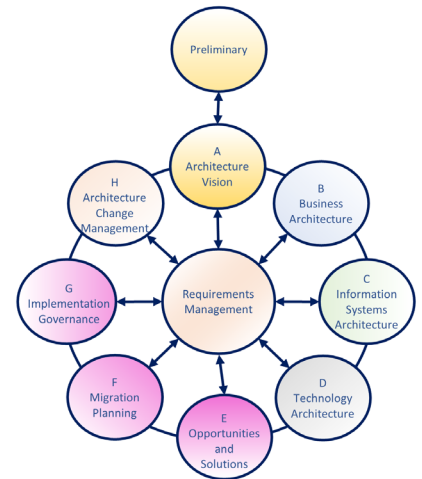
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The process of managing architecture requirements:
- Applies to all phases of the ADM cycle
- Is central to the ADM process
- Is a dynamic process addressing the identification of requirements, their storage and delivery to the phases

Notes:

Requirements Management – 02/10

Objectives

- ○ Ensure that the Requirements Management process is sustained and operates for all relevant ADM phases
- ○ Manage architecture requirements identified during any execution of the ADM cycle or a phase
- ○ Ensure that the relevant architecture requirements are available for use by each phase as the phase is executed

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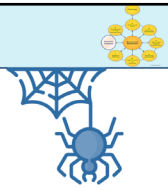
Objectives
- • Ensure that the Requirements Management process is sustained and operates for all relevant ADM phases
- • Manage the architecture requirements identified during any execution of the ADM cycle or a phase
- • Ensure that the relevant architecture requirements are available for use by each phase as the phase is executed

Notes:

Requirements Management – 03/10

Approach

o The ability to deal with changes in the requirements is crucial to the ADM process since architecture deals with uncertainty and change.

o Architecture bridges the divide between the aspirations of the stakeholders and a practical solution.

o The Requirements Management process does not dispose of, address or prioritize requirements; this is done within the phases of the ADM.

o It is recommended that a Requirements Repository is used to record and manage all architecture requirements.

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The Requirements Management process does not itself dispose of, address or prioritize requirements; this is done within the relevant phase of the ADM.
It is recommended that a Requirements Repository is used to record and manage all architecture requirements. TOGAF does not mandate or recommend any specific process or tool for requirements management; it simply states what an effective Requirements Management process should achieve, which could be thought of as "the requirements for requirements".

Approach
- The ability to deal with changes in the requirements is crucial to the ADM process since architecture deals with uncertainty and change.
- Architecture bridges the divide between the aspirations of the stakeholders and a practical solution.
- The Requirements Management process does not dispose of, address or prioritize requirements; this is done within the phases of the ADM.
- It is recommended that a Requirements Repository is used to record and manage all architecture requirements.

Notes:

Requirements Management – 04/10

Requirements Development

The first high level requirements are developed in the Architecture Vision

○ For each ADM phase, from Preliminary to Phase H:
  • Select the approved requirements for that phase
  • At the completion of a phase, the status of these requirements should be updated

○ During phase execution:
  • New requirements generated for future architecture work are documented
  • New requirements are input to the Requirements Repository

Þ M-44

The Requirements Management process does not itself dispose of, address or prioritize requirements; this is done within the relevant phase of the ADM.

It is recommended that a Requirements Repository is used to record and manage all architecture requirements. TOGAF does not mandate or recommend any specific process or tool for requirements management; it simply states what an effective Requirements Management process should achieve, which could be thought of as "the requirements for requirements":

• The first high level requirements are developed in the Architecture Vision
• For each ADM phase, from Preliminary to Phase H:
  • Select the approved requirements for that phase as held in the Requirements Repository and Architecture Requirements Specification
  • At the completion of a phase the status of all such requirements needs to be updated
• During phase execution:
  • New requirements generated for future architecture work within the scope of the current Statement of Architecture Work need to be documented within the Architecture Requirements Specification
  • New requirements which are outside of the scope of the current Statement of Architecture Work must be input to the Requirements Repository for management through the Requirements Management process

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Requirements Management – 05/10	Q-10.1,p30 A-1.17,p23

Inputs

- A populated Architecture Repository
- Organizational Model for Enterprise Architecture Tailored Architecture
- Statement of Architecture Work
- Architecture Vision
- Architecture Requirements, populating an Architecture Requirements Specification
- Requirements Impact Assessment

Notes:

Level=2 : L.O.= 7.1a : Explain the inputs that can feed the Requirements Management phase.

See : TOGAF® Standard – Architecture Development Method : Page 130 : §13.2

Inputs
- A populated Architecture Repository
- Organizational Model for Enterprise Architecture - including:
  - Scope of organizations impacted
  - Maturity assessment, gaps, and resolution approach
  - Roles and responsibilities for architecture team(s)
  - Constraints on architecture work
  - Budget requirements
  - Governance and support strategy
- Tailored Architecture Framework - including:
  - Tailored architecture method
  - Tailored architecture content (deliverables and artifacts)
  - Configured and deployed tools
- Statement of Architecture Work
- Architecture Vision
- Architecture Requirements, populating an Architecture Requirements Specification
- Requirements Impact Assessment

13.2 Inputs
Inputs to the Requirements Management phase are:
■A populated Architecture Repository(see the TOGAF Standard — Architecture Content)
■Organizational Model for Enterprise Architecture (see the TOGAF Standard — Architecture Content), including:
—Scope of organizations impacted
—Maturity assessment, gaps, and resolution approach
—Roles and responsibilities for architecture team(s)
—Constraints on architecture work
—Budget requirements
—Governance and support strategy
■Tailored Architecture Framework (see the TOGAF Standard — Architecture Content), including:
—Tailored architecture method
—Tailored architecture content (deliverables and artifacts)
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Requirements Management – 06/10

Stakeholder Engagement and Requirements Management:

o The TOGAF Framework places Requirements Management … at the center of architecture development.

o EA is developed in accordance with the preferences and priorities of their organization's stakeholders.

o Stakeholders own the architecture.

o Effective requirements management is dependent upon clear traceability.

Level=2 : L.O.= 7.1b : Explain the inputs that can feed the Requirements Management phase.
See: TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 54 : §6.1.1

Stakeholder Engagement and Requirements Management
• The TOGAF Framework places Requirements Management … at the center of architecture development.
• EA is developed in accordance with the preferences and priorities of their organization's stakeholders.
• Stakeholders own the architecture and the:
    • Value
    • Preference
    • Priority
    that the architecture is expected to enable.
• Effective requirements management is dependent upon clear traceability from the organization's:
    • Vision
    • Mission
    • Business model
    • Strategies
through the most detailed Statement of Requirement.

6.1.1 Stakeholder Engagement and Requirements Management
The TOGAF framework places requirements management and stakeholder engagement at the center of architecture development. Practitioners develop EA in accordance with the preferences and priorities of their organization's stakeholders. Architecture is never sold to a stakeholder. Stakeholder preferences are never manipulated.
Stakeholders own the architecture and the value preference and priority the architecture is expected to enable. Practitioners must completely submerge their preferences, biases, and
priorities. Practitioners must act for their stakeholders.
This is one of the most difficult activities a Practitioner must perform. Good Practitioners are passionately engaged in the future of their organization, as well as participating in defining and realizing the target state. Practitioners typically perform several roles: they will act as Subject Matter Experts (SMEs) and agents for their stakeholders in addition to developing architecture –
see Chapter 15 for a discussion of roles. As an SME, the Practitioner is a source of expert advice. As an agent, the Practitioner may speak on behalf of a stakeholder. In order to be … CONTINUES … SEE REFERENCE SPECIFIED

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Notes:

Trade-Off

- o Facilitating trade-off is often more valuable than finalizing an architecture description.
- o Good architecture addresses complex problems.
- o Complex problems do not have clear/unambiguous optimum answers.
- o Trade-off requires a compromise.
- o Effective trade-off requires understanding value preference and priority.
- o EAs need to:
  - • facilitate trade-off between stakeholders.
  - • find the best fit across competing preferences, priorities, and value.
  - • work with the Enterprise risk management process
  - • think through all transition states.
  - • should not underestimate the value their organization receives from facilitation of trade-off.

Þ M-5
Level=2 : L.O.= 7.1b : Explain the inputs that can feed the Requirements Management phase.
See: TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 54 : §6.1.1

Trade-Off
- Facilitating trade-off is often more valuable than finalizing an architecture description.
- Good architecture addresses complex problems.
- Complex problems do not have clear/unambiguous best answers - they have reasonable compromises.
- Trade-off requires a compromise between one stakeholder's preferences as well as between different stakeholders' preferences.
- Effective trade-off requires understanding value preference and priority as well as the scope of change necessary to realize the target.
- As a rule, stakeholders underperform when that trade-off stands beyond their span of control or span of interest. Stakeholders underperform when the trade-off involves the preferences of different stakeholders.
- Stakeholders overemphasize the role and preferences of their portion of the organization.
- EAs are very valuable facilitating trade-off between stakeholders and across organizational boundaries.
- This facilitation allows different stakeholders to effectively measure preferences, priorities, and costs that they do not intuitively understand.
- Best practice EA finds the best fit across competing preference, priority, and value.
- In facilitating the trade-off discussion, chase down all impacts and think through the end game needs.
- Work with the Enterprise risk management process to surface requisite dimensions.
- Think through all transition states.
- EAs should not underestimate the value their organization receives from facilitation of trade-off across organizational boundaries.

6.1.2 Trade-Off
One of the most valuable activities a Practitioner will perform during architecture development is facilitating the stakeholders' trade-off decision. Facilitating trade-off is often more valuable than finalizing an architecture description. Good architecture addresses complex problems.
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Requirements Management – 08/10

	Requirements Management Steps	ADM Phase Steps
1		Identify requirements (typically by analyzing how business goals/objectives can be met through the design of value streams, business scenarios, user experiences, or the provision of management information) and document them in the Architecture Requirements Specification and Requirements Repository.
2	Establish baseline requirements: determine priorities, confirm stakeholder agreement to priorities, and document them in the Architecture Requirements Specification and Requirements Repository.	
3	Monitor baseline requirements.	
4		Identify new and changed requirements: a. Remove or re-assess priorities b. Add requirements and re-assess priorities c. Modify existing requirements
5	Identify changed requirements and record priorities: a. Identify changed requirements and ensure the requirements are prioritized by the architect(s) responsible for the current phase, and by the relevant stakeholders b. Record new priorities c. Ensure that any conflicts are identified and managed through the phases to a successful conclusion and prioritization d. Generate Requirements Impact for steering the architecture team Notes: • Changed requirements can come in through any route To ensure that the requirements are properly assessed and prioritized, this process needs to direct the ADM phases and record the decisions related to the requirements. • The Requirements Management phase needs to determine stakeholder satisfaction with the decisions. Where there is dissatisfaction, the phase remains accountable to ensure the resolution of the issues and determine next steps.	

Architecture Development Method : Page 131 : §13.3

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Level=2 : L.O.= 7.2a : Explain how the Requirements Management steps correspond to ADM phase steps.
See: TOGAF® Standard – Architecture Development Method : Page 131 : §13.3

13.3 Steps
The steps in the Requirements Management phase are described in the table below:

Modules Level 2:

Notes:

Requirements Management – 09/10

	Requirements Management Steps	ADM Phase Steps
6		a. Assess impact of changed requirements on current (active) phase b. Assess impact of changed requirements on previous phases c. Determine whether to implement change, or defer to later ADM cycle; if decision is to implement, assess timescale for change management implementation d. Issue Requirements Impact Statement, Version n+1
7		Implement requirements arising from Phase H. The architecture can be changed through its lifecycle by the Architecture Change Management phase (Phase H). The Requirements Management process ensures that new or changing requirements that are derived from Phase H are managed accordingly.
8	Update the Architecture Requirements Repository with information relating to the changes requested, including any stakeholder views affected.	
9		Implement change in the current phase.
10		Assess and revise Gap Analysis for past phases. The Gap Analysis in the ADM Phases B through to D identifies the gaps between Baseline and Target Architectures. Certain types of gap can give rise to gap requirements. The ADM describes two kinds of gap: • Something that is present in the baseline, but not in the target (i.e., eliminated — by accident or design). • Something not in the baseline, but present in the target (i.e., new) A "gap requirement" is anything that has been eliminated by accident, and therefore requires a change to the Target Architecture. If the Gap Analysis generates gap requirements, then this step will ensure that they are addressed, documented, and recorded in the Architecture Requirements Repository, and that the Target Architecture is revised accordingly.

Level=2 : L.O.= 7.2a : Explain how the Requirements Management steps correspond to ADM phase steps.
See : TOGAF® Standard – Architecture Development Method : Page 131 : §13.3

13.3 Steps
The steps in the Requirements Management phase are described in the table below:

Notes:

Requirements Management – 10/10

Q-10.1,P30
A-1.17,p23

Outputs

- o The outputs of the Requirements Management process may include, but are not restricted to:
  - • Requirements Impact Assessment
  - • Updated Architecture Requirements Specification
- o The TOGAF Standard — Architecture Content contains a detailed description of architectural artifacts.
- o The Architecture Requirements Repository will be updated.
- o The Architecture Requirements Specification should be updated.

UPDATE

Þ Q-44 M-58
Level=2 : L.O.= 7.3a : Explain the purpose of the outputs of Requirements Management.
See: TOGAF® Standard – Architecture Development Method : Page 134 : §13.4

Outputs
The outputs of the Requirements Management process may include, but are not restricted to:
- • Requirements Impact Assessment
- • Updated Architecture Requirements Specification, if necessary

The TOGAF Standard — Architecture Content contains a detailed description of architectural artifacts. The Architecture Requirements Repository will be updated as part of the Requirements Management phase and should contain all requirements information. When new requirements arise, or existing ones are changed, a Requirements Impact Statement is generated, which identifies the phases of the ADM that need to be revisited to address the changes. The statement goes through various iterations until the final version, which includes the full implications of the requirements (e.g., costs, timescales, and business metrics) on the architecture development. Once requirements for the current ADM cycle have been finalized then the Architecture Requirements Specification should be updated.

13.4 Outputs
The outputs of the Requirements Management process may include, but are not restricted to:
■Requirements Impact Assessment (see the TOGAF Standard — Architecture Content)
■Updated Architecture Requirements Specification (see the TOGAF Standard — Architecture Content: Architecture Requirements Specification), if necessary.
The TOGAF Standard — Architecture Content contains a detailed description of architectural artifacts which may be produced in this phase, describing them in detail and relating them to entities, attributes, and relationships in the TOGAF Enterprise Metamodel. The Architecture Requirements Repository will be updated as part of the Requirements Management phase and should contain all requirements information. When new requirements arise, or existing ones are changed, a Requirements Impact Statement is generated, which identifies the phases of the ADM that need to be revisited to address the changes. The statement goes through various iterations until the final version, which includes the full implications of the requirements (e.g., costs, timescales, and business metrics) on the architecture development. Once requirements for the current ADM cycle have been finalized, then the Architecture Requirements Specification should be updated.

Modules Level 2:

Notes:

The Open Group TOGAF Library – 01/06	Q-11.1,p31 A-1.18,p24

Structure of the TOGAF Documentation Set

The TOGAF documentation set consists of a portfolio of documents as illustrated.

The Open Group Library
Enterprise Architecture-Related Content

The TOGAF® Library

The TOGAF® Standard

TOGAF®
Fundamental Content
• Introduction and Core Concepts
• Architecture Development Method
• ADM Techniques
• Applying the ADM
• Architecture Content
• Enterprise Architecture Capability and Governance

TOGAF®
Series
Guides

POCKET GUIDES
WHITE PAPERS
REFERENCE ARCHITECTURES
DATA SHEETS
REFERENCE CARDS
GUIDES

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The TOGAF Library is a portfolio of additional guidance material, which supports the practical application of the TOGAF approach.

Introduction and Core Concepts : Page 9 : §2

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Level=2 : L.O.= 8.1a : Describe how The Open Group TOGAF Library can be used to support the Practitioner's work.
See: TOGAF® Standard – Introduction and Core Concepts : Page 9 : §2

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2.1 Structure of the TOGAF Documentation Set
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The TOGAF Standard
The TOGAF Standard describes the generally applicable approach to Enterprise and IT Architecture. It is presented as a series of free-standing, but closely linked documents, as shown in Figure 2-1.
The TOGAF Standard is a standard of The Open Group. The Open Group works with customers and suppliers of technology products and services, and with consortia and other
standards organizations to capture, clarify, and integrate current and emerging requirements, establish standards and policies, and share best practices. Standards ensure openness, interoperability, and consensus.
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Modules Level 2:

Notes:

The Open Group TOGAF Library – 02/06

Structure of the TOGAF Documentation Set

The TOGAF Library is presented as a series of free-standing, but closely linked documents.

The structure of the TOGAF Standard reflects the structure and content of an Architecture Capability within an enterprise.

Introduction and Core Concepts : Page 9 · §2

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See: TOGAF® Standard – Introduction and Core Concepts : Page 9 : §2

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Modules Level 2:

Notes:

The Open Group TOGAF Library – 03/06

Structure of the TOGAF Documentation Set

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Introduction and Core Concepts : Page 9 : §2

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See: TOGAF® Standard – Introduction and Core Concepts : Page 9 : §2

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Notes:

The Open Group TOGAF Library – 04/06

The TOGAF Standard

o Introduction and Core Concepts
o Architecture Development Method
o ADM Techniques
o Applying the ADM
o Architecture Content
o Enterprise Architecture Capability and Governance

TOGAF®
Fundamental Content

• Introduction and Core Concepts
• Architecture Development Method
• ADM Techniques
• Applying the ADM
• Architecture Content
• Enterprise Architecture Capability and Governance

Introduction and Core Concepts : Page 9 : §2

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Level=2 : L.O.= 8.1a : Describe how The Open Group TOGAF Library can be used to support the practitioner's work.
See: TOGAF® Standard – Introduction and Core Concepts : Page 9 : §2

The TOGAF Standard
• Introduction and Core Concepts
• Architecture Development Method
  Describes the TOGAF Architecture Development Method (ADM).
• ADM Techniques
  Contains a collection of techniques available for use in applying the TOGAF approach and the TOGAF ADM.
• Applying the ADM
  Contains guidelines for adapting the TOGAF ADM to address the specific style of architecture required in a practical context.
• Architecture Content
  Describes the TOGAF Content Framework and a structured metamodel for architectural artifacts, the use of re-usable Architecture Building Blocks (ABBs), and an over view of typical architecture deliverables.
• Enterprise Architecture Capability and Governance
  Discusses the organization, processes, skills, roles, and responsibilities required to establish and operate an architecture function within an enterprise and describes an Enterprise Architecture governance framework.

2.2 The TOGAF Standard
The TOGAF Standard is an open, industry consensus framework for Enterprise Architecture.
It is a foundational framework, which means that it is applicable to the development of any kind of architecture in any context. This foundational framework is supplemented by The Open Group TOGAF Library, an extensive and growing portfolio of guidance material, providing practical guidance in the application of the TOGAF Framework in specific contexts.
The structure of the TOGAF Standard reflects the structure and content of an Architecture Capability within an enterprise, as shown in Figure 2-2.

Modules Level 2:

Notes:

The Open Group TOGAF Library – 05/06

The TOGAF Standard

o This content will evolve more rapidly than the core content to cover new needs as they emerge from market/industry trends.
o Activities are running continuously in The Open Group Architecture Forum to deliver this content.
o The complete set of TOGAF Series Guides can be found at:
www.opengroup.org/library/guides/togaf/togaf-series-guides

TOGAF® Series Guides
• Business Architecture
• Information Architecture
• Security Architecture
• Enterprise Architecture/Agile Architecture
• Enterprise Architecture/Digital Enterprise
• Technology Architecture
• MSA/SOA Architectures
• Adapting the ADM
• . . .

Introduction and Core Concepts : Page 9 : §2
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Level=2 : L.O.= 8.1a : Describe how The Open Group TOGAF Library can be used to support the practitioner's work.
See: TOGAF® Standard – Introduction and Core Concepts : Page 9 : §2

The TOGAF Standard
• This content will evolve more rapidly than the core content to cover new needs as they emerge from market trends and the needs of the industry.
• There is a set of activities running continuously in The Open Group Architecture Forum to deliver this content following a continuous and incremental delivery pipeline.
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The Open Group TOGAF Library – 06/06

The TOGAF Library

- A broad portfolio of guidance material
- Supports the practical application of the TOGAF approach
- Contains guidelines, templates, patterns, etc.
- Accelerates the creation of new architectures for the enterprise
- Supports the Reference Library
- A publicly accessible resource located at www.opengroup.org/togaf-library
- Follows a categorization model based on capabilities and features that can be delivered into the market

Fundamental Content | Guidance to Support Different Architecture Styles, Trends, and Methodologies | Support for Architecture Areas/Domains | Support for the Standard Used with Other Standards and Frameworks | Application in Specific Verticals or Use-Cases | Practical Application

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Introduction and Core Concepts : Page 9 : §2

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Notes:

Þ Q-50

The TOGAF Library

- A broad portfolio of guidance material
- Supports the practical application of the TOGAF approach.
- Contains guidelines, templates, patterns, etc.
- Accelerates the creation of new architectures for the enterprise
- Supports one of the classes of information in the TOGAF Architecture Repository:
  - the Reference Library
- A publicly accessible resource located at www.opengroup.org/togaf-library
- Follows a categorization model based on capabilities and features that can be delivered into the market through different sets of documents and resources

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The Business Scenario Technique – 01/04

Key factors in the success of any Enterprise Architecture are:
- The extent to which it is linked to business requirements
- Its support for business objectives

The Business Scenario method is a technique to:
- Validate
- Elaborate
- Change

The premise(s) behind an architecture effort - where:
- Each iteration requires planning, gathering, analysis, documentation, and review
- Each iteration improves the key elements
- Iterations are repeated until fit-for-purpose

A Business Scenario describes:
- Real business problems
- The business and technology environment where problems occur
- Value chains - enabled by capabilities

Used prominently in Phase A (Architecture Vision)
and iteratively in Phase B (Business Architecture)

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Notes:

Level=2 : L.O.= 8.2a : Briefly explain the business scenario technique.
See: TOGAF® Series Guide: Business Scenarios : Page 1 : §1

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- Each iteration should improve one or more of the key elements
- Iterations are repeated until understanding is fit-for-purpose
  for deciding to move forward

A Business Scenario describes:
- Real business problems
- The business and technology environment where problems occur
- Value chains - enabled by capabilities
  Used prominently in Phase A (Architecture Vision)
  and iteratively in Phase B (Business Architecture)

1 Introduction

A key factor in the success of an Enterprise Architecture is the extent to which it is linked to business requirements, and demonstrably supporting and enabling the enterprise to achieve its business objectives. Any architectural effort must begin with a baseline view of the needs to be fulfilled by the solution or solutions. Consider guiding the construction of a warehouse building without understanding why the warehouse is needed. This could result in a fine warehouse solution for housing large-scale mechanical parts; however, the need was a warehouse for household goods. Creating an architecture without understanding "why" typically results in mismatches between solutions and needs.

The Business Scenario method is a technique to validate, elaborate, and/or change the premise behind an architecture effort by understanding and documenting the key elements of a Business Scenario in successive iterations where:
- Each iteration requires planning, data gathering, analysis, documentation, and review

... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

The Business Scenario Technique – 02/04

A good business scenario:
- Is representative of a significant business need or problem
- Enables vendors to understand the value of a developed solution to a customer
- Is "SMART"

A business scenario is a complete description of a problem.
Without this:
- There is danger that the requirements will not be complete
- The business value to solving the problem will be unclear
- The relevance of potential solutions will be unclear

A scenario:
- Can play an important role in engaging the stakeholders
- Can help to establish good communication with vendors early on

Contributors include, at least:
- Enterprise Architects
- Business Line Management
- IT/Services Vendors

Typically, involvement of management is greatest in the early stages … the involvement of the architect is greatest in later stages.

Specific
defines what needs to be done in the business;
Measurable
has clear metrics for success;
Actionable
clearly segments the problem, and provides the basis for finding a solution;
Realistic
defines the bounds of technology capabilities and cost constraints;
Time-bound
gives a clear understanding of when a solution expires.

… see later

Level=2 : L.O.= 8.2a : Briefly explain the business scenario technique.
See: TOGAF® Series Guide: Business Scenarios : Page 1 : §1

Business Scenario
Key factors in the success of any enterprise architecture are:
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• Each iteration requires planning, data gathering, analysis, documentation, and review
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

The Business Scenario Technique – 03/04

Steps

1. Identifying, documenting, and ranking the problem that is driving the scenario.
2. Identifying the business and technical environment of the scenario and documenting it in scenario models including value chains and capabilities.
3. Identifying and documenting desired outcomes (the results of handling the problems successfully); get "SMART".
4. Identifying the human actors (participants) and their place in the business model.
5. Identifying computer actors (computing elements) and their place in the technology model.
6. Checking for "fitness-for-purpose" and refining only if necessary.

1 – Problem (pain points, barriers, issues)

2 – Environment (business and technology, value chains, business capabilities)

3 – Outcomes (SMART – Specific, Measurable, Actionable, Realistic, and Time-bound)

4 – Human Actors (capabilities, roles, and responsibilities)

5 – Computer Actors (capabilities, roles, and responsibilities)

Business Scenarios : Page 19 : §7

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Level=2 : L.O.= 8.2a : Briefly explain the business scenario technique.
See: TOGAF® Series Guide: Business Scenarios : Page 1 : §1

Level=2 : L.O.= 8.2b : Briefly explain the business scenario technique.
See: TOGAF® Series Guide: Business Scenarios : Page 6 : §3.1

3.1 The Overall Process

Creating a Business Scenario involves the following activities, which ultimately document the elements of a Business Scenario as depicted in Figure 1:
1. Identifying, documenting, and ranking the problem driving the scenario.
2. Identifying the business and technical environment of the scenario and documenting it in scenario models including value chains and capabilities.
3. Identifying and documenting desired outcomes (the results of handling the problems successfully); get "SMART".
4. Identifying the human actors (participants) and their place in the business model.
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1 – Problem (pain points, barriers, issues) 2 – Environment (business and technology, value chains, business capabilities) 3 – Outcomes (SMART – Specific, Measurable, Actionable, Realistic, and Time-bound) 4 – Human Actors (capabilities, roles, and responsibilities) 5 – Computer Actors (capabilities, roles, and responsibilities)
Figure 1: Creating a Business Scenario

Below are explanations of a few key terms:
- **Outcomes** are the changes, benefits, learning, or other effects that happen as a result of what the project or organization offers or provides
- **Capability** is the ability to achieve an outcome within a known environment through application of human and/or material resources in a value chain
- A **value chain** is a set of activities that a firm operating in a specific industry performs in order to deliver a valuable product or service for the market
- A **value proposition** is "a clear statement of the concrete results a customer will get from purchasing and using your products and/or services. ... It is focused on outcomes. Your value proposition statement details the value you provide in an easy-to-remember synopsis that your client can easily grasp and remember. ... your value proposition ... *should relieve their pain* ..."1

... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

The Business Scenario Technique – 04/04

Outcomes are the changes, benefits, learning, or other effects that happen as a result of the project.
Capability is the ability to achieve an outcome within a known environment through application of resources.
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Value proposition is "a clear statement of the concrete results a customer will get … focused on outcomes. The value proposition statement details the value you provide in an easy-to-remember synopsis that your client can easily grasp and remember … and… should *relieve their pain* …"

A Business Scenario is developed over a number of phases that:
  ○ Formulate
  ○ Verify
… each of the elements of a Business Scenario (listed above) that is successively improved.
The refinement phase is accomplished by asking whether the current state of the Business Scenario is fit for the purpose of carrying requirements downstream in the architecture process.

Phase steps for each phase are shown below:

Premise Formulation Phase	Initial Verification Phase	Refinement Phase
Steps: • Plan • Gather Information • Analyze/Process • Document • Review 1 - Problem 2 - Environment 3 - Outcomes 4 – Human Actors 5 – Computer Actors	Steps: • Plan • Gather Information • Analyze/Process • Document • Review 1 - Problem 2 - Environment 3 - Outcomes 4 – Human Actors 5 – Computer Actors	Steps: • Plan • Gather Information • Analyze/Process • Document • Review 1 - Problem 2 - Environment 3 - Outcomes 4 – Human Actors 5 – Computer Actors

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Level=2 : L.O.= 8.2a : Briefly explain the business scenario technique.
See: TOGAF® Series Guide: Business Scenarios : Page 1 : §1

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... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Compliance Assessments – 01/03

Architecture Compliance Review

A scrutiny of the compliance of a specific project against established architectural criteria, spirit, and business objectives.

A formal process is the core of a Compliance Strategy and includes:
- Catch errors in the project architecture early
- Application of best practices
- Overview of the compliance of an architecture
- Establish where the standards require modification
- Identify services that are currently application-specific but might be provided as part of the enterprise infrastructure
- Document strategies for collaboration, resource sharing, and other synergies
- Leverage advances in technology
- Communicate the status of business/technical readiness of the project to management
- Identify key criteria for procurement activities
- Identify and communicate significant architectural gaps to product/service providers

Level=2 : L.O.= 8.3a : Explain the purpose of compliance assessments.
See : TOGAF® Standard – Enterprise Architecture Capability and Governance : Page 33 : §6.3.1

Architecture Compliance Review
An Architecture Compliance review is a scrutiny of the compliance of a specific project against established architectural criteria, spirit, and business objectives.
A formal process for such reviews is the core of a Compliance Strategy and include some or all of the following:
- Catch errors in the project architecture early - reduce the cost and risk of changes required later on
- Ensure the application of best practices
- Provide an overview of the compliance of an architecture e.g. to mandated enterprise standards
- Identify where the standards themselves may require modification
- Identify services that are currently application-specific but might be provided as part of the enterprise infrastructure
- Document strategies for collaboration, resource sharing, and other synergies across multiple teams
- Leverage advances in technology
- Communicate the status of business and technical readiness of the project to management
- Identify key criteria for procurement activities e.g. for inclusion in Commercial Off-The-Shelf (COTS) product, Request for Information (RFI)/Request for Proposal (RFP) documents
- Identify and communicate significant architectural gaps to product and service providers

6.3.1 Purpose
The goals of an Architecture Compliance review include some or all of the following:
■First and foremost, catch errors in the project architecture early, and thereby reduce the cost and risk of changes required later in the lifecycle
This in turn means that the overall project time is shortened, and that the business gets the bottom-line benefit of the architecture development faster.
■Ensure the application of best practices to architecture work.
■Provide an overview of the compliance of an architecture to mandated enterprise standards.
■Identify where the standards themselves may require modification.
■Identify services that are currently application-specific but might be provided as part of the enterprise infrastructure. ... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Compliance Assessments – 02/03

Also

… more politically-oriented motivations for conducting Architecture Compliance reviews:

- o The Architecture Compliance review - deciding between architectural alternatives…
- o The output of the review is measurable deliverables to the executive management
- o Architecture reviews - a way for the architecture organization to engage with development projects
- o Can demonstrate rapid and positive support to the enterprise business community
- o Architecture Compliance is required for development and implementation - non-compliance provides a mechanism for highlighting:
  - • Areas for consideration for integration into the architectures
  - • The latter point identifies the ongoing change and adaptability of the architectures to requirements that may be driven by indiscipline, but also allows for changes to be registered by faster moving changes in the operational environment.

Enterprise Architecture Capability and Governance : Page 33 : §6.3.1
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Level=2 : L.O.= 8.3a : Explain the purpose of compliance assessments.
See: TOGAF® Standard – Enterprise Architecture Capability and Governance : Page 33 : §6.3.1

Also
… more politically-oriented motivations for conducting Architecture Compliance reviews:
- The Architecture Compliance review can be a good way of deciding between architectural alternatives…
  what is best for the business vs. what is technically more pleasing or elegant
- The output of the review is one of the few measurable deliverables to the executive management to assist in decision-making
- Architecture reviews serve as a way for the architecture organization to engage with development projects that might otherwise proceed without involvement of the architecture function
- Architecture reviews can demonstrate rapid and positive support to the enterprise business community:
  - The Enterprise Architecture and Architecture Compliance helps ensure alignment of IT projects with business objectives
  - Architects can sometimes be regarded as being deep into technical infrastructure and far removed from the core business
  - Since an Architecture Compliance review tends to look primarily at the critical risk areas of a system, it often highlights the main risks for system owners
- While compliance to architecture is required for development and implementation, non-compliance also provides a mechanism for highlighting:
  - Areas to be addressed for realignment
  - Areas for consideration for integration into the architectures as they are uncovered by the compliance processes
  - The latter point identifies the ongoing change and adaptability of the architectures to requirements that may be driven by indiscipline, but also allows for changes to be registered by faster moving changes in the operational environment.
    Dispensations will be used to highlight these changes and set in motion a process for registering, monitoring, and assessing the suitability of any changes required.

6.3.1 Purpose
The goals of an Architecture Compliance review include some or all of the following:
… CONTINUES … SEE REFERENCE SPECIFIED

Notes:

Compliance Assessments – 03/03

Q-11.1,p31
A-1.18,p24

What to Expect in a Well-Run EA Repository
It will contain all of the components necessary to perform effective compliance assessments:
- The first step of compliance assessment is clarity on what compliance will be assessed against.
- The Architecture Contract identifies what an Implementation Project is expected to deliver.
- The EA Repository contains an Architecture Contract for every Implementation Project.

Phase G identifies two areas where compliance is assessed:
- The scope of the project.
- Compliance assessment confirms Architecture Requirements Specifications have been followed.

Phase H contains a further value-based compliance assessment based on value realization.

'Rule-following' compliance assessment is common:
- Best practice is to go beyond simple compliance and include compliance with intent.
- Divide architecture specification into four types:
  - Principle, used to provide guidance on how to think about the decision;
  - Pattern, used to provide a reusable approach to the decision;
  - Standard, used to specify a correct approach to the problem;
  - Rule, used to specify a correct answer and eliminate any decision.

A Practitioners' Approach to Developing Enterprise Architecture Following the ADM : Page 38 : §5.1.5
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Þ Q-53
Level=2 : L.O.= 8.3b : Explain the purpose of compliance assessments.
See: TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 38 : §5.1.5

What to Expect in a Well-Run EA Repository
Compliance Assessments:
- The EA Repository will contain all of the components necessary to perform effective compliance assessments plus the compliance assessments
- The first step of compliance assessment is clarity on what compliance will be assessed against
- The Architecture Contract identifies what an Implementation Project is expected to deliver and the set of constraints
- The EA Repository will contain the equivalent of an Architecture Contract for every Implementation Project

TOGAF Phase G identifies two areas where compliance is assessed…
- **The scope of the project**…
  - performing scope, and implementation approach, compliance is the first step in protecting value
  - the actual implementation, whether designed or the performance change.
- **The Architecture Requirements Specification** identifies what must be, what must be done, and what is prohibited and provides the set of constraints on more detailed architecture development, design, and implementation.

- Compliance assessment confirms whether specific Architecture Requirements Specifications have been followed.

TOGAF Phase H contains a further value-based compliance assessment based on value realization.
Typically, expected value will not be realized for a significant period of time after an Implementation Project.
Using the linkage provided by the Architecture Contract, recurrent value realization assessments can be performed and maintaining the linkage from specification to stakeholder expectation facilitates consistent review.
'Rule-following' compliance assessment is common where the Architecture Requirements Specification eliminates all design and implementation choice.
Best practice is to go beyond simple compliance with the statement, and to include compliance with intent.
... CONTINUES ... SEE REFERENCE SPECIFIED

Gap Analysis – 01/07

The process of Gap Analysis results in a formal statement of the difference between:
- Baseline (current state)
- Target (future state)

Potential sources of Gaps include, for example:
- Business domain gaps
- Data domain gaps
- Technologies - eliminated, or created

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Notes:

Level=2 : L.O.= 8.4a : Explain how migration planning techniques are used to review and consolidate the gap analysis results from earlier phases.
See: TOGAF® Standard – ADM Techniques : Page 49 : §6

The process of Gap Analysis, in TOGAF, results in a formal statement of the difference between the Baseline (current state) and the Target (future state).
Potential sources of Gaps include, for example:
- Business domain gaps:
  - People gaps (e.g., cross-training requirements)
  - Process gaps (e.g., process inefficiencies)
  - Tools gaps (e.g., duplicate or missing tool functionality)
  - Information gaps
  - Measurement gaps
  - Financial gaps
  - Facilities gaps (buildings, office space, etc.)
- Applications impacted, eliminated, or created
- Data domain gaps:
  - Data not of sufficient currency
  - Data not located where it is needed
  - Not the data that is needed
  - Data not available when needed
  - Data not created
  - Data not consumed
  - Data relationship gaps
- Technologies impacted, eliminated, or created

6.2 Consolidated Gaps, Solutions, & Dependencies Matrix
The technique of creating a Consolidated Gaps, Solutions, and Dependencies matrix allows the architect to group the gaps identified in the domain architecture gap analysis results and assess potential solutions and dependencies to one or more gaps. This matrix can be used as a planning tool when creating work packages. The identified dependencies will drive the creation of projects and migration planning in Phases E and F.
An example matrix is shown in Figure 6-2.

Modules Level 2:

Gap Analysis – 02/07

The technique of creating a Consolidated Gaps, Solutions, and Dependencies matrix allows the architect to group the gaps identified in the domain architecture gap analysis results and assess potential solutions and dependencies to one or more gaps.

Requires consistent analysis of 'service boundaries'

Notes:

Level=2 : L.O.= 8.4a : Explain how migration planning techniques are used to review and consolidate the gap analysis results from earlier phases.
See: TOGAF® Standard – ADM Techniques : Page 49 : §6

Gap Analysis
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An example matrix is shown in Figure 6-2.

Notes:
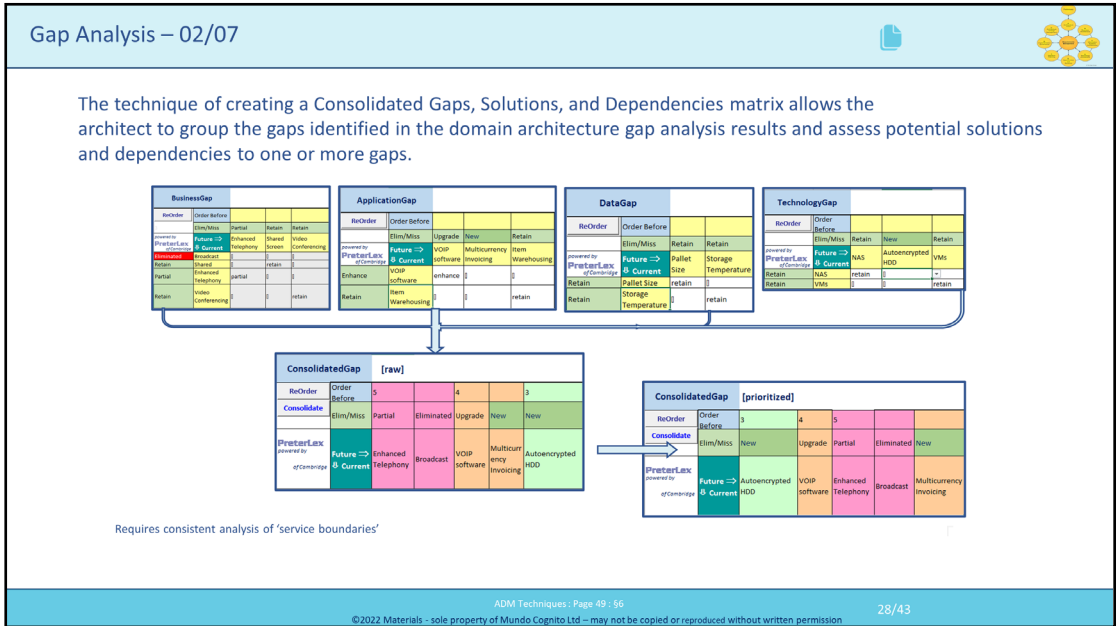
Gap Analysis – 03/07

Consolidated Gaps, Solutions, & Dependencies Matrix

○ The working analysis may be conveniently be represented as shown here.
○ This is a convenient form when mapping potential [COT] solutions.
○ This matrix can be used as a planning tool when creating work packages.

Consolidated Gaps, Solutions, and Dependencies Matrix				
No.	Architecture	Gap	Potential Solutions	Dependencies
1	Business	New Order Processing Process	Use COTS software tool process Implement custom solution	Drives applications (2)
2	Application	New Order Processing Application	COTS software tool X Develop in-house	
3	Information	Consolidated Customer Information Base	Use COTS customer base Develop customer data mart	

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Identified dependencies will drive the creation of projects and migration planning in Phases E and F.

Þ Q-54
Level=2 : L.O.= 8.4a : Explain how migration planning techniques are used to review and consolidate the gap analysis results from earlier phases.
See: TOGAF® Standard – ADM Techniques : Page 50 : §6

Consolidated Gaps, Solutions, and Dependencies Matrix
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An example matrix is shown in Figure 6-2.

Notes:

Gap Analysis – 04/07

Business Value Assessment Technique

Draw up a matrix based on *value index* x *risk index* dimensions.

Value index - criteria such as:
- Compliance to principles
- Financial contribution
- Strategic alignment
- Competitive position

Risk index - criteria such as:
- Size and complexity
- Technology
- Organizational capacity
- Impact of failure

Each criterion and weighting should be developed and approved by senior management.
Establish the decision-making criteria <u>before</u> the options are known.

(Project size indicated by size of circle.)

In trouble
At risk
On target

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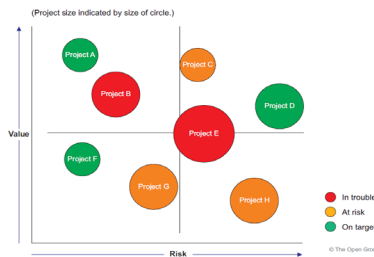
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Level=2 : L.O.= 8.4a : Explain how migration planning techniques are used to review and consolidate the gap analysis results from earlier phases.
See: TOGAF® Standard – ADM Techniques : Page 52 : §6

6.5 Business Value Assessment Technique
A technique to assess business value is to draw up a matrix based on a value index dimension and a risk index dimension. An example is shown in Figure 6-5. The value index should include criteria such as compliance to principles, financial contribution, strategic alignment, and competitive position. The risk index should include criteria such as size and complexity, technology, organizational capacity, and impact of a failure. Each criterion should be assigned an individual weight.
The index and its criteria and weighting should be developed and approved by senior management. It is important to establish the decision-making criteria before the options are known.

Modules Level 2:

Notes:

Gap Analysis – 05/07

Architecture Definition Increments Table

Allows the architect to plan a series of Transition Architectures outlining the status of the Enterprise Architecture at specified times.

Architecture Definition – Project Objectives by Increment - Example					
Project	**April – Year1/2** Transition Architecture 1: Preparation	**April – Year 3** Transition Architecture 2: Initial Operational Capability	**April – Year 4** Transition Architecture 1: Benefits	**Comments**	
Enterprise e-Services Capability	Training and Business Process	E-Licensing Capability	e-Employment Benefits		
IT e-Forms	Design and Build				
IT e-Information Environment	Design and Build Information Environment	Client Common Data Web Content Design and Build	Enterprise Common Data Component Management Design and Build		
…	…	…	…	…	

The Table

o Lists the projects
o Assigns their incremental deliverables…

across the Transition Architectures.

Level=2 : L.O.= 8.4a : Explain how migration planning techniques are used to review and consolidate the gap analysis results from earlier phases.
See: TOGAF® Standard – ADM Techniques : Page 50 : §6

6.3 Architecture Definition Increments Table
The technique of creating an Architecture Definition Increments table allows the architect to plan a series of Transition Architectures outlining the status of the Enterprise Architecture at specified times.
A table should be drawn up, as shown in Figure 6-3, listing the projects and then assigning their incremental deliverables across the Transition Architectures.

Notes:

Gap Analysis – 06/07

Transition Architecture State Evolution Table
Tabulates the proposed state of the architectures at various levels using the defined taxonomy (e.g., the TOGAF TRM) listing:
- Listing the services from the taxonomy used in the enterprise
- Transition Architectures
- Proposed transformations

SBBs are:
- Described with respect to their delivery and impact on these services
- Marked to show the progression of the Enterprise Architecture

Architectural State using the Technical Reference Model				
Sub-Domain	Service	Transition Architecture 1	Transition Architecture 2	Transition Architecture 3
Infrastructure Applications	Information Exchange Services	Solution System A (replace)	Solution System B-1 (transition)	Solution System B-2 (new)
	Data Management Services	Solution System D (retain)	Solution System D (retain)	Solution System D (retain)
. . .	. . .	. . .	. . .	. . .

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Level=2 : L.O.= 8.4a : Explain how migration planning techniques are used to review and consolidate the gap analysis results from earlier phases.
See: TOGAF® Standard – ADM Techniques : Page 51 : §6

6.4 Transition Architecture State Evolution Table
The technique of creating the Transition Architecture State Evolution table allows the architect to show the proposed state of the architectures at various levels using the defined taxonomy (e.g., the TOGAF TRM).

A table should be drawn, listing the services from the taxonomy used in the enterprise, the Transition Architectures, and proposed transformations, as shown in Figure 6-4. All SBBs should be described with respect to their delivery and impact on these services. They should also be marked to show the progression of the Enterprise Architecture. In the example, where target capability has been reached, this is shown as "new" or "retain"; where capability is transitioned to a new solution, this is marked as "transition"; and where a capability is to be replaced, this is marked as "replace".

Another technique (not shown here) is to use color coding in the matrix; for example:
■ Green: service SBB in place (either new or retained)
■ Yellow: service being transitioned into a new solution
■ Red: service to be replaced

Notes:

Gap Analysis – 07/07

Implementation Factor Catalog

Used to document factors impacting the Architecture Implementation and Migration Plan - typically:

- Risks
- Issues
- Assumptions
- Dependencies
- Actions
- Impacts

descriptions, and the deductions that indicate the actions or constraints that have to be taken into consideration when formulating the plans.

Implementation Factor Catalog		
Factor	**Description**	**Deduction**
<Name of Factor>	<Description of Factor>	<Impact on Migration Plan>
Change in Technology	Shut down the message centers, saving 700 personnel, and have them replaced by email.	• Need for personnel training, re-assignment • Email has major personnel savings and should be given priority
Consolidation of Services		
Introduction of New Customer Service		

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Level=2 : L.O.= 8.4e : Explain how migration planning techniques are used to review and consolidate the gap analysis results from earlier phases.
See: TOGAF® Standard – ADM Techniques : Page 49 : §6

This technique is derived from the Canadian Government BTEP Program.

The technique of creating a Consolidated Gaps, Solutions, and Dependencies matrix allows the architect to group the gaps identified in the domain architecture Gap Analysis results and assess potential solutions and dependencies to one or more gaps.

6.1 Implementation Factor Catalog
The technique of creating an Implementation Factor catalog can be used to document factors impacting the architecture Implementation and Migration Plan.
The catalog should include a list of the factors to be considered, their descriptions, and the deductions that indicate the actions or constraints that have to be taken into consideration when formulating the plans.

Factors typically include:
■ Risks
■ Issues
■ Assumptions
■ Dependencies
■ Actions
■ Impacts
An example catalog is shown

Modules Level 2:

Notes:

Repository Structure – 01/08

Storing the huge volume of architectural information requires a formal structural framework for an Architecture Repository.
It must distinguish between different types of architectural assets that exist at different levels of abstraction in the organization.
It is a subset of the wider Enterprise Repository.
There are three main areas of note:

o Enterprise Repository
  Comprises ALL the information stored by the Enterprise in media which is in its direct or contracted control.

o External Repository
  Comprises ALL the information, beyond the Enterprise Repository, to which the Enterprise has access.

o Architecture Repository
  Comprises the information which falls under the ownership and purview of the highest enterprise's level Architecture Board.

This logical model is also explained in Level 1.

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Level=2 : L.O.= 8.5 : Describe how a repository can be structured using the TOGAF repository as an example:
See : TOGAF® Standard – Architecture Content : Page 97 : §7.1

Repository Structure
Storing the huge volume of architectural information requires a formal structural framework for an Architecture Repository.
It must distinguish between different types of architectural assets that exist at different levels of abstraction in the organization.
It is a subset of the wider Enterprise Repository.
There are three main areas of note:
• Enterprise Repository - Comprises ALL the information stored by the Enterprise in media which is in its direct or contracted control.
• External Repository - Comprises ALL the information, beyond the Enterprise Repository, to which the Enterprise has access.
• Architecture Repository – Comprises the information which falls under the ownership and purview of the highest enterprise's level Architecture Board.

7.1 Overview
Operating a mature Architecture Capability within a large enterprise creates a huge volume of architectural output. Effective management and leverage of these architectural work products require a formal taxonomy for different types of architectural asset alongside dedicated processes and tools for architectural content storage.
This section provides a structural framework for an Architecture Repository that allows an enterprise to distinguish between different types of architectural assets that exist at different
levels of abstraction in the organization. This Architecture Repository is one part of the wider Enterprise Repository, which provides the capability to link architectural assets to components of the Detailed Design, Deployment, and Service Management Repositories.

At a high level, the following classes of architectural information are expected to be held within an Architecture Repository:
■The Architecture Metamodel describes the organizationally tailored application of an architecture framework, including a method for architecture development and a metamodel
For architecture content
■The Architecture Capability defines the parameters, structures, and processes that
... CONTINUES ... SEE REFERENCE SPECIFIED

TOGAF® Standard, 10th Edition

Notes:

Repository Structure – 02/08

Architecture Landscape

Holds architectural views of the state of the enterprise at particular points in time:

o Strategic Architectures
o Segment Architectures
o Capability Architectures

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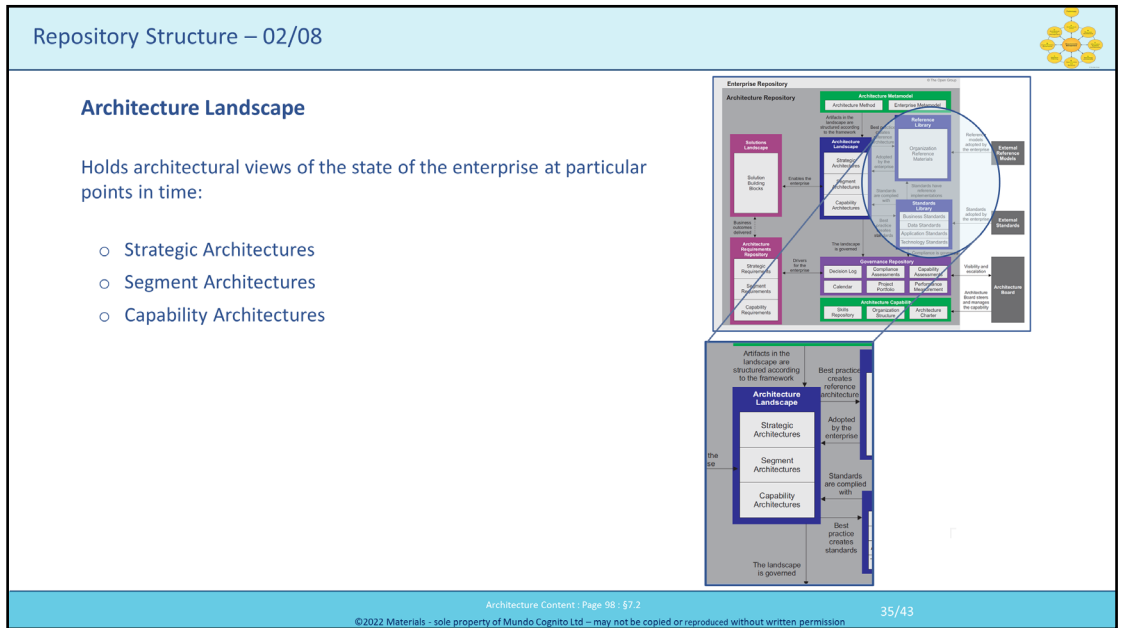
Level=2 : L.O.= 8.5a : Describe how a repository can be structured using the TOGAF repository as an example:
See : TOGAF® Standard – Architecture Content : Page 98 : §7.2

Architecture Landscape
Holds architectural views of the state of the enterprise at particular points in time:
• Strategic Architectures:
 • show a long-term summary view of the entire enterprise
 • provide an organizing framework for operational and change activity
 • allow for direction setting at an executive level
• Segment Architectures
 • provide more detailed operating models for areas within an enterprise
 • can be used at the program or portfolio level
 • organize and operationally align more detailed change activity
• Capability Architectures
 • show in a more detailed fashion how the enterprise can support a particular unit of capability
 • are used to provide an overview of:
  ☐ current capability
  ☐ target capability
  ☐ capability increments
 • allow for individual work packages and projects to be grouped within managed portfolios and programs

7.2 Architecture Landscape
The Architecture Landscape holds architectural views of the state of the enterprise at particular points in time. Due to the sheer volume and the diverse stakeholder needs throughout an entire enterprise, the Architecture Landscape is divided into three levels of granularity:
• Strategic Architectures (see the TOGAF Standard — Architecture Development Method) show a long-term summary view of the entire enterprise.
• Strategic Architectures provide an organizing framework for operational and change activity and allow for direction setting at an executive level.
• Segment Architectures (see the TOGAF Standard — Architecture Development Method) provide more detailed operating models for areas within an enterprise. Segment Architectures can be used at the program or portfolio level to organize and operationally align more detailed change activity.

TOGAF® Standard, 10th Edition

Notes:

Repository Structure – 03/08

Reference Library
Provides a repository to hold reference materials that should be used to develop architectures.
Reference materials that are held may be obtained from a variety of sources:
- Standards bodies
- Product and service vendors
- Industry communities or forums
- Standard templates
- Enterprise best practices

The Reference Library should contain:
- Reference Architectures
- Reference Models
- Viewpoint Library
- Templates

In order to segregate different classes of architecture reference materials, the Reference Library can use the Architecture Continuum as a method for classification.

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Level=2 : L.O.= 8.5b : Describe how a repository can be structured using the TOGAF repository as an example:
See: TOGAF® Standard – Architecture Content : Page 99 : §7.3

Reference Library
Provides a repository to hold reference materials that should be used to develop architectures.
The reference materials held may be obtained from a variety of sources:
- Standards bodies
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- Standard templates
- Enterprise best practice
The Reference Library should contain:
- Reference Architectures
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In order to segregate different classes of architecture reference materials, the Reference Library can use the Architecture Continuum as a method for classification.

7.3 Reference Library
7.3.1 Overview
The Reference Library provides a repository to hold reference materials that should be used to develop architectures. Reference materials held may be obtained from a variety of sources, including:
■Standards bodies
■Product and service vendors
■Industry communities or forums
■Standard templates
■Enter prise best practice
The Reference Library should contain:
■Reference Architectures
■Reference Models
■Viewpoint Library
■Templates
Note:
The terms reference architecture and reference model are not used carefully in most literature.
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Repository Structure – 04/08

Standards Library
A repository area to hold a set of specifications, to which architectures must conform. Provides an unambiguous basis for Architecture Governance because:
- The standards are easily accessible to projects
- Standards are stated in a clear and unambiguous manner

Standards typically fall into three classes:
- Legal and Regulatory Obligations: mandated by Law
- Industry Standards: established by industry bodies
- Organizational Standards: set within the organization

Standards Lifecycle
- Proposed Standard: a potential standard has been identified
- Provisional Standard: a potential standard - not tried or tested
- Active Standard : generally the approach of choice
- Deprecated Standard: at the end of its useful lifecycle
- Retired/Obsolete Standard: no longer valid within the landscape

Standards Classification within the Standards Library
At the top level, in line with the TOGAF architecture domains:
- Business Standards
- Data Standards
- Applications Standards
- Technology Standards

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Level=2 : L.O.= 8.5c : Describe how a repository can be structured using the TOGAF repository as an example:
See: TOGAF® Standard – Architecture Content : Page 100 : §7.4

Standards Library
A repository area to hold a set of specifications, to which architectures must conform. Provides an unambiguous basis for Architecture Governance because:
- The standards are easily accessible to projects
- Standards are stated in a clear and unambiguous manner

Standards typically fall into three classes:
- Legal and Regulatory Obligations: these standards are mandated by Law
- Industry Standards: established by industry bodies
- Organizational Standards: these standards are set within the organization

Standards Lifecycle
- Proposed Standard: a potential standard has been identified for the organization
- Provisional Standard: a potential standard, not been tried or tested
- Active Standard: should generally be used as the approach of choice
- Deprecated Standard: at the end of its useful lifecycle
- Retired/Obsolete Standard): no longer valid within the landscape

Standards Classification within the Standards Library
At the top level, in line with the TOGAF architecture domains:
- Business Standards
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- Technology Standards

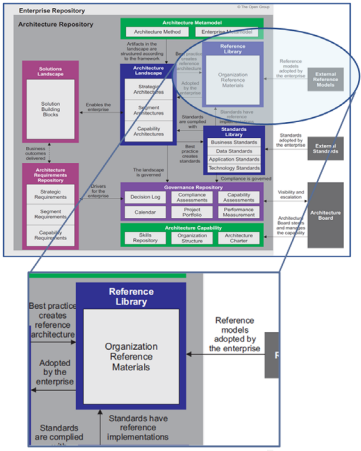**7.3 Reference Library**
7.3.1 Overview
The Reference Library provides a repository to hold reference materials that should be used to develop architectures. Reference materials held may be obtained from a variety of sources, including:
■Standards bodies
■Product and service vendors
■Industry communities or forums
■Standard templates
■Enterprise best practice
...CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Repository Structure – 05/08

Governance Repository

Information relating to ongoing governance of projects:
- Decisions made during projects are important to retain and access
- Many stakeholders are interested in the outcome of project governance

Contents of the Governance Repository:
- Decision Log
  A log of all architecturally significant decisions.
- Compliance Assessments
  At key formal checkpoint milestones in the progress of a project.
- Capability Assessments
  Some projects will carry out assessments of business, IT, or Architecture capability.
- Calendar
  A schedule of in-flight projects and formal review sessions.
- Project Portfolio
  Summary information about all in-flight projects under Architecture Governance.
- Performance Measurement
  A number of performance criteria will typically be defined.

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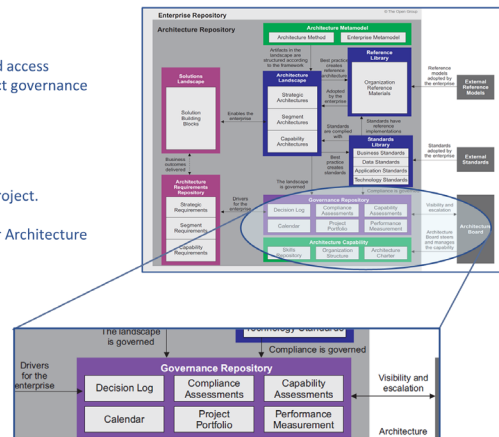
Level=2 : L.O.= 8.5d : Describe how a repository can be structured using the TOGAF repository as an example:
See: TOGAF® Standard – Architecture Content : Page 103 : §7.5

Governance Repository
Information relating to ongoing governance of projects:
- Decisions made during projects are important to retain and access on an ongoing basis
- Many stakeholders are interested in the outcome of project governance

Contents of the Governance Repository:
- Decision Log
  a log of all architecturally significant decisions
- Compliance Assessments
  at key checkpoint milestones in the progress of a project, a formal architecture review will be carried out
- Capability Assessments
  depending on their objectives, some projects will carry out assessments of business, IT, or Architecture Capability
- Calendar
  a schedule of in-flight projects and formal review sessions
  to be held against these projects
- Project Portfolio
  summary information about all in-flight projects that fall under Architecture Governance
- Performance Measurement
  based on a charter for the architecture function, a number of performance criteria will typically be defined

7.5.1 Overview
The Governance Repository provides a repository area to hold shared information relating to the ongoing governance of projects. Maintaining a shared repository of governance information is important, because:
■ Decisions made during projects (such as standards deviations or the rationale for a particular architectural approach) are important to retain and access on an ongoing basis.
For example, if a system is to be replaced, having sight of the key architectural decisions that shaped the initial implementation is highly valuable as it will highlight constraints that may otherwise be obscured.
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Repository Structure – 06/08

The Architecture Requirements Repository
Used by all phases of the ADM to record and manage all information relevant to the Architecture Requirements.

Contents of the Architecture Requirements Repository

Three levels of granularity:
- o Strategic Architecture Requirements - executive level
  - • A long-term summary view of the enterprise's requirements
  - • Operational requirements
  - • Change requirements
- o Segment Architecture Requirements
  - • Provide more detailed operating model
  - • Requirements at the program/portfolio level
  - • More detailed change activity
- o Capability Architecture Requirements
  - • Detailed requirements for a particular unit of capability
  - • Requirements for:
    - • individual work packages
    - • individual projects
      grouped within managed portfolios and programs

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Level=2 : L.O.= 8.5e : Describe how a repository can be structured using the TOGAF repository as an example:
See: TOGAF® Standard – Architecture Content : Page 104 : §7.6

The Architecture Requirements Repository
Used by all phases of the ADM to record and manage all information relevant to the architecture requirements - which are the major drivers for the Enterprise Architecture and are gathered at every stage of the architecture development.

Contents of the Architecture Requirements Repository
Three levels of granularity:
- • Strategic Architecture Requirements:
  - • a long-term summary view of the requirements for the entire enterprise
  - • identify operational requirements
  - • identify change requirements
    for direction setting at an executive level
- • Segment Architecture Requirements:
  - • provide more detailed operating model
  - • identify requirements at the program/portfolio level
  - • identify and align more detailed change activity
- • Capability Architecture Requirements:
  - • identify the detailed requirements for a particular unit of capability.
  - • identify requirements for:
    - • individual work packages
    - • individual projects
  - • to be grouped within managed portfolios and programs

7.6 The Architecture Requirements Repository
7.6.1 Overview
The Architecture Requirements Repository is used by all phases of the ADM to record and manage all information relevant to the architecture requirements. The requirements address the many types of architecture requirements; i.e., strategic, segment, and capability requirements which are the major drivers for the Enterprise Architecture.
Requirements can be gathered at every stage of the architecture development cycle and need to be approved through the various phases and governance processes.
The Requirements Management phase is responsible for the management of the contents of the Architecture Requirements Repository and ensuring the integrity of all requirements and their ... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Repository Structure – 07/08

Solutions Landscape

Holds the SBBs which support the ABBs specified, developed, and deployed.

- Building Blocks may be products or services categorized according to the Enterprise Continuum categorization, and/or the ABB specifications as:
  - Strategic
  - Segment
  - Capability
    SBBs
- SBBs may also include tools, systems, services, and information which describe the actual solutions that may be selected and their operation.
  e.g. Vendor-specific reference models or vendor-specific Levels 4 and 5 of the IT4IT Reference Architecture would be defined here.

Solutions Landscape will not include the information and data content produced by the solutions selected; that is the responsibility of the solutions themselves.

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Level=2 : L.O.= 8.5f : Describe how a repository can be structured using the TOGAF repository as an example
See: TOGAF® Standard – Architecture Content : Page105: §7.7

Solutions Landscape
Holds the SBBs which support the ABBS specified, developed, and deployed.
- Building Blocks may be products or services categorized according to the Enterprise Continuum categorization, and/or the ABB specifications as:
  - Strategic
  - Segment
  - Capability
    SBBs.
- SBBs may also include tools, systems, services, and information which describe the actual solutions that may be selected and their operation.
  e.g. vendor-specific reference models or vendor-specific Levels 4 and 5 of the IT4IT Reference Architecture would be defined here.

Solutions Landscape will not include the information and data content produced by the solutions selected; that is the responsibility of the solutions themselves.

7.7 Solutions Landscape
The Solutions Landscape holds the SBBs which support the ABBs specified, developed, and deployed. The building blocks may be products or services which may be categorized according to the Enterprise Continuum categorization and/or the ABB specifications as Strategic, Segment, or Capability SBBs.
SBBs may also include tools, systems, services, and information which describe the actual solutions that may be selected and their operation. For example, vendor-specific reference
models or vendor-specific Levels 4 and 5 of the IT4IT Reference Architecture would be defined here.
However, the Solutions Landscape will not include the information and data content produced by the solutions selected; that is the responsibility of the solutions themselves.

Notes:

Repository Structure – 08/08

The well-run Enterprise Repository

o Ruthless minimization of information gathered/ maintained.
o Information not required for current project is not captured.
o Ruthless minimization of work is not skipping necessary work.
o All stakeholders' concerns must be addressed.
o Stakeholder management is necessary.
o Non-key stakeholders are rarely on the critical path.
o The test of sufficiency is a function of fitness for purpose.
o Ensuring sufficient architecture work is produced to support decisions and actions about the enterprise's change activity.

Example EA Repository (screenshot)

Þ Q-55
Level=2 : L.O.= 8.6a : Explain what to expect in a well-run Architecture Repository.
See: TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 28 : §5.1

5.1 What to Expect in a Well-Run Architecture Repository & EA Landscape
Note: In order to provide concrete examples of working in a repository, this Guide presents a few screenshots using a modeling tool. These represent one way that the challenges of a managing an EA Landscape can be met. As outlined in Section 1.3, this Guide does not mean to suggest that the referenced tool, techniques, and literature are definitive. These examples are intended to illustrate the TOGAF concepts. Other tools and techniques are available.
The TOGAF Standard identifies a broad set of materials that will be contained within the Architecture Repository. As a Practitioner, you will be directly concerned with the EA Landscape, Reference Library, Standards Information Base, Requirements Repository, and the Compliance Assessments in the Governance Log. Typically, these are implemented by a modeling and analytic tool, and a file repository.

The Enterprise Repository
While the Architecture Repository holds information concerning the Enterprise Architecture and associated specifications and artifacts, there are a considerable number of enterprise repositories that support the architecture both inside and outside of the enterprise.
These can include development repositories, specific operating environments, instructions, and configuration management repositories.
A high-functioning EA team cannot deliver without using modeling and analytic software. Some Practitioners sketch diagrams casually as initial steps in understanding a system, or explaining one. Maintenance of a collection of sketches is not practical. It does not matter where they use a marker and 11" x 17" paper or spend hours connecting objects in drawing software, these sketches are not modeling and do not provide a meaningful contribution to the EA Landscape. Further, the gaps and errors inherent in casual sketching preclude considering the sketches as a model.
Do not confuse the guidance about managing an EA Landscape and EA Repository with commentary on effective communication. Most things an EA Capability needs to represent are complex. Visualization of complex situations to support the Practitioner, the stakeholder, and others that need to be communicated with is critical. Hand sketches are one of the most powerful communication tools available to a Practitioner. Beyond ideation it is a serious error to present poorly thought-out visualizations to stakeholders and decision-makers.
... CONTINUES ... SEE REFERENCE SPECIFIED

Modules Level 2:

Summary of Module 14

The 29 Learning points covered in Module 14 are:

7.1a/c : Explain the inputs that can feed the Requirements Management phase.	7.2a : Explain how the Requirements Management steps correspond to ADM phase steps.	7.3a : Explain the purpose of the outputs of Requirements Management.
8.1a : Describe how The Open Group TOGAF Library can be used to support the practitioner's work.	8.2a/c : Briefly explain the business scenario technique.	8.4a/e : Explain how migration planning techniques are used to review and consolidate the Gap Analysis results from earlier phases.
8.5a/g : Describe how a repository can be structured using the TOGAF repository as an example: Architecture Landscape Reference. Reference Library Standards	8.6a : Explain what to expect in a well-run Architecture Repository.	

This represents 75.8% of the course coverage.

42/43

Notes:

Modules Level 2:

End of Teaching Slides

End of

Module 14

Requirements Management

43/43

Notes:

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Module 15/16

TOGAF® EA Training - Practitioner
TOGAF® Standard, 10th Edition

Module 15

Supporting the ADM Work

1/27

Notes:

Modules Level 2:

00 - Course Introduction

08 - The Context for Enterprise Architecture

09 - Stakeholder Management

10 - Phase A

11 - Architecture Development

12 - Implementing the Architecture

13 - Architecture Change Management

14 - Requirements Management

- 15 - Supporting the ADM Work

16 - Closure

Notes:

Course Module Index

#	Topic – Level 1	✓
1	Module 00 - Course Introduction	✓
2	Module 01 - Overview	✓
3	Module 02 - Concepts	✓
4	Module 03 - Introduction to the ADM	✓
5	Module 04 - Introduction to the ADM - Techniques	✓
6	Module 05 – Applying ADM	✓
7	Module 06 - Architecture Governance	✓
8	Module 07 – Architecture Content	✓
#	Topic – Level 2	✓
9	Module 00 - Course Introduction	✓
10	Module 08 - The Context for Enterprise Architecture	✓
11	Module 09 – Stakeholder Management	✓
12	Module 10 – Phase A	✓
13	Module 11 – Architecture Development	✓
14	Module 12 – Implementing the Architecture	✓
15	Module 13 – Architecture Change Management	✓
16	Module 14 – Requirements Management	✓
17	Module 15 – Supporting the ADM Work	
18	Module 16 – Closure	

2/27

Modules Level 2:

00 - Course Introduction

08 - The Context for Enterprise Architecture

09 - Stakeholder Management

10 - Phase A

11 - Architecture Development

12 - Implementing the Architecture

13 - Architecture Change Management

14 - Requirements Management

- 15 - Supporting the ADM Work

16 - Closure

Module Index

Module Index

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4	Requirements Management	4
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6	Architecture Building Blocks	12
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Notes:

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Notes:

Architecture Levels – 01/07

Typically, many architectures will be described in the Architecture Landscape at any point in time to:
- Address very specific needs
- Be more general.
- Address detail
- Provide a big picture

To address this complexity, the TOGAF Standard uses the concepts of:
- Levels
- The Enterprise Continuum

to provide a conceptual framework for organizing the Architecture Landscape.

These concepts are tightly linked with organizing actual content in the Architecture Repository

Level=2 : L.O.= 8.7a : Explain how the concepts of Architecture Levels are used to organize the Architecture Landscape.
See : TOGAF® Standard – Applying the ADM : Page 17 : §3.1

In a typical enterprise, many architectures will be described in the Architecture Landscape at any point in time to:
- Address very specific needs
- Be more general.
- Address detail
- Provide a big picture

To address this complexity, the TOGAF Standard uses the concepts of;
- Levels
- The Enterprise Continuum

to provide a conceptual framework for organizing the Architecture Landscape.
These concepts are tightly linked with organizing actual content in the Architecture Repository

3.1 Overview
In a typical enterprise, many architectures will be described in the Architecture Landscape at any point in time. Some architectures will address very specific needs; others will be more general.
Some will address detail; some will provide a big picture. To address this complexity, the TOGAF® Standard, 10th Edition, 2022 Standard uses the concepts of levels and the Enterprise Continuum to provide a conceptual framework for organizing the Architecture Landscape. These concepts are tightly linked with organizing actual content in the Architecture Repository and any architecture partitions discussed in the TOGAF Standard — Architecture Content.

TOGAF® Standard, 10th Edition

Notes:

Architecture Levels – 02/07

Architecture Landscape

Levels divide the Architecture Landscape into three levels of granularity:

1. Strategic Architecture
2. Segment Architecture
3. Capability Architecture

© The Open Group

Breadth

Time

Enterprise Strategic Architecture

Level

Segment Architecture | Segment Architecture

Capability Architecture | Capability Architecture | Capability Architecture

---

Level=2 : L.O.= 8.7b : Explain how the concepts of Architecture Levels are used to organize the Architecture Landscape.
See: TOGAF® Standard – Applying the ADM : Page 17 : §3.2

Architecture Landscape
Levels divide the Architecture Landscape into three levels of granularity:
• Strategic Architecture
provides an organizing framework for operational and change activity and allows for direction setting at an executive level.
• Segment Architecture
provides an organizing framework for operational and change activity and allows for direction setting and the development of effective architecture roadmaps at a program or portfolio level.
• Capability Architecture
provides an organizing framework for change activity and the development of effective architecture roadmaps realizing capability increments.

3.2 Architecture Landscape
Levels provide a framework for dividing the Architecture Landscape into three levels of granularity:
1. Strategic Architecture provides an organizing framework for operational and change activity and allows for direction setting at an executive level.
2. Segment Architecture provides an organizing framework for operational and change activity and allows for direction setting and the development of effective architecture roadmaps at a program or portfolio level.
3. Capability Architecture provides an organizing framework for change activity and the development of effective architecture roadmaps realizing capability increments.
Figure 3-1 shows a summary of the classification model for Architecture Landscapes.

TOGAF® Standard, 10th Edition

Notes:

Architecture Levels – 03/07

Developing Architectures at Different Levels

Each architecture sits within a governance hierarchy.
Broad/summary architectures set the direction for narrow and detailed architectures.

A number of techniques can be employed to use the ADM to support such hierarchies.

Two strategies that can be applied:
1. Architectures at different levels can be developed through iterations within a single cycle of the ADM process
2. Architectures at different levels can be developed through a hierarchy of ADM processes, executed concurrently

Either of these two options can be fully adopted.

In practice, an architect is likely to need to blend elements of each to fit the exact requirements of their Request for Architecture Work.

Level=2 : L.O.= 8.7c : Explain how the concepts of Architecture Levels are used to organize the Architecture Landscape.
See: TOGAF® Standard – Applying the ADM : Page 19 : §3.3

Developing Architectures at Different Levels
Each architecture typically does not exist in isolation and must therefore sit within a governance hierarchy.
Broad/summary architectures set the direction for narrow and detailed architectures.
A number of techniques can be employed to use the ADM as a process that supports such hierarchies of architectures.
Essentially there are two strategies that can be applied:
- Architectures at different levels can be developed through iterations within a single cycle of the ADM process
- Architectures at different levels can be developed through a hierarchy of ADM processes, executed concurrently

At the extreme ends of the scale, either of these two options can be fully adopted.
In practice, an architect is likely to need to blend elements of each to fit the exact requirements of their Request for Architecture Work.

3.3 Developing Architectures at Different Levels
The previous sections have identified that different types of architecture are required to address different stakeholder needs at different levels of the organization. Each architecture typically does not exist in isolation and must therefore sit within a governance hierarchy. Broad, summary architectures set the direction for narrow and detailed architectures.
A number of techniques can be employed to use the ADM as a process that supports such hierarchies of architectures. Essentially there are two strategies that can be applied:
1. Architectures at different levels can be developed through iterations within a single cycle of the ADM process
2. Architectures at different levels can be developed through a hierarchy of ADM processes, executed concurrently
At the extreme ends of the scale, either of these two options can be fully adopted.
In practice, an architect is likely to need to blend elements of each to fit the exact requirements of their Request for Architecture Work. Each of these approaches is described in Chapter 2.

Notes:

Architecture Levels – 04/07

Organizing the Architecture Landscape to Understand the State of the Enterprise

The following characteristics are typically used to organize the Architecture Landscape:

○ Breadth - the breadth (subject matter) area is generally the primary organizing characteristic.

○ Depth - with broader subject areas, less detail is needed to ensure that the architecture has a manageable size and complexity.

○ Time - for a specific breadth and depth an enterprise can create a Baseline Architecture and a set of Target Architectures that stretch into the future.

○ Recency - finally, each architecture view will progress through a development cycle where it increases in accuracy until finally approved.

Using these criteria, architectures can be grouped into Strategic, Segment, and Capability Architecture levels.
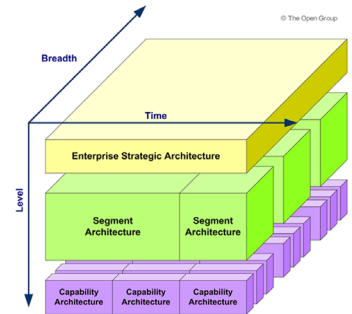
Level=2 : L.O.= 8.7d : Explain how the concepts of Architecture Levels are used to organize the Architecture Landscape.
See: TOGAF® Standard – Applying the ADM : Page 19 : §3.4

Organizing the Architecture Landscape to Understand the State of the Enterprise
The following characteristics are typically used to organize the Architecture Landscape:
• Breadth - the breadth (subject matter) area is generally the primary organizing characteristic for describing an Architecture Landscape. Architectures are functionally decomposed into a hierarchy of specific subject areas or segments.
• Depth - with broader subject areas, less detail is needed to ensure that the architecture has a manageable size and complexity
More specific subject matter areas will generally permit (and require) more detailed architectures.
• Time - for a specific breadth and depth an enterprise can create a Baseline Architecture and a set of Target Architectures that stretch into the future. Broader and less detailed architectures will generally be valid for longer periods of time and can provide a vision for the enterprise that stretches further into the future.
• Recency - finally, each architecture view will progress through a development cycle where it increases in accuracy until finally approved. After approval, an architecture will begin to decrease in accuracy if not actively maintained. In some cases recency may be used as an organizing factor for historic architectures.
Using these criteria architectures can be grouped into Strategic, Segment, and Capability Architecture levels.

3.4 Organizing the Architecture Landscape to Understand the State of the Enterprise
The following characteristics are typically used to organize the Architecture Landscape:
■Breadth: the breadth (subject matter) area is generally the primary organizing characteristic for describing an Architecture Landscape Architectures are functionally decomposed into a hierarchy of specific subject areas or segments.
■Depth: with broader subject areas, less detail is needed to ensure that the architecture has a manageable size and complexity
More specific subject matter areas will generally permit (and require) more detailed architectures.
■Time: for a specific breadth and depth an enterprise can create a Baseline Architecture and a set of Target Architectures that stretch into the future
Broader and less detailed architectures will generally be valid for longer periods of time and can provide a vision for the enterprise that stretches further into the future.
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:
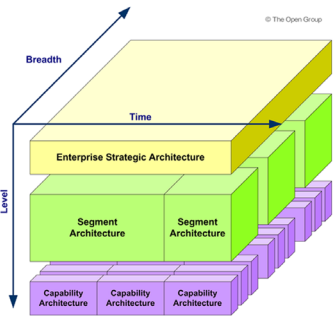
Architecture Levels – 05/07

The Architecture Continuum is a useful tool to discover commonality and eliminate redundancy. Levels and the Architecture Continuum provide a mechanism to describe and classify the Architecture Landscape.

Architecture Continuum © The Open Group

Generic Architectures ← Generalization for future re-use — Adaptation for use → Specific Architectures

These concepts are used to organize the Architecture Landscape into a set of related architectures with:
- Manageable complexity
- Defined groupings
- Defined hierarchies
- Defined navigation structures
- Appropriate processes, roles, and responsibilities

There is no definitive organizing model for architecture, as each enterprise adopts a model that reflects its own operating model.

Level=2 : L.O.= 8.8a : Explain the different levels of architecture that exist in an organization.
See: TOGAF® Standard – Applying the ADM : Page 17 : §3.2

The Architecture Continuum is a useful tool to discover commonality and eliminate unnecessary redundancy. Levels and the Architecture Continuum provide a comprehensive mechanism to describe and classify the Architecture Landscape. These concepts can be used to organize the Architecture Landscape into a set of related architectures with:
- Manageable complexity for each individual architecture or solution
- Defined groupings
- Defined hierarchies
- Defined navigation structures
- Appropriate processes, roles, and responsibilities attached to each grouping
There is no definitive organizing model for architecture, as each enterprise should adopt a model that reflects its own operating model.

3.2 Architecture Landscape …cont.
The Architecture Continuum provides a method of dividing each level of the Architecture Landscape (see the TOGAF Standard — Architecture Content) by abstraction. It offers a
consistent way to define and understand the generic rules, representations, and relationships in an architecture, including traceability and derivation relationships. The Architecture Continuum shows the relationships from foundation elements to organization-specific architecture ,as shown in Figure 3-2.
The Architecture Continuum is a useful tool to discover commonality and eliminate unnecessary redundancy.
Levels and the Architecture Continuum provide a comprehensive mechanism to describe and classify the Architecture Landscape. These concepts can be used to organize the Architecture Landscape into a set of related architectures with:
■Manageable complexity for each individual architecture or solution
■Defined groupings
■Defined hierarchies and navigation structures
■Appropriate processes, roles, and responsibilities attached to each grouping
There is no definitive organizing model for architecture, as each enterprise should adopt a model that reflects its own operating model.

Architecture Levels – 06/07

Q-10.1,p34
A-1.18,p24

There are different ways of looking at and understanding the TOGAF Levels concept in terms of Levels of Detail that indicate the logic of the thinking behind the Levels concept:

- o Strategic - Long term, in the range of 3 - 5 years
- o Segment - Mid term, in the range of 1 - 2 years
- o Capability - Short term, in the range of 6 - 12 months

or

- o Strategic (Enterprise) Architect
  A broad view across the whole of the enterprise and coordinates all views and viewpoints.
- o Segment Architect
  Focuses on a specific aspect of the business or organization – e.g. Branch Banking, Pallet Warehousing.
- o Capability (Solution) Architect
  Knows the detailed information about systems, products, and technologies.

Notes:

Level=2 : L.O.= 8.9a : Explain at which level an architecture is being developed and the associated level of detail expected.
See: TOGAF® Standard – Applying the ADM : Page 17 : §3.2

There are different ways of looking at and understanding the TOGAF Levels concept in terms of Levels of Detail.
These indicate the logic of the thinking behind theLevels concept:
- • Strategic - Long term in the range of 3 - 5 years
- • Segment - Mid term in the range of 1 - 2 years
- • Capability - Short term in the range of 6 - 12 months
or
- • Strategic (Enterprise) Architect - a broad view across the whole of the enterprise and coordinates all views and viewpoints.
- • Segment Architect - focuses on a specific aspect of the business or organization – e.g. Branch Banking, Pallet Warehousing.
- • Capability (Solution) Architect - knows the detailed information about systems, products, and technologies.

3.2 Architecture Landscape

Levels provide a framework for dividing the Architecture Landscape into three levels of granularity:
1. Strategic Architecture provides an organizing framework for operational and change activity and allows for direction setting at an executive level.
2. Segment Architecture provides an organizing framework for operational and change activity and allows for direction setting and the development of effective architecture roadmaps at a program or portfolio level.
3. Capability Architecture provides an organizing framework for change activity and the development of effective architecture roadmaps realizing capability increments.
Figure 3-1 shows a summary of the classification model for Architecture Landscapes.

TOGAF® Standard, 10th Edition

Notes:

Architecture Levels – 07/07

EA Landscape contents are only developed when needed.

- Architecture Projects are never neat cubes … a better representation looks like a sea urchin or virus – a consolidated center but with spikes going in all directions.
- The superior architecture may exist, either as an unrealized target, unrealized transition, or a realized current state.
- The energy and efficacy of an EA team is diluted when it tries to do too much.
- The Request for Architecture Work tells the EA team that the Enterprise is looking for a Target Architecture addressing a specific set of subjects at a necessary level of detail and that can be accomplished within a particular planning horizon.
- When stakeholders accept the target, all further EA work, change planning, and change execution are governed by the approved architecture.

Þ Q-25
Level=2 : L.O.= 8.9b : Explain at which level an architecture is being developed and the associated level of detail expected.
See: TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 10 : §3.2.1

EA Landscape contents are only developed when needed
- Architecture Projects are never neat cubes … a better representation looks like a sea urchin – a consolidated center but with spikes going in all directions.
  The Architecture Project covers a specific portion of the EA Landscape – the portion defined regarding breadth, planning horizon, and detail.
- This example Architecture Project:
  - does not cover the least or the most detailed layers
  - does not cover all time periods nor subjects
  - addresses a specific portion of the landscape
  - will populate, or refresh, a portion of the EA Landscape
  - stops at a level of detail so the Practitioner will need to constrain the level of detail
  - is within the total planning horizon of the Enterprise and will be constrained by what can and must be done within the planning horizon
  - is a subset of the potential breadth of the scope of the EA Landscape
- The superior architecture may exist either as an unrealized target, unrealized transition, or a realized current state.
- The energy and efficacy of an EA team is diluted when it tries to be in every conversation by trying to do too much.
- The Request for Architecture Work tells the EA team that the Enterprise is looking for a Target Architecture addressing a specific set of subjects at a necessary level of detail and that can be accomplished within a particular planning horizon.
- When stakeholders accept the target, all further EA work, change planning, and change execution are governed by the approved architecture.

3.2.1 Introduction to the EA Landscape
The TOGAF Framework uses a concept of the EA Landscape to refer to the complete set of descriptions or the EA. This Guide distinguishes EA Landscape from EA, because there will not be a single description in a comprehensive EA Landscape. At any point in time, a typical Enterprise will have several architectures described. Some architectures will address very
specific needs; others will be more general. Some will address detail; some will provide a big picture. Some will address the same topics in different states (current, target, and
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Architecture Building Blocks – 01/02

Architecture Building Blocks

- o Relate to the Architecture Continuum and are defined or selected as a result of the application of the ADM
- o Capture architecture requirements; from Business, Data, Application, and Technology
- o Direct and guide the development of SBBs

ABB specifications include the following as a minimum:
- o Fundamental functionality and attributes
  - • Semantic
  - • Unambiguous
- o Interfaces
  - • Cset
  - • Supplied
- o Interoperability/relationship with other building blocks
- o Dependent building blocks
  - • Required functionality
  - • Named user interfaces
- o Map to business/organizational entities and policies

See - www.omg.org/spec/RAS

Architecture Content : Page 80 : §5.2.3

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Þ M-30
Level=2 : L.O.= 8.10a : Explain the role of Architecture Building Blocks (ABBs) and when they are used.
See: TOGAF® Standard – Architecture Content : Page 80 : §5.2.3

Architecture Building Blocks:
- • Relate to the Architecture Continuum and are defined or selected as a result of the application of the ADM
- • Capture architecture requirements; from Business, Data, Application, and Technology
- • Direct and guide the development of SBBs

ABB specifications include the following as a minimum:
- • Fundamental functionality and attributes:
  - • Semantic
  - • Unambiguous
    - ☐ security
    - ☐ capability
    - ☐ manageability
  - • Interfaces
    - • chosen set
    - • supplied
- • Interoperability and relationship with other building blocks
- • Dependent building blocks
  - • required functionality
  - • named user interfaces
- • Map to business/organizational entities and policies

5.2.3 Architecture Building Blocks
Architecture Building Blocks (ABBs) relate to the Architecture Continuum (see Section 6.4.1), and are defined or selected as a result of the application of the ADM.
5.2.3.1 Characteristics
ABBs:
■Capture architecture requirements; e.g., Business, Data, Application, and Technology requirements
■Direct and guide the development of SBBs
5.2.3.2 Specification Content
ABB specifications include the following as a minimum:
■Fundamental functionality and attributes: semantic, unambiguous, including security capability and manageability
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Architecture Building Blocks – 02/02

○ Knowledge of the Business Architecture is a prerequisite for architecture work in any other domain

○ Business Architecture is a means of demonstrating the business value to key stakeholders

○ The scope of work in Phase B is determined by the Architecture Vision

○ Business strategy defines the goals and drivers

○ Business Architecture may be done in other activities - there may be a need to verify

○ If little Business Architecture work has been done - verify objectives/processes that the architecture is to support

○ Use the business scenarios technique

○ A key objective is to re-use existing material

○ Gather/analyze only that information relevant to the scope of this architecture effort

Architecture Development Method : Page 50 : §4.5
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Level=2 : L.O.= 8.11a : Briefly explain the guidelines and techniques that can be used during the Business Architecture phase:
See: TOGAF® Standard – Architecture Development Method : Page 50 : §4.5

- Knowledge of the Business Architecture is a prerequisite for architecture work in any other domain
- Business Architecture is a means of demonstrating the business value of subsequent architecture work to key stakeholders
- The scope of work in Phase B is determined by the Architecture Vision as set out in Phase A.
- Business strategy defines the goals and drivers - the role of the Business Architecture is how to get there
- Business Architecture may be done in other activities - there may be a need to verify and update the currently documented business strategy and plans
- If little Business Architecture work has been done - verify objectives/processes that the architecture is to support
- Use the business scenarios technique (see the TOGAF® Series Guide: Business Scenarios)
- A key objective is to re-use existing material as much as possible
- Gather/analyze only that information which allows informed decisions to be made relevant to the scope of this architecture effort

4.5.1 General
A knowledge of the Business Architecture is a prerequisite for architecture work in any other domain (Data, Application, Technology), and is therefore the first architecture activity that needs to be undertaken, if not catered for already in other organizational processes (enterprise planning, strategic business planning, business process re-engineering, etc.).
In practical terms, the Business Architecture is also often necessary as a means of demonstrating the business value of subsequent architecture work to key stakeholders, and the return on investment to those stakeholders from supporting and participating in the subsequent work.
The scope of work in Phase B is primarily determined by the Architecture Vision as set out in Phase A. The business strategy defines the goals and drivers and the metrics for success, but not necessarily how to get there. That is the role of the Business Architecture, defined in detail in Phase B.
This will depend to a large extent on the enterprise environment. In some cases, key
... CONTINUES ... SEE REFERENCE SPECIFIED

Modules Level 2:

Notes:

Guidelines and Techniques – 01/12

Applying Business Capabilities

The Business Capability Map
from the Vision Phase should be mapped back to:
o   Organizational units
o   Value streams
o   Information systems
o   Strategic plans

Heat mapping shows a range of different perspectives on the same set of core business capabilities:
o   Maturity
o   Effectiveness
o   Performance
o   Value of each capability
o   Cost of each capability
Different attributes determine the colors of each capability on the Business Capability Map.

Typically, for a specific capability:
o   **Green** = competence
o   **Yellow** = one level down
o   **Red**   = two or more levels down
o   **Purple** = desired capability not yet present

Strategic	Business Planning	Market Planning	Partner Management
	Capital Management	Policy Management	Government Relations Management
Core	Account Management	Product Management	Distribution Management
	Customer Management	Channel Management	Agent Management
Supporting	Financial Management	HR Management	Procurement Management
	Information Management	Training Management	Operations Management

Business Capabilities	Human Resources	Real Estate	Information Technology	Sales and Marketing
Project Management				
Learning Management				

Acquire Products → Distribute to Stores → Stock Shelves → Sell Products → Support Sales

Purchase Management	Transportation Management	Inventory Management	Payment Processing	Customer Support
Warehouse Management		Facilities Management		
Product Research			Product Marketing	

This Gap Analysis is directly tied to the EA project currently underway.

Level=2 : L.O.= 8.11a : Briefly explain the guidelines and techniques that can be used during the Business Architecture phase:
See: TOGAF® Standard – Architecture Development Method : Page 51 : §4.5.3

Applying Business Capabilities
The Business Capability Map from the Vision Phase should be mapped back to:
•   Organizational units
•   Value streams
•   Information systems
•   Strategic plans
within the scope of the Enterprise Architecture project

Heat mapping shows a range of different perspectives on the same set of core business capabilities:
•   Maturity
•   Effectiveness
•   Performance
•   Value of each capability
•   Cost of each capability

Different attributes determine the colors of each capability on the business capability map.
Typically, for a specific capability:
•   Green   = competence
•   Yellow   = one level down
•   Red   = two or more levels down
•   Purple   = desired capability not yet present

4.5.3 Applying Business Capabilities
The business capability map found or developed in the Architecture Vision phase provides a self-contained view of the business that is independent of the current organizational structure, business processes, information systems and applications ,and the rest of the product or service portfolio. Those business capabilities should be mapped back to the organizational units, value streams, information systems, and strategic plans within the scope of the Enterprise Architecture project. This relationship mapping provides greater insight into the alignment and
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Guidelines and Techniques – 02/12

Applying Value Streams

Value streams provide valuable stakeholder context into why the organization needs business capabilities.
Start with the initial set of value stream models for the business.

A new or existing value stream can be analyzed:
- ○ Through heat mapping
- ○ By developing use-cases

A project might focus on:
- ○ Specific stakeholders
- ○ One element of business value
- ○ Stressing some stages over others

The most substantive benefits come from:
1. Mapping relationships between stream stages/capabilities
2. Then performing a Gap Analysis for capabilities in the context of the business

Baseline Example from TOGAF® Series Guide: Value Streams

Name	Acquire Retail Product
Description	The activities involved in looking for, selecting, and obtaining a desired retail product.
Stakeholder	A retail shopper wishing to purchase a product.
Value	Customers are able to locate desired products and obtain them in a timely manner.

Acquire Retail Product

Advertise Channels → Display Merchandise → Enable Selection → Process Payment → Deliver Merchandise

Value Stream Stage	Description	Participating Stakeholders	Entrance Criteria	Exit Criteria	Value Items
Advertise Channels	The act of making customers aware of the company's products.	Store or Website Owner Marketing	Customer searches for product	Customer selects channel	Retail channel available to customer
Display Merchandise	The act of presenting products in a physical or searchable digital form.	Store Employees Inventory Manager Web Designer	Customer selects channel	Customer views products	Product options provided to customer
Enable Selection	The act of enabling filtering and assessments of the best product(s) matched to the customer's needs.	Store Employees Web Designer Retail Shopper	Customer views products	Customer selects product	Desired product located
Process Payment	The act of taking and processing payment from the customer.	Cashier Financial Entities Retail Shopper	Customer selects product	Charges paid	Delivery commitment
Deliver Merchandise	The act of getting the product into the customer's hands.	Warehousing Transportation Retail Shopper	Charges paid	Product delivered	Product in user's possession

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Level=2 : L.O.= 8.11b : Briefly explain the guidelines and techniques that can be used during the Business Architecture phase:
See: TOGAF® Standard – Architecture Development Method : Page 51 : §4.5.3

Applying Value Streams
Value streams provide valuable stakeholder context into why the organization needs business capabilities.
Start with the initial set of value stream models for the business documented in the Architecture Vision phase.
A new or existing value stream can be analyzed:
- Through heat mapping (by value stream stage)
- By developing use-cases around a complete definition of the value stream

A project might focus on:
- Specific stakeholders
- One element of business value
- Stressing some stages over others
to develop better requirements for solutions in later phases.

The most substantive benefits come from:
- Mapping relationships between stream stages/capabilities
- Then performing a Gap Analysis for capabilities in the context of the business value achieved for a specific stakeholder

4.5.3 Applying Business Capabilities
The business capability map found or developed in the Architecture Vision phase provides a self-contained view of the business that is independent of the current organizational
structure, business processes, information systems and applications, and the rest of the product or service portfolio. Those business capabilities should be mapped back to the organizational units, value streams, information systems, and strategic plans within the scope of the Enterprise Architecture project. This relationship mapping provides greater insight into the alignment and optimization of each of those domains (see Relationship Mapping in TOGAF® Series Guide: Business Capabilities).
Another common analysis technique involves heat mapping, which can be used to
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Guidelines and Techniques – 03/12

Applying the Organization Map

o Depicts the working relationship between:
  • key organizational units
  • partners
  • stakeholder groups entities
o Depicted as a network or web
o The business unit is the main concept used to establish organization maps
o The enterprise may:
  • be one business unit for the project underway
  • include all business units
  • include third parties
  • be other stakeholder groups
o The interpretation depends on the scope of the architecture effort.
o This map is a key element of Business Architecture
o The organization map identities the business units or third parties that possess or use those capabilities and which participate in the value streams:
  • architecture effort
  • who and when to talk
  • how to measure the impact of decisions.
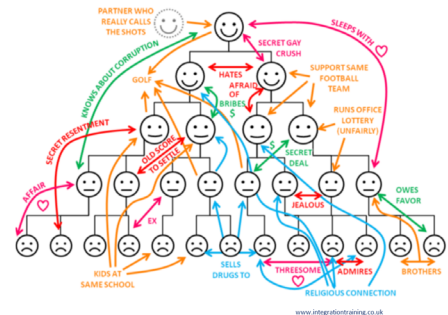
see - TOGAF® Series Guide: Organization Mapping

Architecture Development Method : Page 52 : §4.5.5

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Level=2 : L.O.= 8.11c : Briefly explain the guidelines and techniques that can be used during the Business Architecture phase:
See: TOGAF® Standard – Architecture Development Method : Page 52 : §4.5.5

Applying the Organization Map
• Depicts the working relationship between:
  • key organizational units
  • partners
  • stakeholder groups entities
• Depicted as a network or web
• The business unit is the main concept used to establish organization maps
• The enterprise may be:
  • one business unit for the project underway
  • include all business units
  • include third parties
  • other stakeholder groups
• The interpretation depends on the scope of the architecture effort.
• This map is a key element of Business Architecture because it provides the organizational context for the whole Enterprise Architecture effort.
• The organization map identities the business units or third parties that possess or use those capabilities and which participate in the value streams and provides an understanding of which business units to involve in the:
  • architecture effort
  • who and when to talk
  • how to measure the impact of decisions.

4.5.5 Applying the Organization Map
An organization map shows the key organizational units, partners and stakeholder groups that make up the enterprise ecosystem. The map should also depict the working relationship between those entities, as distinct from an organizational chart that only shows hierarchical reporting relationships. The map is typically depicted as a network or web of relationships and interactions between the various business entities (see Organigraphs: Drawing How Companies Really Work, by Mintzberg and Van der Heyden, 1999).
The business unit is the main concept used to establish organization maps. In keeping with the relatively unconstrained view of what constitutes as enterprise, the enterprise may be one business unit for the project underway, may include all business units, or also include third
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Guidelines and Techniques – 04/12

Applying Information Maps

- o Characterizing information in the Business Architecture phase starts with the elements that matter most to the business such as:
  - Product
  - Customer
  - Factory, etc.
  and how it is described using business terms.
- o Domains of information can be derived from groupings or categories that the business terms fall into logically.
- o The most significant benefit then comes from building matrices between information and business capabilities.
- o The linkage between the information that matters most to the business and the business capabilities … is a key aspect of Business Architecture.
- o These information maps and relationships to business capabilities apply in later architecture phases on data characterization, applications, and infrastructure.

see the TOGAF® Series Guide: Information Mapping

Architecture Development Method : Page 53 : §4.5.6

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Þ Q-28
Level=2 : L.O.= 8.11d : Briefly explain the guidelines and techniques that can be used during the Business Architecture phase:
See: TOGAF® Standard – Architecture Development Method : Page 53 : §4.5.6

Applying Information Maps
- Characterizing information in the Business Architecture phase starts with the elements that matter most to the business such as:
  - Product
  - Customer
  - Factory, etc.
  and how it is described using business terms
- Domains of information can be derived from groupings or categories that the business terms fall into logically, starting the information map for completeness and highest value.
- The most significant benefit then comes with building matrices between information and business capabilities.
- The linkage between the information that matters most to the business and the business capabilities that describe the ability to apply that information to create value is a key aspect of Business Architecture.
- These information maps and relationships to business capabilities apply in later architecture phases on data characterization, applications, and infrastructure.

4.5.6 Applying Information Maps
Characterizing information in the Business Architecture phase starts with the elements that matter most to the business, such as product, customer, factory, etc. With a list of these key elements, a cross-discipline team can list and map the information that matters most and how it is described using business terms. Domains of information can be derived from groupings or categories that the business terms fall into logically. These domains are a good place to start the information map for completeness and highest value before proceeding later to the details of data types.
Relationships among the information domains can then be added to the map as the next level of understanding for a good baseline information map. The most significant benefit then comes with building matrices between information and business capabilities. The linkage between the information that matters most to the business and the business capabilities that describe the
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Guidelines and Techniques – 05/12

Applying Modeling Techniques

The modeling and mapping techniques provided here are extensions that expand the operating model.

Additional techniques include:

- Activity Models [Business Process Models] that describe:
  - The enterprise's business activities
  - The data and/or information exchanged between activities (internal exchanges)
  - The data and/or information exchanged with other activities that are outside the scope of the model (external exchanges)
  They capture Inputs, Controls, Outputs, and Mechanisms/Resources (ICOMs) of business activities e.g.:
  - Integrated Computer Aided Manufacturing (ICAM) DEFinition (IDEF) modeling technique.
  - Object Management Group (OMG)'s Business Process Modeling Notation™ (BPMN™).
- Use-Case Models describe the business process of an enterprise in terms of:
  - Use-cases and actors
  - Processes
  - Organizational participants
- Logical Data Model [Class Model] describe:
  - The entities
  - Their attributes and the acceptable value for these attributes
  - The relationships between the various entities
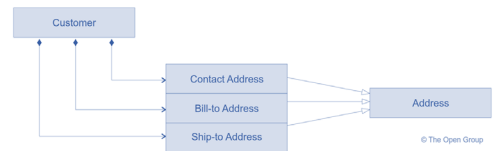
Applications and information architects use the class diagram, Business Architects use the logical data model.

*see A Method for Identifying Process Re-Use Opportunities to Enhance the Operating Model, M. de Vries et al.

Architecture Development Method : Page 53 : §4.5.7

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Þ M-31
Level=2 : L.O.= 8.11e : Briefly explain the guidelines and techniques that can be used during the Business Architecture phase:
See: TOGAF® Standard – Architecture Development Method : Page 53 : §4.5.7

Applying Modeling Techniques
The modeling and mapping techniques provided here are extensions that expand the operating model, which is a representation for how an organization operates across a range of domains in order to accomplish its purpose.

Additional techniques include:
- Activity Models [Business Process Models] that describe:
  - the enterprise's business activities
  - the data and/or information exchanged between activities (internal exchanges)
  - the data and/or information exchanged with other activities that are outside the scope of the model (external exchanges)
They capture Inputs, Controls, Outputs, and Mechanisms/Resources (ICOMs) of business activities.
Examples:
  - Integrated Computer Aided Manufacturing (ICAM) DEFinition (IDEF) modeling technique.
  - Object Management Group (OMG)'s Business Process Modeling Notation™ (BPMN™).
- Use-Case Models describe the business process of an enterprise in terms of:
  - use-cases and actors
  - processes
  - organizational participants
The use-case model is described in use-case diagrams and use-case specifications.
- Logical Data Model [Class Model] describe:
  - the entities
  - their attributes, and the acceptable values for these attributes
  - the relationships between the various entities
Applications and information architects use the class diagram, Business Architects use the logical data model.
All three types of model above can be represented in the Unified Modeling Language™ (UML®), and a variety of tools exist for generating such models.

4.5.7 Applying Modeling Techniques
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Guidelines and Techniques – 06/12

Architecture Repository

What relevant Business Architecture resources are available from the Architecture Repository:

- Industry reference models relevant to the organization's industry sector
- Enterprise-specific Business Architecture views (capability maps, value stream maps, organization maps, etc.)
- Enterprise-specific building blocks (process components, business rules, job descriptions, etc.)
- Applicable standards

Þ M-31
Level=2 : L.O.= 8.11f : Briefly explain the guidelines and techniques that can be used during the Business Architecture phase:
See: TOGAF® Standard – Architecture Development Method : Page 53 : §4.5.7

Architecture Repository
What relevant Business Architecture resources are available from the Architecture Repository:
- Industry reference models relevant to the organization's industry sector
- Enterprise-specific Business Architecture views (capability maps, value stream maps, organization maps, etc.)
- Enterprise-specific building blocks (process components, business rules, job descriptions, etc.)
- Applicable standards

4.5.8 Architecture Repository
As part of Phase B, the architecture team will need to consider what relevant Business Architecture resources are available from the Architecture Repository (see the TOGAF Standard
—Architecture Content), in particular:
■Industry reference models relevant to the organization's industry sector
■Enterprise-specific Business Architecture views (capability maps, value stream maps, organization maps, etc.)
■Enterprise-specific building blocks (process components, business rules ,job descriptions, etc.)
■Applicable standards

TOGAF® Standard, 10th Edition

Guidelines and Techniques – 07/12

Essential ADM:
Output and Knowledge

- o Key outputs summarised in the Table

- o EAs provide best available guidance on effective change.

- o Outcomes and outputs derived from objectives of phase.

- o Output is provided as:
  - views
  - roadmaps
  - architecture specifications
  - controls
  - other useful things
- o Intent:
  keep the focus on what is pursued
  - not what is done.

Phase	Phase Output & Outcome	Essential Knowledge
A	Sufficient documentation to get permission to proceed. Permission to proceed to develop a Target Architecture to prove out a summary target.	The scope of the problem being addressed. Those who have interests that are fundamental to the problem being addressed. (Stakeholders & Concerns). What summary answer to the problem is acceptable to the stakeholders? (Architecture Vision) Stakeholder priority and preference. What value does the summary answer provide?
B, C, D	A set of domain architectures approved by the stakeholders for the problem being addressed, with a set of gaps, and work to clear the gaps understood by the stakeholders.	How does the current Enterprise fail to meet the preferences of the stakeholders? What must change to enable the Enterprise to meet the preferences of the stakeholders? (Gaps) What work is necessary to realize the changes, that is consistent with the additional value being created? (Work Package) How stakeholder priority and preference adjust in response to value, effort, and risk of change.
E	A set of work packages that address the set of gaps, with an indication of value produced and effort required, and dependencies between the work packages to reach the adjusted target.	Dependency between the set of changes. Value, effort, and risk associated with each change and work package. How stakeholder priority and preference adjust in response to value, effort, and risk of change.
F	An approved set of projects, containing the objective and any necessary constraints, resources required, and start and finish dates.	Resources available to undertake the change. How stakeholder priority and preference adjust in response to value, effort, and risk of change. (Stakeholder Requirements)
G	Completion of the projects to implement the changes necessary to reach the adjusted target state.	Purpose and constraints on the implementation team. (Gap, Architecture Requirement Specification, Control) How stakeholder priority and preference adjust in response to success, value, effort, and risk of change.
H	Direction to proceed and start developing a Target Architecture that addresses perceived, real, or anticipated shortfalls in the Enterprise relative to stakeholder preferences.	Gaps between approved target, or preference, and realization from prior work. (Value Realization) Changes in preference or priority. (Stakeholder Requirements)

A Practitioners' Approach to Developing Enterprise Architecture Following the ADM : Page 42 : §5.2.2

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Notes:

Essential ADM:
Output and Knowledge
- Key outputs summarised in the Table
- NAs provide best available guidance on effective change
- Outcomes and outputs derived from objectives of phase
- Output is provided as:
  - views
  - roadmaps
  - architecture specifications
  - controls
  - other useful things
- Intent:
  keep the focus on what is pursued
  - not what is done.

5.2.2 Essential ADM Output and Knowledge

A summary of the essential outcome and output is provided in Table 4. Keep in mind that the essential output is what stakeholders, sponsor, and boss' boss' boss wants. No-one wants an architecture; they want guidance on planning and executing an effective change. Practitioners use an architected approach to providing the best available guidance on effective change. The essential outcomes and outputs are derived from the objectives of the phase – the statement of why a Practitioner should perform this activity.

What the Enterprise values and consumes is typically different than what the Practitioner produces. Practitioners deliver an essential output. It is provided as views, roadmaps, architecture specifications, controls, and other useful things. Architecture is developed, and the EA Landscape populated. To do this, Practitioners require a set of essential knowledge. The Enterprise consumes effective guidance about, and the ability to govern, change.

Read Table 4 in conjunction with Table 3 to confirm whether for a particular purpose the output of the phase is already in existence, needs to be created, or is extraneous to the current Architecture Project. Good Practitioners will adjust their work accordingly. Table 4 lists only

... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Guidelines and Techniques – 08/12

Value

Value is fundamental to everything that an organization does:
- o Think of value in the most general sense of usefulness, advantage, benefit, or desirability
- o Examples:
  - Successful delivery of a requested product or service
  - Resolving a client's problem in a timely manner
  - Gaining access to up-to-date information
- o The Business or Enterprise Architect:
  - Models
  - Measures
  - Analyzes
  ways that the enterprise achieves value for a given stakeholder per discrete stage of value-producing.

Approaches to Value Analysis:
- **Value chain** takes an economic value perspective
- **Value networks** are primarily concerned with identifying the participants involved in creating and delivering value
- **Lean value streams** are all about optimizing business processes

- o The Business Architecture value stream is more closely aligned to realizing an organization's business model rather than financial, organizational, or operational.

Value Streams : Page 1 : §1
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Þ Q-29
Level=2 : L.O.= 8.11h : Briefly explain the guidelines and techniques that can be used during the Business Architecture phase:Applying information mapping
See: TOGAF® Series Guide: Value Streams : Page 1 : §1

Value
Value is fundamental to everything that an organization does.
- Think of value in the most general sense of usefulness, advantage, benefit, or desirability
- Examples:
  - successful delivery of a requested product or service
  - resolving a client's problem in a timely manner
  - gaining access to up-to-date information in order to make better business decisions
- The Business or Enterprise Architect:
  - models
  - measures
  - analyzes
  ways that the enterprise achieves value for a given stakeholder – and decomposes:
  - creation
  - capture
  - delivery
  of value into discrete stages of value-producing

Approaches to Value Analysis:
- **Value chain** takes an economic value perspective
- **Value networks** are primarily concerned with identifying the participants involved in creating and delivering value
- **Lean value streams** are all about optimizing business processes (primarily within a manufacturing context)

Only the Business Architecture value stream is more closely aligned to realizing an organization's business model rather than the financial, organizational, or operational.

1.1 What is "Value"?
The word "value" originates from the Old French valoir: 'be worth'. It is the regard that something is held to deserve; the importance, worth, or usefulness of something. Within the context of Business Architecture, it is important to think of value in the most general sense of usefulness, advantage, benefit, or desirability, rather than the
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Guidelines and Techniques – 09/12

The Five Competitive Forces that Shape Strategy, Michael E. Porter, 2008; and (Business Architecture Blueprints) BIZBOK® Guide, Version 6.5, 2018)

Business Models

Business models provide a powerful construct to help focus and align an organization around its strategic vision and execution.

Business model artifacts are used to:
- Provide a common understanding of what the organization is, or looks like, today
- Portray what it intends to become in the future
- Create a critical link between the business strategy and the required blueprints of the Enterprise Architecture
- The plans that describe how to do it

Business Model Canvas™ →
Business Model - relationship with Strategy and Architecture

Business Models : Page 1 : §1

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Level=2 : L.O.= 8.11i : Briefly explain the guidelines and techniques that can be used during the Business Architecture phase:Applying information mapping
See: TOGAF® Series Guide: Business Models : Page 1 : §1

Business Models
Business models provide a powerful construct to help focus and align an organization around its strategic vision and execution.
Business model artifacts are used to:
- Provide a common understanding of what the organization is, or looks like, today
- Portray what it intends to become in the future
- Create a critical link between the business strategy and the required blueprints of the Enterprise Architecture that define what the business needs to transform to
- The plans that describe how to do it

1 Introduction
This TOGAF® Series Guide to Business Models provides a basis for Enterprise Architects to understand and utilize business models, which describe the rationale of how an organization creates, delivers, and captures value.
Business models provide a powerful construct to help focus and align an organization around its strategic vision and execution. In this Guide we cover different forms of business models and approaches to modeling, from the conceptual down to a practical example.
There is a direct relationship between the business innovation captured in these models and the approach to implementing that innovation through Enterprise Architecture. We explore that relation through Business Architecture methods such as value streams and business capabilities, then provide a specific example based on a generic retail company undertaking a Digital Transformation. An appendix delves deeper into the structure of one of the most commonly used business model frameworks for architects interested in working with business leaders to execute their strategy.

1.1 Overview
The world's top C-suite leaders know that the effective management and exploitation of information is a key factor for business success, and is critical to developing and maintaining competitive advantage. An Enterprise Architecture supports this objective by providing a strategic context for the evolution of technologies in response to the constantly changing needs
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Guidelines and Techniques – 10/12

Information Mapping

○ An Information Map is a collection of information concepts and their relationships to one another.

○ Information concepts, in effect, reflect the business' vocabulary; e.g., client, account, or product.

○ List those elements that matter most to the business and how they are described in business terms.

○ Discern an information concept by listening for the nouns used when talking about the business. Every noun is potentially an information concept.

○ Determine if the noun represents an item of information that the business cares about.

○ Does anyone in the business need to know, store, or manipulate the thing that the noun represents.
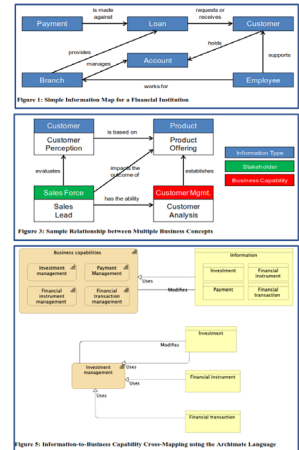
Information Mapping : Page 1 : §1
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Level=2 : L.O.= 8.11j : Briefly explain the guidelines and techniques that can be used during the Business Architecture phase: Applying modeling techniques
See: TOGAF® Series Guide: Information Mapping : Page 1 : §1

Information Mapping
An Information Map is a collection of information concepts and their relationships to one another.
Information concepts, in effect, reflect the business' vocabulary; e.g., client, account, or product.
Listing those elements that matter most to the business as well as how they are described in business terms.
A useful way to discern an information concept is to listen for the nouns that are used when talking about the business. Every noun is potentially an information concept.
By using a noun challenge process it is possible to determine if the noun represents an item of information that the business cares about.
In other words, does anyone in the business need to know, store, or manipulate the thing that the noun represents

1 Introduction
Information plays an increasingly important role in successful businesses and agencies. Accurate, timely, and relevant information is crucial for good decision-making and innovation.
Knowledge results from the ability to apply information in a particular way to solve a problem or create value. It is therefore necessary for architects to understand what information matters most to a business before developing or proposing solutions. An Information Map provides a framework to give rise to that understanding.
Businesses acquire, use, store, and manipulate many types of information in the process of their operations. As businesses become more focused on using information as a strategic resource, it becomes critical to understand what information they will be manipulating.
In Business Architecture terms, information is considered to be an intangible, conceptual representation of things that exist in the real world. "Information concepts" are the basis of the architectural elements that are used to make those intangible things explicit. Information concepts are used to model a business rather than an IT system. Defining the core information concepts that support a particular enterprise provides the core of the Information Mapping
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Guidelines and Techniques – 11/12

Organization Mapping

o The Organization Map provides the organizational context for the whole Enterprise Architecture effort.

o The Organization Map identifies the business units or third parties that participate in the value streams.

o It provides visibility of which organization units to involve in the architecture effort.

o An Organization Map also shows working relationships (informal as well as formal).

o Traditional organization charts are more likely to portray the reporting lines.

o The Organization Map depicts it as a network of relationships and interactions.

o The lack of fluidity with organization charts led to the creation of the concept of organization.

o The Organization Map subsumes a web concept suited to describing how organizations actually operate across formal boundaries and siloes.

Figure 1: Web-Styled Organigraph
Figure 2: Standard Organization Chart
Figure 3: Generic Organization Map

Level=2 : L.O.= 8.11k : Briefly explain the guidelines and techniques that can be used during the Business Architecture phase: Applying modeling techniques
See: TOGAF® Series Guide: Organization Mapping : Page 1 : §1

Organization Mapping
- The organization map provides the organizational context for the whole Enterprise Architecture effort
- The organization map identifies the business units or third parties that participate in the value streams
- It provides visibility of which organization units to involve in the architecture effort
- An organization map also shows working relationships (informal as well as formal)
- Traditional organization charts are more likely to portray the reporting lines
- The organization map depicts it as a network of relationships and interactions
- The lack of fluidity with organization charts led to the creation of the concept of organization
- The organization map subsumes a web concept suited to describing how organizations actually operate across formal boundaries and siloes.

1 Introduction
The organization map is a key element of Business Architecture because it provides the organizational context for the whole Enterprise Architecture effort. While capability mapping exposes what a business does and value stream mapping exposes how it delivers value to specific stakeholders, the organization map identifies the business units or third parties that possess or use those capabilities, and which participate in the value streams.

As one of the four core elements of Business Architecture, the organization map provides a key perspective: the organizational context for Enterprise Architecture. For example, it provides visibility of what organization units are relevant for a particular architecture design or solution.

These key insights mean that the organization map becomes foundational for Enterprise Architecture and the deployment of strategy.

Taken together with the methods outlined in Phase B of the TOGAF® Framework as well as the associated Business Architecture-focused Guides, the organization map provides an understanding of which organizational units to involve in the architecture effort, who with and when to talk about a given requirement, and how to measure the impact of various decisions.

2 What is an Organization Map?
An organization map is a Business Architecture blueprint that shows:
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Guidelines and Techniques – 12/12

Business Capability Map
Represents the complete, stable set of business capabilities that covers the business, enterprise, or organizational unit in question.
A self-contained visual depiction (or blueprint) of all the business capabilities at an appropriate level of decomposition and group.
Approach
○ Capture and document all of the business capabilities that represent the full scope of what the business does today
○ Organize that information in a logical manner
Either:
○ **Top-down**: a top-down business capability mapping approach starts by identifying the top 20 highest-level business capabilities, each of which can decompose into more detailed levels
○ **Bottom-up:** When more time is available, business capabilities can be defined from within different parts of the business and built from the bottom up
Three good sources of information with which to create an initial draft of the business capability map:
○ The organizational structure
○ The business model
○ Current strategic, business, and financial plans

Business Model
Business capabilities provide the building blocks upon which to execute an organization's business model.
Mapping individual business capabilities back to the business model ensures that the organization's investments are aligned to support enterprise vision and strategy.

Structuring the Business Capability Map
There are two concepts for turning the set of business capabilities into a logical structure:
○ **Business Capability Stratification** - each stratification tier provides a different perspective or focal point for different stakeholder groups
○ **Leveling** - the number of levels (usually 3 – 6) of decomposition is limited only by the degree necessary to communicate the information required by the intended audience, or to enable the business to make informed decisions about capability gaps

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Level=2 : L.O.= 8.11l : Briefly explain the guidelines and techniques that can be used during the Business Architecture phase: Applying modeling techniques
See: TOGAF® Series Guide: Business Capabilities: Page 1 : §1

Business Capability Map
Represents the complete, stable set of business capabilities that covers the business, enterprise, or organizational unit in question.
A self-contained visual depiction (or blueprint) of all the business capabilities at an appropriate level of decomposition and group.
Approach
• Capture and document all of the business capabilities that represent the full scope of what the business does today
• Organize that information in a logical manner
Either:
• **Top-down**: a top-down business capability mapping approach starts by identifying the top 20 highest-level business capabilities, each of which can decompose into more detailed levels
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Three good sources of information with which to create an initial draft of the business capability map are:
• The organizational structure
• The business model
• Current strategic, business, and financial plans

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Leveling - the number of levels (usually 3 – 6) of decomposition is limited only by the degree necessary to communicate the information required by the intended audience or to enable the business to make informed decisions about capability gaps

Summary of Module 15

The 20 Learning points covered in Module 15 are:

8.7a/d : Explain how the concepts of Architecture Levels are used to organize the Architecture Landscape.	8.8a : Explain the different levels of architecture that exist in an organization.	8.9a/b : Explain at which level an architecture is being developed and the associated level of detail expected.
8.10a : Explain the role of Architecture Building Blocks (ABBs) and when they are used.	8.11a/m : Briefly explain the guidelines and techniques that can be used during the Business Architecture phase.	

This represents 88.8% of the course coverage.

Notes:

TOGAF® Standard, 10th Edition

Modules Level 2:

00 - Course Introduction

08 - The Context for Enterprise Architecture

09 - Stakeholder Management

10 - Phase A

11 - Architecture Development

12 - Implementing the Architecture

13 - Architecture Change Management

14 - Requirements Management

- 15 - Supporting the ADM Work

16 - Closure

Notes:

End of Teaching Slides
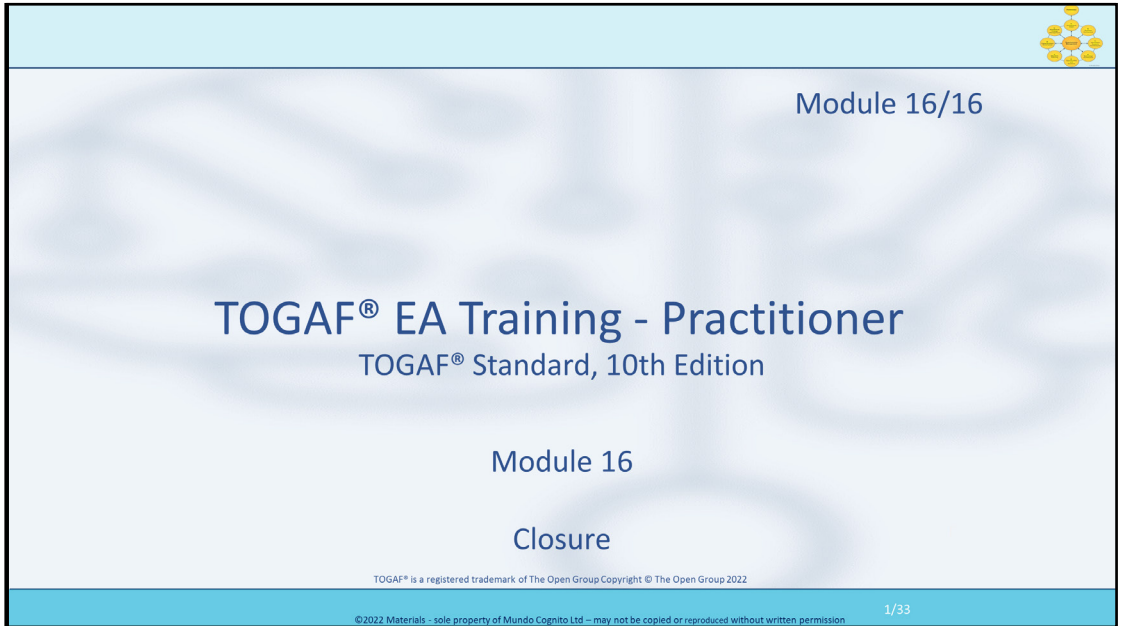
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Module 15

Supporting the ADM Work

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Module 16/16

TOGAF® EA Training - Practitioner

TOGAF® Standard, 10th Edition

Module 16

Closure

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Modules Level 2:

00 - Course Introduction

08 - The Context for Enterprise Architecture

09 - Stakeholder Management

10 - Phase A

11 - Architecture Development

12 - Implementing the Architecture

13 - Architecture Change Management

14 - Requirements Management

15 - Supporting the ADM Work

- 16 - Closure

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#	Topic – Level 1	✓
1	Module 00 - Course Introduction	✓
2	Module 01 - Overview	✓
3	Module 02 - Concepts	✓
4	Module 03 - Introduction to the ADM	✓
5	Module 04 - Introduction to the ADM - Techniques	✓
6	Module 05 – Applying ADM	✓
7	Module 06 - Architecture Governance	✓
8	Module 07 – Architecture Content	✓
#	Topic – Level 2	✓
9	Module 00 - Course Introduction	✓
10	Module 08 - The Context for Enterprise Architecture	✓
11	Module 09 – Stakeholder Management	✓
12	Module 10 – Phase A	✓
13	Module 11 – Architecture Development	✓
14	Module 12 – Implementing the Architecture	✓
15	Module 13 – Architecture Change Management	✓
16	Module 14 – Requirements Management	✓
17	Module 15 – Supporting the ADM Work	✓
18	Module 16 – Closure	✓

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Modules Level 2:

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Module Index

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Notes:

| Gap Analysis – 01/06 | Q-11.1,p31 |
| | A-1.18,p24 |

What may have been forgotten – and how to find it?

The architecture must support all of the essential information processing needs of the organization.

The most critical source of gaps - stakeholder concerns that have not been addressed in prior architectural work.

Potential sources include:
- Business domain gaps
- Financial gaps
- Data domain gaps
- Applications impacted
- Technologies impacted

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Level=2 : L.O.= 8.12a : Explain the technique of gap analysis and where it can be applied.
See: TOGAF® Standard – ADM Techniques : Page 45 : §5.1

What may have been forgotten – and how to find it?
The architecture must support all of the essential information processing needs of the organization.
The most critical source of gaps - stakeholder concerns that have not been addressed in prior architectural work.
Potential sources include:
- Business domain gaps:
  - People gaps (e.g., cross-training requirements)
  - Process gaps (e.g., process inefficiencies)
  - Tools gaps (e.g., duplicate or missing tool functionality)
  - Information gaps
  - Measurement gaps
  - Financial gaps
  - Facilities gaps (buildings, office space, etc.)
- Data domain gaps:
  - Data not of sufficient currency
  - Data not located where it is needed
  - Not the data that is needed
  - Data not available when needed
  - Data not created
  - Data not consumed
  - Data relationship gaps
- Applications impacted, eliminated, or created
- Technologies impacted, eliminated, or created

5.1 Introduction
A key step in validating an architecture is to consider what may have been forgotten.
The architecture must support all of the essential information processing needs of the organization.
The most critical source of gaps that should be considered is stakeholder concerns that have not been addressed in prior architectural work.
Potential sources of gaps include:
■ Business domain gaps:
— People gaps (e.g., cross-training requirements)
— Process gaps (e.g., process inefficiencies)
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Gap Analysis – 02/06

Suggested Steps

- Draw up a matrix with:
  - All the ABBs of the Baseline Architecture on the vertical axis
  - All the ABBs of the Target Architecture on the horizontal axis
- Add to the Baseline Architecture axis a final row labelled "New", and to the Target Architecture axis a final column labelled "Eliminated"
- Where an ABB is available in both the Baseline and Target Architectures, record this with "Included" at the intersection
- Where an ABB from the Baseline Architecture is missing in the Target Architecture, each must be reviewed:
  - If it was correctly eliminated, mark it as such in the appropriate "Eliminated" cell.
  - If it was not, an accidental omission in the Target Architecture has been uncovered that must be addressed by reinstating the ABB in the next iteration of the architecture design — mark it as such in the appropriate "Eliminated" cell.
- Where an ABB from the Target Architecture cannot be found in the Baseline Architecture, mark it at the intersection with the "New" row as a gap that needs to filled, either by developing or procuring the building block.

Anything under "Eliminated" or "New" is a Gap, which should either be explained as correctly eliminated, marked as to be addressed by reinstating, or developing/procuring the building block.

ADM Techniques : Page 46 : §5.2

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Level=2 : L.O.= 8.12b : Explain the technique of gap analysis and where it can be applied.
See: TOGAF® Standard – ADM Techniques : Page 46 : §5.2

Suggested Steps
- Draw up a matrix with:
  - all the ABBs of the Baseline Architecture on the vertical axis
  - all the ABBs of the Target Architecture on the horizontal axis
- Add to the Baseline Architecture axis a final row labeled "New", and to the Target Architecture axis a final column labeled "Eliminated"
- Where an ABB is available in both the Baseline and Target Architectures, record this with "Included" at the intersection
- Where an ABB from the Baseline Architecture is missing in the Target Architecture, each must be reviewed.
  - if it was correctly eliminated, mark it as such in the appropriate "Eliminated" cell.
  - if it was not, an accidental omission in the Target Architecture has been uncovered that must be addressed by reinstating the ABB in the next iteration of the architecture design — mark it as such in the appropriate "Eliminated" cell.
- Where an ABB from the Target Architecture cannot be found in the Baseline Architecture, mark it at the intersection with the "New" row as a gap that needs to filled, either by developing or procuring the building block.

Anything under "Eliminated" or "New" is a Gap, which should either be explained as correctly eliminated, marked as to be addressed by reinstating, or developing/procuring the building block.

5.2 Suggested Steps
The suggested steps are as follows:
■ Draw up a matrix with all the ABBs of the Baseline Architecture on the vertical axis, and all the ABBs of the Target Architecture on the horizontal axis
■ Add to the Baseline Architecture axis a final row labeled "New", and to the Target Architecture axis a final column labeled "Eliminated"
■ Where an ABB is available in both the Baseline and Target Architectures, record this with "Included" at the intersecting cell
■ Where an ABB from the Baseline Architecture is missing in the Target Architecture, each must be reviewed
If it was correctly eliminated, mark it as such in the appropriate "Eliminated" cell. If it was not, an accidental omission in the Target Architecture has been uncovered that
... CONTINUES ... SEE REFERENCE SPECIFIED

Gap Analysis – 03/06

Example analysis for Architecture Building Blocks . . .
Services from the Network Services category of the Technical Reference Model (TRM) show a number of Services from the Baseline Architecture missing from the Target.

Target → Architecture Baseline ↓	Video Conferencing	Enhanced Telephony	Mailing List services	Eliminated ↓
Broadcast				Intentionally eliminated
Video Conferencing	Included			
Enhanced Telephony		Potential Match		
Shared Screen				ERROR Gap in Target
New →		Gap – develop/produce	Gap – develop/produce	

ADM Techniques : Page 45 : §5
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Notes:

Level=2 : L.O.= 8.12b : Explain the technique of gap analysis and where it can be applied.
See: TOGAF® Standard – ADM Techniques : Page 46 : §5.2

Example analysis for Architecture Building Blocks . . .
Services from the Network Services category of the Technical Reference Model (TRM) show a number of Services from the Baseline Architecture missing from the Target.

5 Gap Analysis
The technique known as Gap Analysis is widely used in the TOGAF Architecture Development Method (ADM) to validate an architecture that is being developed. The basic premise is to highlight a shortfall between the Baseline Architecture and the Target Architecture; that is, items that have been deliberately omitted, accidentally left out, or not yet defined.
5.1 Introduction
A key step in validating an architecture is to consider what may have been forgotten. The architecture must support all of the essential information processing needs of the organization.
The most critical source of gaps that should be considered is stakeholder concerns that have not been addressed in prior architectural work.
Potential sources of gaps include:
■ Business domain gaps:
— People gaps (e.g., cross-training requirements)
— Process gaps (e.g., process inefficiencies)
— Tools gaps (e.g., duplicate or missing tool functionality)
— Information gaps
— Measurement gaps
— Financial gaps
— Facilities gaps (buildings, office space, etc.)
■ Data domain gaps:
— Data not of sufficient currency
— Data not located where it is needed
— Not the data that is needed
— Data not available when needed
— Data not created
— Data not consumed
— Data relationship gaps
■ Applications impacted, eliminated, or created
... CONTINUES ... SEE REFERENCE SPECIFIED

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Modules Level 2:

Notes:

Level=2 : L.O.= 8.12b : Explain the technique of gap analysis and where it can be applied.
See: TOGAF® Standard – ADM Techniques : Page 46 : §5.2

5.2 Suggested Steps
The suggested steps are as follows:
■ Draw up a matrix with all the ABBs of the Baseline Architecture on the vertical axis, and all the ABBs of the Target Architecture on the horizontal axis
■ Add to the Baseline Architecture axis a final row labeled "New", and to the Target Architecture axis a final column labeled "Eliminated"
■ Where an ABB is available in both the Baseline and Target Architectures, record this with "Included" at the intersecting cell
■ Where an ABB from the Baseline Architecture is missing in the Target Architecture, each must be reviewed
If it was correctly eliminated, mark it as such in the appropriate "Eliminated" cell. If it was not, an accidental omission in the Target Architecture has been uncovered that must be addressed by reinstating the ABB in the next iteration of the architecture design — mark it as such in the appropriate "Eliminated" cell.
■ Where an ABB from the Target Architecture cannot be found in the Baseline Architecture, mark it at the intersection with the "New" row as a gap that needs to filled, either by developing or procuring the building block
When the exercise is complete, anything under "Eliminated" or "New" is a gap, which should either be explained as correctly eliminated, or marked as to be addressed by reinstating or developing/procuring the building block.

5.3 Example
Figure 5-1 shows an example analysis for ABBs that are services from the Network Services category of the TOGAF Technical Reference Model (TRM), indicating that a number of services from the Baseline Architecture are missing from the Target Architecture– ADM Techniques : Page 45 : §5

Notes:

Gap Analysis – 05/06

It is good practice to continuously assess in-flight change.
Consider using summary reporting with a high visual impact.
Binary test preferred: compliance and non-compliance (Red/Green)
Else: 1-to-3 scale (Red/Yellow/Green) should be sufficient.

Example: reporting against constraints, expected value, and known gaps.

	Constraint (Architecture Principle, Architecture Requirements Specification, or Control)	Value (Best done in terms of the Enterprise's mandatory concerns)	Gap
Current state: assess what the Enterprise has	Conforms	Fails to Deliver	Not Applicable
Implementation Project: assess project, design, and implementation	Violates	Not Applicable	Filling
Roadmap, portfolio, or program: assess plans and directions	Not Applicable	Delivers	Leaving Open

8/33

Level=2 : L.O.= 8.12b : Explain the technique of gap analysis and where it can be applied.
See : TOGAF® Standard – ADM Techniques : Page 46 : §5.2

5.2 Suggested Steps
The suggested steps are as follows:
■ Draw up a matrix with all the ABBs of the Baseline Architecture on the vertical axis, and all the ABBs of the Target Architecture on the horizontal axis
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■ Where an ABB from the Target Architecture cannot be found in the Baseline Architecture, mark it at the intersection with the "New" row as a gap that needs to filled, either by developing or procuring the building block
When the exercise is complete, anything under "Eliminated" or "New" is a gap, which should either be explained as correctly eliminated, or marked as to be addressed by reinstating or developing/procuring the building block.

5.3 Example
Figure 5-1 shows an example analysis for ABBs that are services from the Network Services category of the TOGAF Technical Reference Model (TRM), indicating that a number of services from the Baseline Architecture are missing from the Target Architecture– ADM Techniques : Page 45 : §5

Notes:

Gap Analysis – 06/06

Develop Target, Baseline, and Gap enough for purpose

- o The only reason to describe the baseline is to develop gaps.

- o If stakeholders or SMEs dispute the current state, especially its fitness to objective, then describing current state to get an alignment is useful.

- o Limit description to where there is a gap.
- o If no change and/or it is not needed for traceability, why spend time describing it?

- o How to describe the current state?
- o Use the exact same techniques as the candidate - at the same level of detail to enable identification of gaps.

- o Gaps are simply '*everything that changes*'.

Þ Q-34
Level=2 : L.O.= 8.12c : Explain the technique of gap analysis and where it can be applied.
See: TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 56 : §6.3.2

6.3.2 Develop Target, Baseline, and Gap
Just enough for the purpose.
If the current state is accepted, the only reason to describe the baseline is to develop gaps. If stakeholders, or SMEs, dispute the current state, especially its fitness to objective, then describing current state to get an alignment is useful. Otherwise, let us re-iterate: only to the extent necessary to determine gaps.
Consider the limitation of restricting description to where there is a gap. If part of the EA Landscape will have no change, and is not needed for traceability, what useful reason is there for a Practitioner to spend time describing it?
A recurrent question is how to describe the current state. Frankly, use the exact same techniques as the candidate. Description using the same technique at the same level of detail enables identification of gaps. A gap is simply everything that changes.

Notes:

Iteration – 01/05

The graphical representation of the TOGAF ADM can be read to imply a deterministic waterfall methodology – this presentation is provided only for communicating the basics of architecture development.

The ADM supports two key concepts to manage the complexity — the linked concepts of iteration and levels.

o Iteration describes the process of describing a comprehensive Architecture Landscape through multiple ADM cycles

o Iteration to develop a comprehensive Architecture Landscape - projects exercise through the entire ADM cycle - output will populate the Architecture Landscape

o Iteration within an ADM cycle (Architecture Development iteration) – projects may operate multiple ADM phases concurrently and/or cycle between ADM phases

o Iteration to manage the Architecture Capability (Architecture Capability iteration) of the Preliminary Phase (re-)establishes aspects of the Architecture Capability identified in the Phase

Level=2 : L.O.= 8.13a : Explain how iteration can be used in architecture practices.
See: TOGAF® Standard – Applying the ADM : Page 3 : §2.1

The graphical representation of the TOGAF ADM can be read to imply a deterministic waterfall methodology – this presentation is provided only for communicating the basics of architecture development.
The ADM supports two key concepts to manage the complexity — the linked concepts of iteration and levels.
- Iteration describes:
  - the process of describing a comprehensive Architecture Landscape through multiple ADM cycles based upon individual initiatives bound to the scope of the Request for Architecture Work
  - the integrated process of developing an architecture where the activities of ADM phases interact
  - the process of managing change to the organization's Architecture Capability.
- Iteration to develop a comprehensive Architecture Landscape:
  - projects will exercise through the entire ADM cycle, commencing with Phase A - output will populate the Architecture Landscape by extending or changing, as required
  - separate projects operate their own ADM cycles concurrently
  - one project may trigger the initiation of another project, especially if higher-level architecture initiatives identify opportunities or solutions that require more detailed architecture
- Iteration within an ADM cycle (Architecture Development iteration) – projects may:
  - operate multiple ADM phases concurrently
  - cycle between ADM phases, in planned cycles covering multiple phases - to converge on a detailed Target Architecture
  - return to previous phases to update work products - to converge on an executable
- Iteration to manage the Architecture Capability (Architecture Capability iteration) of the Preliminary Phase :
  - to (re-)establish aspects of the Architecture Capability identified in Phase A to address a Request for Architecture Work
  - to adjust the organization's Architecture Capability as a result of identifying new or changed requirements for Architecture Capability as a result of a Change Request in Phase H

... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Iteration – 02/05

How is ADM Iteration Realized in Practice?

The ADM:
- Graphic is a stylized representation often misinterpreted as a linear waterfall model
- A logical method that places key activity steps together for the purpose of understanding the relationship of activity and clarifying information flow
- Crop-circle diagram is NOT a representation of activity sequence
- Should NOT be understood as a processes model

Any activity within the scope of the ADM:
- Is executing a Phase
- Developing the contents of the EA Landscape

Level=2 : L.O.= 8.13b : Explain how iteration can be used in architecture practices.
See: TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 40 : §5.2

How is ADM Iteration Realized in Practice?
The ADM:
- Graphic provides a stylized representation
- Often misinterpreted as a linear waterfall process model
- A logical method that places key activity steps together for the purpose of understanding relationship of activity and clarifying information flow
- Crop-circle diagram is a stylized path that demonstrates essential information flows and is NOT a representation of activity sequence
- Should NOT be understood as a processes model

Any activity within the scope of the ADM:
- Is executing a Phase
- Developing the contents of the EA Landscape

Example:
If an EA is working on roadmap development, they are exercising the steps in the TOGAF ADM Phase E.
In all ADM phases:
- Consume the mandatory inputs
- Produce the mandatory outputs
- Consider:
    - the impact on all other domains
    - the resulting set of gaps
    - the resulting set of work to clear the gap.
To address the complexity, the TOGAF Framework provides an ADM phase for each essential output.

5.2 How is ADM Iteration Realized in Practice?
An often-misunderstood element of the TOGAF framework is the ADM and the concept of iteration. The TOGAF ADM graphic provides a stylized representation that is often misinterpreted as a linear waterfall process model. This approach leads to some of the most confusing diagrams and explanations. The TOGAF ADM is a logical method that places key activity steps together for the purpose of understanding relationship of activity and clarifying information flow. The classic TOGAF crop-circle diagram is a stylized path that demonstrates essential information flow.
... CONTINUES ... SEE REFERENCE SPECIFIED

TOGAF® Standard, 10th Edition

Notes:

Iteration – 03/05

Depending on what a Practitioner is requested to develop, an architecture for the Practitioner's work plan will vary.

Consider the impact on which phases of the ADM would be used for the following requests:
1. Given that the organizational design is unmodified, what other changes would allow "moving to the cloud"?
2. What changes are required to switch from more than 50 independent companies to an integrated company?
3. What changes are required to the core claims platform to allow a 300% growth in customers and transactions?
4. Given that the ERP etc. will be kept, what are the minimum changes to support allocating labour?
5. How to integrate the acquisition with the minimum change?
6. How to enable a third-party developer's Agile approach, and Microservices?
7. How to modernize a particular platform without impacting anyone outside of IT?

Each of these requests has been addressed using the TOGAF framework, and the techniques.
Each started with a different purpose, and each traversed a distinct path that used a different configuration of the TOGAF ADM.

Level=2 : L.O.= 8.13b : Explain how iteration can be used in architecture practices.
See: TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 40 : §5.2

Depending on what a Practitioner is requested to develop, an architecture for the Practitioner's work plan will vary.

Consider the impact on which phases of the ADM would be used for the following requests:
• Given that the organizational design, customer interface, and processes are to be left unmodified, what other changes would allow "moving to the cloud"?
• What changes are required to switch from more than 50 independent organizations pursuing small projects, to an integrated company capable of organizing, and controlling, construction projects 100 times larger than the current average?
• What changes are required to the core claims platform to allow a 300% growth in customers and transactions, and enable continuous change to policy terms?
• Given that the ERP and current Finance & HR processes will be kept, what are the minimum changes to support allocating labor to capital projects?
• How to integrate the acquisition with the minimum change, while sustaining both the current high-efficiency processes and the unique capability from the acquisition?
• How to enable a third-party developer's Agile approach, and Microservices, on the customer intimacy project?
• How to modernize a particular platform without impacting anyone outside IT?

Each of these requests has been addressed using the TOGAF framework, and the techniques.
Each started with a different purpose, and each traversed a distinct path that used a different configuration of the TOGAF ADM.
The only exception is Phase A; the Practitioner must start with Phase A. An Architecture Project must be initiated.

5.2 How is ADM Iteration Realized in Practice?
An often-misunderstood element of the TOGAF framework is the ADM and the concept of iteration. The TOGAF ADM graphic provides a stylized representation that is often misinterpreted as a linear waterfall process model. This approach leads to some of the most confusing diagrams and explanations. The TOGAF ADM is a logical method that places key activity steps together for the purpose of understanding relationship of ... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Iteration – 04/05

- If an essential purpose is not needed or has already been addressed - this Architecture Project does not enter the phase.
- Commentaries in the TOGAF standard on the iteration of the ADM speak in terms of activity rather than output.
- Rather than considering iteration in terms of re-sequencing and looping, the ADM instead explores the EA Landscape.
- If the information required is available –
    • then - move on
    • or - produce the material required
- The stylized Gantt chart provides a process-oriented view of executing the ADM .
- Good EAs will explore impacts and address stakeholder concerns across the entire architecture.
- When the plan in the stylized Gant chart is applied to each purpose, the Practitioner continually revisits the required phases.

Level=2 : L.O.= 8.13c : Explain how iteration can be used in architecture practices.
See: TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 43 : §5.2.3

- If an essential purpose is not needed or has already been addressed, then this Architecture Project does not enter the phase.
- Commentaries in the TOGAF Standard on the iteration of the ADM speak in terms of activity rather than output and address the point that if the EA does not have the information then it must be produced.
- Rather than considering iteration in terms of re-sequencing and looping the ADM, instead explore the EA Landscape.
- If the information required is available:
    • then - move on
    • else - produce the material required
- The stylized Gantt chart provides a process-oriented view of executing the ADM – it highlights that many of the steps in the ADM phases can be executed simultaneously.
- Good EAs will explore impacts and address stakeholder concerns across the entire architecture.
- When the plan in the stylized Gant chart is applied to each purpose, it becomes clear that the Practitioner continually revisits the required phases, at the appropriate level of detail.

5.3.2 Iteration
The ADM provides a model of activity that supports producing the essential output by producing one or more work products. The central question determines whether there is a need for the essential purpose of a phase on a particular Architecture Project. If so, you will enter the phase at some point in time. If the essential purpose is not needed or has already been addressed, then this Architecture Project does not enter the phase.
Most commentary in the TOGAF standard on the iteration of the ADM is designed to address the point that if the Practitioner does not have the information at hand in the EA Landscape, the information must be produced. These commentaries speak in terms of activity rather than output. Instead of considering iteration in terms of re-sequencing and looping the ADM, the Practitioner should explore the EA Landscape. If the information required, in terms of subject, detail, time, and recency is available – move on. If not, produce the material required. To produce material, the Practitioner is exercising a TOGAF ADM phase. The ADM phases stay open to address the information required; once it is provided they close. Also, regardless of where the Practitioner is in ... CONTINUES ... SEE REFERENCE SPECIFIED

Iteration – 05/05

o   Normal problem-solving models provide linear approaches with step gates.

o   They do not represent how people actually solve problems.

o   The figure from Jeff Conklin's *Wicked Problems & Social Complexity within Dialog Mapping* outlines a standard linear problem solving progression and how professionals typically address a problem.

o   The non-linear pattern of activity that expert designers go through, "wandering all over" is the mark of an intelligent and creative learning process.

o   Iteratively considering whether the high-level direction makes sense is a best practice.

o   Developing an EA is a team sport with specialist positions - the team has to play the same game at the same time.

o   All iteration is driven by the information needs of the current project.

o   It is dependent upon the timing of completion.
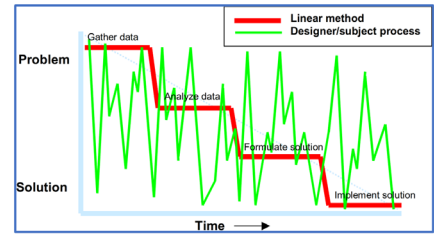
Problem Solving Approach (Derived from Conklin's "Wicked Problems")
http://cognexus.org/wpf/wickedproblems.pdf

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Notes:

Þ Q-35
Level=2 : L.O.= 8.13c : Explain how iteration can be used in architecture practices.
See: TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 43 : §5.2.3

Most of the normal problem-solving models provide linear approaches with step gates. The linear approach helps us understand the process, and may represent the business cycle stage gates. However, they do not represent how people actually solve problems. Figure 11 is derived from Jeff Conklin's Wicked Problems & Social Complexity within Dialog Mapping (see Referenced Documents), and outlines a standard linear problem solving progression and how professionals typically address a problem. Testing the concept and potential implementation interactively is a best practice. Iteratively considering whether the high-level direction makes sense in terms of execution, and does execution make sense in terms of high-level direction?
Figure 11: Problem Solving Approach (Derived from Conklin's "Wicked Problems")

All iteration is driven by the information needs of the current project. The process created is not dependent upon the work the EA Capability undertakes to produce, but the timing of completion. The essential question is when an EA Capability must deliver specific work products. Table 3 provides a summary of work products that are actively consumed by key Enterprise processes.

Implementation Factor Catalog – 01/03

Implementation Factor Catalog

The technique for creating an Implementation Factor Catalog can be used to document factors impacting the Architecture Implementation and Migration Plan.
The Catalog should include:
  o A list of the factors to be considered
  o Their descriptions
  o The deductions which indicate the actions or constraints that have to be taken into consideration when formulating the plans.

Factors typically include:
  o Risks
  o Issues
  o Assumptions
  o Dependencies
  o Actions
  o Impacts

Implementation Factor Catalog		
Factor	Description	Deduction
<Name of Factor>	<Description of Factor>	<Impact on Migration Plan>
Change in Technology	Shut down the message centers, saving 700 personnel, and have them replaced by email.	• Need for personnel training, re-assignment • Email has major personnel savings and should be given priority
Consolidation of Services		
Introduction of New Customer Service		

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ADM Techniques : Page 49 : §6.1
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Notes:

Level=2 : L.O.= 8.14a : Describe how the Implementation Factor Catalog can be used:
See: TOGAF® Standard – ADM Techniques : Page 49 : §6.1

Implementation Factor Catalog
The technique of creating an Implementation Factor Catalog can be used to document factors impacting the architecture Implementation and Migration Plan.

The catalog should include:
• List of the factors to be considered
• Their descriptions
• The deductions that indicate the actions or constraints that have to be taken into consideration when formulating the plans.

Factors typically include:
  • Risks
  • Issues
  • Assumptions
  • Dependencies
  • Actions
  • Impacts

6.1 Implementation Factor Catalog
The technique of creating an Implementation Factor Catalog can be used to document factors impacting the architecture Implementation and Migration Plan.
The catalog should include a list of the factors to be considered, their descriptions, and the deductions that indicate the actions or constraints that have to be taken into consideration when formulating the plans.
Factors typically include:
■ Risks
■ Issues
■ Assumptions
■ Dependencies
■ Actions
■ Impacts
An example catalog is shown in Figure 6-1.
Change in Technology Shut down the message centers, saving 700 personnel, and have them replaced by email.
• Need for personnel
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Implementation Factor Catalog – 02/03

Consolidated Gaps, Solutions, & Dependencies Matrix

- o The working analysis may be conveniently re-presented as shown here.
- o This is a convenient form when mapping potential [COT] solutions.
- o This matrix can be used as a planning tool when creating work packages.

No.	Architecture	Gap	Potential Solutions	Dependencies
1	Business	New Order Processing Process	Use COTS software tool process Implement custom solution	Drives applications (2)
2	Application	New Order Processing Application	COTS software tool X Develop in-house	
3	Information	Consolidated Customer Information Base	Use COTS customer base Develop customer data mart	

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Identified dependencies will drive the creation of projects and migration planning in Phases E and F.

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Þ Q-59
Level=2 : L.O.= 8.14a : Describe how the Implementation Factor Catalog can be used:
See: TOGAF® Standard – ADM Techniques : Page 49 : §6.1

Implementation Factor Catalog
The technique of creating an Implementation Factor Catalog can be used to document factors impacting the architecture Implementation and Migration Plan.
The catalog should include:
- • List of the factors to be considered
- • Their descriptions
- • The deductions that indicate the actions or constraints that have to be taken into consideration when formulating the plans.

Factors typically include:
- • Risks
- • Issues
- • Assumptions
- • Dependencies
- • Actions
- • Impacts

Notes:

Implementation Factor Catalog – 03/03

Architecture Definition Increments Table

Allows the architect to plan a series of Transition Architectures outlining the status of the Enterprise Architecture at specified times.

Architecture Definition – Project Objectives by Increment - Example					
Project	**April – Year1/2** Transition Architecture 1: Preparation	**April – Year 3** Transition Architecture 2: Initial Operational Capability	**April – Year 4** Transition Architecture 1: Benefits	**Comments**	
Enterprise e-Services Capability	Training and Business Process	E-Licensing Capability	e-Employment Benefits		
IT e-Forms	Design and Build				
IT e-Information Environment	Design and Build Information Environment	Client Common Data Web Content Design and Build	Enterprise Common Data Component Management Design and Build		
…	…	…	…	…	

The Table

o Lists the projects
o Assigns their incremental deliverables…

across the Transition Architectures.

ADM Techniques : Page 50 : §6

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Level=2 : L.O.= 8.14a : Describe how the Implementation Factor Catalog can be used:
See: TOGAF® Standard – ADM Techniques : Page 49 : §6.1

Implementation Factor Catalog
The technique of creating an Implementation Factor Catalog can be used to document factors impacting the architecture Implementation and Migration Plan.
The catalog should include:
• List of the factors to be considered
• Their descriptions
• The deductions that indicate the actions or constraints that have to be taken into consideration when formulating the plans.

Factors typically include:
• Risks
• Issues
• Assumptions
• Dependencies
• Actions
• Impacts

Notes:

Content Metamodel – 01/02

TOGAF Content Framework and Enterprise Metamodel

An essential task when establishing the enterprise-specific Enterprise Architecture capability in the Preliminary Phase of the ADM is to define:
○ A categorization framework used to structure:
- the Architecture Descriptions*
- the work products used to express an architecture*
- the collection of models that describe the architecture*
- understanding of the types of entities
- the relationships between them in order to create the Architecture Description in the form of a formal model
○ The specific artifacts to be developed

The Content Framework chosen is likely to be influenced by:
  ○ The Architecture Framework selected
  ○ The chosen software tool

The Content Framework
○ Classifies the information required to simply describe 'the real world'
○ Covers the enterprise content meta-model
○ Indicates how your enterprise describes its architecture

* This is referred to as the Content Framework

Architecture Content : Page 3 : §1.2

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Level=2 : L.O.= 8.15a : Explain the need for a content metamodel/modeling and how it relates to the ACF
See: TOGAF® Standard – Architecture Content : Page 3 : §1.2

TOGAF Content Framework and Enterprise Metamodel

An essential task when establishing the enterprise-specific Enterprise Architecture Capability in the Preliminary Phase of the ADM is to define:
- A categorization framework to be used to structure:
  - the Architecture Descriptions*
  - the work products used to express an architecture*
  - the collection of models that describe the architecture*
  - understanding of the types of entities within the enterprise
  - the relationships between them that need to be:
    - ☐ captured
    - ☐ stored
    - ☐ analyzed
  - in order to create the Architecture Description in the form of a formal model.
- The specific artifacts to be developed

The Content Framework chosen is likely to be influenced by:
  - The Architecture Framework selected as the basis for the Enterprise Architecture Capability
  - The chosen software tool used to support the Enterprise Architecture Capability
The Content Framework:
  - Classifies the information required to simply describe 'the real world'
  - Covers the enterprise content meta-model
  - Indicates how your enterprise describes its architecture

1.2 TOGAF Content Framework and Enterprise Metamodel
1.2.1 Overview
The TOGAF ADM provides lifecycle management to create and manage architectures within an enterprise. At each phase within the ADM, a discussion of inputs, outputs, and steps describes a number of architecture work products.
An essential task when establishing the enterprise-specific Enterprise Architecture Capability in the Preliminary Phase of the ADM is to define:
■ A categorization framework to be used to structure the Architecture Descriptions,
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Content Metamodel – 02/02

An Enterprise Metamodel provides value in several ways:
- It gives architects a starter set of the types of thing to investigate and to cover in their models.
- It provides a form of completeness-check for any architecture modeling language, or architecture metamodel, that is proposed for use in an enterprise - namely, how completely does it handle the types of entity in the Enterprise Metamodel and manage required facts about them such as their attributes and relationships?

Note that the TOGAF Standard does not aim to constrain the:
- Selection of artifacts
- Modeling notation(s) such as:
  - ArchiMate®modeling language
  - Business Process Modeling Notation™ (BPMN™)
  - Unified Modeling Language™ (UML®)
  - Entity relationship diagramming
  - Flowcharting
  - Or any other notation

The types of entity within an enterprise, and the relationships between them, are specific to the individual enterprise.
NB. Many software products designed to support the recording of Enterprise Architectures created using the ADM, use the Metamodel as a basis for 'completeness-checking'.

Architecture Content : Page 3 : §1.2
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Level=2 : L.O.= 8.15a : Explain the need for a content metamodel/modeling and how it relates to the ACF
See: TOGAF® Standard – Architecture Content : Page 3 : §1.2

An Enterprise Metamodel provides value in several ways:
- It gives architects a starter set of the types of thing to investigate and to cover in their models
- It provides a form of completeness-check for any architecture modeling language, or architecture metamodel, that is proposed for use in an enterprise - namely, how completely does it handle the types of entity in the Enterprise Metamodel and manage required facts about them such as their attributes and relationships?

Note that the TOGAF Standard does not aim to constrain the:
- Selection of artifacts
- Modeling notation(s) such as:
  - ArchiMate®modeling language
  - Business Process Modeling Notation™ (BPMN™)
  - Unified Modeling Language™ (UML®)
  - Entity relationship diagramming
  - Flowcharting
  - Or any other notation

The types of entity within an enterprise, and the relationships between them, are specific to the individual enterprise.
Developing a high-quality metamodel is an important aspect of establishing the Enterprise Architecture Capability.
Many of the software products designed to support the recording of Enterprise Architectures, created using the ADM, use the Metamodel as a basis for 'completeness-checking'.

1.2 TOGAF Content Framework and Enterprise Metamodel
1.2.1 Overview
The TOGAF ADM provides lifecycle management to create and manage architectures within an enter prise. At each phase within the ADM, a discussion of inputs, outputs, and steps describes a number of architecture work products.
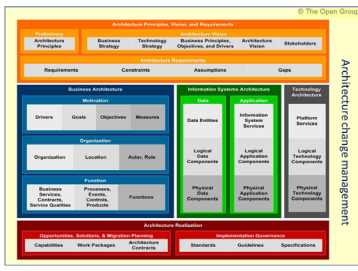An essential task when establishing the enterprise-specific Enterprise Architecture Capability in the Preliminary Phase of the ADM is to define:
■ A categorization framework to be used to structure the Architecture Descriptions, the work
... CONTINUES ... SEE REFERENCE SPECIFIED

Notes:

Modeling Approaches

Reference Model & Reference Architecture	Use
4+1 Architectural View Model	Can be used in architecture to support solution delivery. The four views of the model are logical, development, process, physical view, and use-case. Provides a nice simplified list of what you need to know and describe.
The ArchiMate Standard	Excellent fit for architecture to support solution delivery. Good fit for architecture to support project.
Business Model Canvas	Use is entirely driven by the scope of the value proposition. Commonly used for architecture to support portfolio and architecture to support project.
Business Motivation Model (BMM)	Simplified, is useful for architecture to support project. Can be used for architecture to support portfolio BMCs.
Business Process Model and Notation (BPMN)	Can be used for architecture to support solution delivery. Limited fit for analysis required in architecture.
Kaplan Strategy Map	Good for representing final strategy.

20/33

Level=2 : L.O.= 8.15b : Explain the need for a content metamodel/modeling and how it relates to the ACF
See: TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 116 : §A

A Partial List of Modeling Approaches
Table 11 provides a list of modeling approaches. These examples are provided as a starting point for a Practitioner who needs to consistently describe some part of an Enterprise.
The EA community is filled with involved discussions of the distinction between language, notation, model kind, and model type. Such fine-grained distinctions are normally not useful. What is useful is describing something consistently.
These approaches may have a formal or informal metamodel, notation, or supporting method.
Table 11: List of Useful Modeling Approaches

Notes:

Content Framework – 01/06

The Content Framework is a companion to the ADM.

o The ADM:
  • Will address a business need
  • Describes the process of moving from a baseline state to a target state of the enterprise
  • Describes what needs to be done to create an architecture

o The Content Framework:
  • Describes what the architecture should look like once it is done
  • Provides an underlying structure
  • Defines inputs and outputs
  • Puts each deliverable into context

Architecture Content : Page 7 : §1.3
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Level=2 : L.O.= 8.16a : Explain when the ACF needs to be filled throughout the ADM cycles.
See: TOGAF® Standard – Architecture Content : Page 7 : §1.3

The Content Framework is a companion to the ADM

• The ADM:
  • will address a business need
  • describes the process of moving from a baseline state of the enterprise to a target state of the enterprise
  • describes what needs to be done to create an architecture
• The Content Framework:
  • describes what the architecture should look like once it is done
  • provides an underlying structure
  • defines inputs and outputs
  • puts each deliverable into context

1.3 Content Framework and the TOGAF ADM
The TOGAF ADM describes the process of moving from a baseline state of the enterprise to a target state of the enterprise. The ADM will address a business need through a process of visioning, architecture definition, transformation planning, and Architecture Governance. At each stage in this process, the ADM requires information as inputs and will create outputs as a result of executing a number of steps. The Content Framework provides an underlying structure for the ADM that defines inputs and outputs in more detail and puts each deliverable into the context of the holistic architecture view of the enterprise.
The Content Framework should therefore be used as a companion to the ADM. The ADM describes what needs to be done to create an architecture and the Content Framework describes what the architecture should look like once it is done.

Notes:

Content Framework – 02/06

○ Every journey through the TOGAF ADM is:
  - Customized/optimized for an EA Capability
  - Easily adapted to other Architecture Projects
○ Effective iteration of the ADM is not linear.

Topic	Mapping to TOGAF ADM Phase
Architecture Governance	Partial Segment/Capability Level Phase B
Alignment with Other Framework	Partial Capability Level Phase B & Partial Phase C (Data)
Customization of Architecture Contents and Metamodel	Capability Level Phase C (Data)
Organization Model for the EA Team	Partial Capability Level Phase B
Process Model	Partial Capability Level Phase B Capability Level Phase C (App) and Capability Level Phase D
Create the EA Capability	Capability Level Phase E Create roadmap highlighting development of EA Capability
Establishing and Evolving the EA Capability	Capability Level Phase F and Capability Level Phase G

22/33

Level=2 : L.O.= 8.16b : Explain when the ACF needs to be filled throughout the ADM cycles.
See: TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 124 : §E

- Every journey through the TOGAF ADM is:
  - customized/optimized for an EA Capability
  - easily adapted to other Architecture Projects
- Effective iteration of the ADM is not linear.

E. Another ADM Journey: Leader's Guide Capability-Based Planning Journey
This Guide has focused on aligning use of the TOGAF standard to support four primary purposes driving the development of an EA. The journeys described in Chapters 7, 8, 9, and 10 provide purpose-specific journeys.
Practitioners will face many journeys through the ADM.
Table 15 is from the TOGAF® Leader's Guide to Establishing and Evolving an EA Capability (see Referenced Documents). It outlines a customized journey through the TOGAF ADM that is optimized for an EA Capability; it is easily adapted to other capability-based planning Architecture Projects.
As always, Practitioners identify the information they need to know in order to answer the question at hand. These answers either inform the next question and/or support a decision. Effective iteration of the ADM is not linear.

Notes:

Content Framework – 03/06

TOGAF Enterprise Metamodel
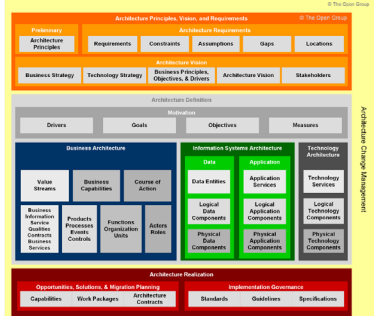
Captures the entities and relationships that are likely to be encountered in the majority of enterprises.

This may be used as the basis for:
- o Developing an Organization-Specific Metamodel
  - When establishing the Enterprise Architecture Capability in the Preliminary Phase
  - And provides the context for the specific artifacts referenced in the descriptions of the ADM

When developing an Organization-Specific Metamodel, architects may choose **not** to include:
- o Entities and relationships from the TOGAF Enterprise Metamodel which are not relevant
- o And/or add additional entities and relationships

Architecture Content : Page 9 : §2.2

23/33

Level=2 : L.O.= 8.17a : Describe the usage of an enterprise metamodel using the TOGAF Enterprise Metamodel as an example.
See: TOGAF® Standard – Architecture Content : Page 9 : §2.2

TOGAF Enterprise Metamodel
Captures the entities and relationships that are likely to be encountered in the majority of enterprises.
This may be used as the basis for:
- Developing an Organization-Specific Metamodel when establishing the Enterprise Architecture Capability in the Preliminary Phase
- Providing the context for the specific artifacts referenced in the descriptions of the ADM.

When developing an Organization-Specific Metamodel, architects may choose **not** to include:
- Entities and relationships from the TOGAF Enterprise Metamodel which are not relevant
- And/or add additional entities and relationships

2.2 TOGAF Enterprise Metamodel Vision
The TOGAF Standard includes the TOGAF Enterprise Metamodel which captures the entities and relationships that are likely to be encountered in the majority of enterprises. This may be used as the basis for developing an Organization-Specific Metamodel when establishing the Enterprise Architecture Capability in the Preliminary Phase and also provides the context for the specific artifacts referenced in the descriptions of the ADM phases and described in detail in Chapter 3.
When developing an Organization-Specific Metamodel, architects may choose not to include entities and relationships from the TOGAF Enterprise Metamodel which are not relevant and/or add additional entities and relationships.
This section provides an overview of the TOGAF Enterprise Metamodel. Subsequent sections discuss each area of the metamodel in more detail.

Notes:

Content Framework – 04/06

TOGAF Enterprise Metamodel

The TOGAF Enterprise Metamodel includes a set of entities* that allow architectural concepts to be:
- o Captured
- o Stored
- o Filtered
- o Queried
- o Represented

in a way that supports
- o Consistency
- o Completeness
- o Traceability

The categorization mechanism of the Content Framework, as a taxonomy, may be used to structure a representation of the TOGAF Enterprise Metamodel – see relationships above between Entities in the TOGAF Enterprise Metamodel.

*see: Architecture Content : Page 12 : §2.4

Þ Q-37
Level=2 : L.O.= 8.18a : Explain the use of a taxonomy.
See: TOGAF® Standard – Architecture Content : Page 9 : §2.2

TOGAF Enterprise Metamodel
The TOGAF Enterprise Metamodel includes a set of entities* that allow architectural concepts to be:
- Captured
- Stored
- Filtered
- Queried
- Represented

in a way that supports:
- Consistency
- Completeness
- Traceability

The categorization mechanism of the Content Framework, as a taxonomy, may be used to structure a representation of the TOGAF Enterprise Metamodel – above see relationships between Entities in the TOGAF Enterprise Metamodel.

2.2.1 Overview of the TOGAF Enterprise Metamodel
The TOGAF Enterprise Metamodel includes a set of entities, defined in Section 2.4, that allow architectural concepts to be captured, stored, filtered, queried, and represented in a way that supports consistency, completeness, and traceability.
The categorization mechanism of the Content Framework may be used to structure a representation of the TOGAF Enterprise Metamodel, as shown in Figure 2-1.

TOGAF® Standard, 10th Edition

Notes:

Content Framework – 05/06

Capability-Based Planning Journey - sample

A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 124 : §E
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Level=2 : L.O.= 8.16b : Explain when the ACF needs to be filled throughout the ADM cycles.
See: TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 124 : §E

This Guide has focused on aligning use of the TOGAF Standard to support four primary purposes driving the development of an EA. The journeys described in Chapters 7, 8, 9, and 10 provide purpose-specific journeys.
Practitioners will face many journeys through the ADM.
Table 15 is from the TOGAF® Leader's Guide to Establishing and Evolving an EA Capability (see Referenced Documents). It outlines a customized journey through the TOGAF ADM that is optimized for an EA Capability; it is easily adapted to other capability-based planning Architecture Projects.
As always, Practitioners identify the information they need to know in order to answer the question at hand. These answers either inform the next question and/or support a decision. Effective iteration of the ADM is not linear.
Table 15: Mapping EA Capability Development with ADM Phases

TOGAF® Standard, 10th Edition

Notes:

Content Framework – 06/06

Topic	Mapping to TOGAF ADM Phase
Process Model	Partial Capability Level Phase B Capability Level Phase C (App) and Capability Level Phase D For the Enterprise: • Process model highlighting touch-points between EA Capability and Enterprise processes the EA Capability supports[4] • 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 Applications Architecture • Process and Architecture Repository gap and priority roadmap
Create the EA Capability	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 For the EA Capability: • Execute the Implementation & Migration Plan to build the EA Capability the Enterprise desires

26/33

Level=2 : L.O.= 8.16b : Explain when the ACF needs to be filled throughout the ADM cycles.
See: TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM : Page 124 : §E

This Guide has focused on aligning use of the TOGAF standard to support four primary purposes driving the development of an EA. The journeys described in Chapters 7, 8, 9, and 10 provide purpose-specific journeys.
Practitioners will face many journeys through the ADM.
Table 15 is from the TOGAF® Leader's Guide to Establishing and Evolving an EA Capability (see Referenced Documents). It outlines a customized journey through the TOGAF ADM that is optimized for an EA Capability; it is easily adapted to other capability-based planning Architecture Projects.
As always, Practitioners identify the information they need to know in order to answer the question at hand. These answers either inform the next question and/or support a decision. Effective iteration of the ADM is not linear.
Table 15: Mapping EA Capability Development with ADM Phases

Notes:

Risk Assessment – 01/05

Effect is assessed using:

Catastrophic: Infers critical financial loss that could result in bankruptcy of the organization
Critical: Infers serious financial loss in more than oneline of business leading to a loss in productivity and no ROI
Marginal: Infers a minor financial loss, a reduced ROI
Negligible: Infers a minimal impact on a line of business

Frequency is assessed as:

Frequent: Likely to occur very often and/or continuously
Likely: Occurs several times over the course of a cycle
Occasional: Occurs sporadically
Seldom: Remotely possible and probably occur not more than once
Unlikely: Will probably not occur

These are combined using a heuristically-based but consistent classification such as:
Extremely High Risk (E): The transformation effort will fail with severe consequences
High Risk (H): Significant failure of parts of the transformation effort resulting in certain goals not being achieved
Moderate Risk (M): Noticeable failure of parts of the transformation effort threatening the success of certain goals
Low Risk (L): Certain goals will not be wholly successful

Corporate Risk Impact Assessment					
	Frequency				
Effect	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal	H	M	M	L	L
Negligible	M	L	L	L	L

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ADM Techniques : Page 68 : §9.4

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Level=2 : L.O.= 8.19a : Explain how risk assessment can be used.
See: TOGAF® Standard – ADM Techniques : Page 68 : §9.4

9.4 Initial Risk Assessment
The next step is to classify risks with respect to effect and frequency in accordance with scales used within the organization. Combine effect and frequency to come up with a preliminary risk assessment.
There are no hard and fast rules with respect to measuring effect and frequency. The following guidelines are based upon existing risk management best practices.

Effect could be assessed using the following example criteria:
■ **Catastrophic** infers critical financial loss that could result in bankruptcy of the organization
■ **Critical** infers serious financial loss in more than one line of business leading to a loss in productivity and no return on investment on the IT investment
■ **Marginal** infers a minor financial loss in a line of business and a reduced return on investment on the IT investment
■ **Negligible** infers a minimal impact on a line of business' ability to deliver services and/or products

Frequency could be indicated as follows:
■ **Frequent**: likely to occur very often and/or continuously
■ **Likely**: occurs several times over the course of a transformation cycle
■ **Occasional**: occurs sporadically
■ **Seldom**: remotely possible and would probably occur not more than once in the course of a transformation cycle
■ **Unlikely**: will probably not occur during the course of a transformation cycle

Combining the two factors to infer impact would be conducted using a heuristically-based but consistent classification scheme for the risks. A potential scheme to assess corporate impact could be as follows:
■ **Extremely High Risk (E)**: the transformation effort will most likely fail with severe consequences
■ **High Risk (H)**: significant failure of parts of the transformation effort resulting in certain goals not being achieved
■ **Moderate Risk (M)**: noticeable failure of parts of the transformation effort threatening the success of certain goals
■ **Low Risk (L)**: certain goals will not be wholly successful
These impacts can be derived using a classification scheme, as shown in Figure 9-1.

Notes:

Risk Assessment – 02/05

Security

Is often seen as a predecessor of risk but can also be considered a strategic proposition from an overall perspective.
While risk is purely based on assumptive probability, security is a fact and a direct action arising out of risk (assumptive probability).

Classically - 3 core pillars – known as the CIA Triad:
- Confidentiality
- Integrity
- Availability
but these are imprecise terms.

TOGAF commends the SABSA Business Attribute model:
- Expresses the security concerns of the business owners
- Allows for measurement of efficacy - in relation to the risk it mitigates
- Based on the asset value

The question to be answered by risk evaluation:
"Is it secure enough?"...

- Asset Protection – the protection of information assets from loss or unintended disclosure, and resources from unauthorized and unintended use.
- Risk Assessment – determining what risks we face according to the organization's risk appetite
- Access Control – who are you and what activity are you allowed to do under which conditions?
- Audit – does the operational environment operate in accordance with the requirements?
- Availability – the ability to function without service interruption or depletion despite abnormal or malicious events.

Level=2 : L.O.= 8.19b : Explain how risk assessment can be used.
See: TOGAF® Series Guide: Integrating Risk and Security within a TOGAF® Enterprise Architecture : Page 12 : §3.2.1

Security
Often seen as a predecessor of risk but can also be considered a strategic proposition from an overall perspective.
While risk is purely based on assumptive probability, security is a fact and a direct action arising out of risk (assumptive probability).

Classically - 3 core pillars – known as the CIA triad:
- Confidentiality
- Integrity
- Availability
but these are imprecise terms.

TOGAF commends the SABSA Business Attribute model:
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- Based on the asset value.

The question to be answered by risk evaluation:
"Is it secure enough?"..
- Asset Protection – the protection of information assets from loss or unintended disclosure, and resources from unauthorized and unintended use
- Risk Assessment – determining what risks we face, measuring them to determine their likelihood and impact, and then accepting, mitigating, or transferring the risk according to the organization's risk appetite
- Access Control – who are you and what activity are you allowed to do under which conditions?
- Audit – does the operational environment operate in accordance with the requirements?
- Availability – the ability to function without service interruption or depletion despite abnormal or malicious event

3.2.1 Security
For many security practitioners, security is based on three core pillars: Confidentiality, Integrity, and Availability – also known as the CIA triad. These work pretty well in a technical environment where information systems need to be classified in order
... CONTINUES ... SEE REFERENCE

Notes:

Risk Assessment – 03/05

Risk Assessment

Although the "TOGAF® Standard – ADM Techniques (Initial Risk Assessment)" describes one method of administrating the result of a risk assessment - the actual act of assessing risk and the ways to do that are not described.

Therefore, this concept is augmented by the document "TOGAF® Series Guide: Integrating Risk and Security within a TOGAF® Enterprise Architecture"

The risk assessment is the activity of determining the risks that are relevant to an asset or objective:

o Qualitative - delivers a listing of relevant risk scenarios with a high-level prioritization (high-medium-low).

o Quantitative – looks for a numeric determination of the risk.

Commonly based on:

o Identified threats

o Their likelihood of materializing

o The impact of an incident

A deliverable from a risk assessment is the Business Risk Model.

Level=2 : L.O.= 8.19c : Explain how risk assessment can be used.
See: TOGAF® Series Guide: Integrating Risk and Security within a TOGAF® Enterprise Architecture : Page 21 : §5.3.4

Risk Assessment
Although the "TOGAF® Standard – ADM Techniques (Initial Risk Assessment)" describes one method of administrating the result of a risk assessment, the actual act of assessing risk and the ways to do that are not described.
Therefore, this concept is augmented by the document "TOGAF® Series Guide: Integrating Risk and Security within a TOGAF® Enterprise Architecture"

The risk assessment is the activity of determining the risks that are relevant to an asset or objective:
- Qualitative - delivers a listing of relevant risk scenarios with a high-level prioritization (high-medium-low),
- Quantitative - seeks for numeric determination of the risk.
Commonly based on:
- Identified threats
- Their likelihood of materializing
- The impact of an incident

A deliverable of a risk assessment is the Business Risk Model.

5.3.4 Risk Assessment
Location in the Architecture Framework: Enterprise Security Architecture: ERM.
Although the TOGAF Standard – ADM Techniques (Initial Risk Assessment) describes one method of administrating the result of a risk assessment, the actual act of assessing risk and the ways to do that are not described. Therefore, this concept is augmented by this document for use with the TOGAF Standard.
A risk assessment is the activity of determining the risks that are relevant to an asset or objective. A qualitative risk assessment delivers a listing of relevant risk scenarios with a high-level prioritization (high-medium-low), whereas a quantitative approach seeks for numeric determination of the risk. This is commonly based on identified threats, their likelihood of materializing, and the impact of an incident. A deliverable of a risk assessment is the Business Risk Model.

Notes:

Risk Assessment – 04/05

Risk Mitigation Plan

In the TOGAF Standard, Risk Mitigation is done for transition risks:
- ○ It is not explained how this should be created
- ○ Or what possible risk mitigation strategies there are

The document "TOGAF® Series Guide: Integrating Risk and Security within a TOGAF® Enterprise Architecture" provides additional guidance on this issue.

The Risk Mitigation Plan:
- ○ Contains activities to mitigate risks
- ○ Is the implementation of the risk mitigation strategy – which:
  - • Increases the level of control
  - • Transfers the risk to another party
  - • Avoids the risk by changing the business activity
  - • Delays the risk
  - • Compensates for the risk, etc.

The broader sense of risk is addressed by the ERM process in Phase E and includes the latest information on security risks identified during Phase B.

Phase E is where the risks get "solutioned" or "treated".

The Risk Mitigation Plan should also consider risks that appear as a result of the new architecture.

Level=2 : L.O.= 8.19d : Explain how risk assessment can be used.
See: TOGAF® Series Guide: Integrating Risk and Security within a TOGAF® Enterprise Architecture : Page 25 : §5.6.1

Risk Mitigation Plan

In the TOGAF Standard, Risk Mitigation is done for transition risks:
- • It is not explained how this should be created
- • Or what possible risk mitigation strategies there are

"TOGAF® Series Guide: Integrating Risk and Security within a TOGAF® Enterprise Architecture" provides additional guidance on this issue.

The Risk Mitigation Plan contains:
- • Activities to mitigate risks
- • The implementation of the risk mitigation strategy - which can:
  - • increase the level of control
  - • transfer the risk to another party
  - • avoid the risk by changing the business activity
  - • delay the risk
  - • compensate for the risk, etc.

The broader sense of risk is addressed by the ERM process in Phase E and includes the latest information on security risks identified during Phase B.

Phase E is where the risks get "solutioned" or "treated".

The Risk Mitigation Plan should also consider risks that appear as a result of the new architecture.

5.6.1 Risk Mitigation Plan

Location in the Architecture Framework: Enterprise Security Architecture: ERM.

Note: In the TOGAF Standard <Identifier>, risk mitigation is done for transition risks, but it is not explained how this should be created or what possible risk mitigation strategies there are, so this document provides additional guidance on this issue.

The Risk Mitigation Plan contains activities to mitigate risks. It is the implementation of the risk mitigation strategy, which could aim to increase the level of control, transfer the risk to another party, avoid the risk by changing the business activity, delay the risk, compensate for the risk, etc.

The broader sense of risk is addressed by the ERM process in this phase. The scope includes the latest information security risks as identified during the risk assessments that are done earlier in the ADM (in Phase B). This is where the risks get "solutioned" or "treated". The Risk Mitigation Plan should also consider risks that appear as a result of the new architecture.

Risk Assessment – 05/05

Phase F: Migration Planning

Migration is itself a business process that needs to be secured.
It includes:
- A risk assessment
- A Risk Mitigation Plan

The Risk Mitigation Plan is limited to the transition.

These concepts have already been mentioned in earlier phases of the ADM.

Migration of live environments always includes:
- Regression planning so that there is a way to reverse out a failed migration - an essential part of risk management.
- A security impact analysis to understand any security impacts of the target state of the change.

Notes:

Þ Q-39
Level=2 : L.O.= 8.19e : Explain how risk assessment can be used.
See: TOGAF® Series Guide: Integrating Risk and Security within a TOGAF® Enterprise Architecture : Page 25 : §5.7

Phase F: Migration Planning
Migration is itself a business process that needs to be secured.
Includes:
- A risk assessment
- A Risk Mitigation Plan

The Risk Mitigation Plan is limited to the transition.
These concepts have already been mentioned in earlier phases of the ADM.

Migration of live environments always includes:
- Regression planning so that there is a way to reverse out a failed migration - an essential part of risk management
- A security impact analysis to understand any security impacts of the target state of the change.

5.7 Phase F: Migration Planning
Migration is itself a business process that needs to be secured. The migration strategy should include a risk assessment and a Risk Mitigation Plan. In Phase F, the Risk Mitigation Plan is limited to the transition. These concepts have already been mentioned in earlier phases of the ADM. Migration of live environments should always include regression planning so that there is a way to reverse out a failed migration. This is an essential part of risk management.
In addition, migration planning should include a security impact analysis to understand any security impacts of the target state of the change.

Modules Level 2:

00 - Course Introduction

08 - The Context for Enterprise Architecture

09 - Stakeholder Management

10 - Phase A

11 - Architecture Development

12 - Implementing the Architecture

13 - Architecture Change Management

14 - Requirements Management

15 - Supporting the ADM Work

- 16 - Closure

Summary of Module 16

The 18 Learning points covered in Module 16 are:

8.12a/c : Explain the technique of Gap Analysis and where it can be applied.	8.13a/c : Explain how iteration can be used in architecture practices.	8.14a : Describe how the Implementation Factor Catalog can be used: Consolidated Gaps Solutions and Architecture Definition. Increments Table
8.15a/b : Explain the need for a content metamodel/modeling and how it relates to the ACF.	8.16a/b : Explain when the ACF needs to be filled throughout the ADM cycles.	8.17a : Describe the usage of an enterprise metamodel using the TOGAF Enterprise Metamodel as an example.
8.18a : Explain the use of a taxonomy.	8.19a/e : Explain how risk assessment can be used.	

This represents 100.0% of the course coverage.

32/33

Notes:

Modules Level 2:

End of Teaching Slides

End of

Module 16

Closure

33/33

Notes:

TOGAF® Certification for People

TOGAF® Enterprise Architecture Part 2 Practice Test – Question Book

Version 1.0
September 2022

This Practice Test is representative of the content covered in the TOGAF Enterprise Architecture Part 2 Examination. It includes question formats found in the actual examination. It also includes questions of varying difficulty. A candidate's performance on this Practice Test does not guarantee similar performance on the actual examination.

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TOGAF® Certification for People:
TOGAF® Enterprise Architecture Part 2 Practice Test – Question Book

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Contents

1.   Instructions

This Practice Test is an open book test. The permitted reference material is the TOGAF® Enterprise Architecture Practitioner Body of Knowledge[1] drawn from the TOGAF Standard, 10th Edition.[2] If you are attending an accredited training course your training course provider should be able to provide a copy. If you are self-studying, you can refer to the online edition of the standard.[3]

You should spend no more than 90 minutes on this test.

Open Book Examinations

This Practice Test is representative of the content covered in the TOGAF Enterprise Architecture Part 2 Examination and is designed as an open book test. You should refer to the applicable Body of Knowledge while taking this test.

Please note when taking the examination that a PDF version of the Body of Knowledge is provided built into the test and available on the REFERENCE button.

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2. Examination

This section consists of eight gradient scored, multiple-choice, single response questions. In order to answer each question, you will need to read the related scenario fully. On the basis of the information provided in the scenario, and the guidance in the TOGAF Standard, which one of the four possible answers is the best answer?

There is a maximum of five (5) points per question.

The CORRECT answer scores five (5) points.

The SECOND BEST answer scores three (3) points.

The THIRD BEST answer scores one (1) point.

The DISTRACTER (the incorrect answer) scores zero (0) points.

In order to pass this section, you must achieve a total of 24 points[4] or more out of a maximum of 40 points (60%).

> **Practice Tip**
>
> An alternative technique when using these questions for practice purposes is to place the four answers in order of correctness from best answer to worst answer.

2.1   Question 1

Scenario 1

Your role is that of a Senior Architect in a multi-national consumer goods company. The company operates production facilities in over 20 countries and sells its products globally. It has three divisions that operate independently. An Executive Vice-President heads each of the divisions. Traditionally, each division has acted independently with few shared customers or suppliers. They were expected to share financial and human resource information from the corporate headquarters.

A consultancy firm has proposed a realignment that will enhance sharing of product information across the divisions. The implementation of this strategic realignment will require the development of integrated customer information systems and product information systems.

The company has a mature Enterprise Architecture practice and uses the TOGAF Standard as the basis for its method and deliverables. The Enterprise Architecture program is sponsored by the CIO.

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[4] Note that at the time of publication this pass mark is the same as the live TOGAF Enterprise Architecture Part 2 Examination; however, it is recommended to consult The Open Group certification website for the latest information on examination pass marks.

A Statement of Architecture Work has been approved, and the Enterprise Architecture team has obtained the agreement of key stakeholders to develop a Target Architecture to prove whether the proposal will yield the benefits claimed. A set of domain architectures has been approved, with a set of gaps identified.

At the most recent meeting of corporate Executive Management which includes all the divisions, a concern was raised about the risk and security related to this change across the divisions where customer and product information will now be shared.

Question

Refer to the Scenario.

You have been asked to recommend an approach to address the concerns raised. Based on the TOGAF Standard, which of the following is the best answer?

A. You recommend that sufficient security training and awareness is provided to the implementation team to ensure correct deployment, configuration, and operations of the new systems. Risk mitigation activities should be conducted in the Technology Architecture phase to determine the implementation organization's risk appetite; that is, their attitude towards risk. Based on that, if the organization is not willing to accept the level of risk, then you recommend they put in place a set of parallel systems to mitigate the risks.

B. You recommend defining the Architecture Roadmap and evaluating the security and risk impacts for the gaps being addressed. You will determine the value, effort, and risk associated with each change and work package. You will ensure that the stakeholders' security and risk concerns are addressed. You will ensure that the work packages deliver value that includes measures related to security and risk. You would develop a Risk Mitigation Plan to address risks that might appear because of the new architecture.

C. You recommend iterating through the Architecture Development Method (ADM) to the Architecture Vision phase, and classifying the risks in terms of time, cost, and scope. This will enable you to ensure that risks with particular types of impact are managed by the right individuals. You would then ensure that the Architecture Contracts issued in the Implementation Governance phase address those initial risks and include adequate risk monitoring actions to confirm they have been addressed.

D. You recommend that the migration activity be secured and include both a risk assessment and a Risk Mitigation Plan. This would include a risk classification scheme and completion of worksheets for risk assessment. This will enable you to assess the risks associated with the proposed business transformation. The migration planning should include a security impact analysis. You then ensure that the initial level of risk is well understood before issuing the Architecture Contracts.

2.2   Question 2

Scenario 2

Your role is that of a Consultant to the Chief Architect of a division of a multi-national aerospace corporation. The division has a focus on zero-emission aviation and specializes in electric battery-powered aircraft with several designs that can cover up to 300 miles. The corporation has received approval to acquire a competitor that will enable it to improve the efficiency of its zero-emission aircraft, especially in the area of energy density of power storage which will increase the operational range.

The corporation has a mature Enterprise Architecture practice that supports the many divisions within the corporation. It uses the TOGAF Standard as the method and guiding framework across the corporation. Each division has its own Enterprise Architecture team that operates independently, adopting practices, principles, and methods from the corporation.

In order to integrate the new acquisition, an Enterprise Architecture project has been initiated within the division. As the project moves into Phase A, the project scope has been agreed. This includes streamlining and removal of duplication across the expanded division. The Chief Architect has emphasized the need to ensure that the architecture and the resulting changes are embraced across the whole division including the new acquisition. She noted that past acquisitions have failed to engage the key players, and this needs to be fully addressed.

Question

Refer to the Scenario.

You have been asked to recommend an approach that would enable the development of an architecture that addresses the concern of the Chief Architect. Based on the TOGAF Standard, which of the following is the best answer?

A. You would focus on communications with the stakeholders at the new acquisition as effective communication of targeted information to the right stakeholders at the right time is a critical success factor for such a merger. You would develop a Communications Plan, which would allow you to plan and manage the process. It would ensure that stakeholders are aware of the key features of the architecture and have the opportunity to comment.

B. You would conduct a series of business scenarios with the stakeholders impacted by the acquisition, and determine which stakeholders are likely to block the initiative and which are likely to support it. This would let you identify and understand business needs and derive the business requirements that the architecture development has to address. You would identify the most relevant architecture viewpoints and validate with the stakeholders.

C. You would conduct a pilot project as part of Phase A to demonstrate to the stakeholders the technical feasibility of the approaches that are available from your preferred suppliers. You would map the possible solutions to a viewpoint library. Once the stakeholders confirm the approach meets their requirements, you would then complete a Statement of Work and issue an Architecture Contract to your suppliers.

D. You would identify key stakeholders across both the current division and the new acquisition. You would classify their positions and influence, recording the results in a stakeholder map. You would then focus on key stakeholders ensuring that you identify the most relevant architecture viewpoints for each stakeholder and validate that their concerns are being addressed. You would communicate with stakeholders early and frequently, ensuring that they fully understand the architecture process.

2.3   Question 3

Scenario 3

You are an Architect working with the Enterprise Architecture team for a government digital service agency. The agency is responsible for building online digital platforms, products, and services that help create a simple, joined-up, and personalized experience of government for its end users. Programs are funded in an annual budget cycle, and legislation aimed at controlling IT costs requires the use of a shared government Platform-as-a-Service (PaaS) and common systems.

The Enterprise Architecture team uses the TOGAF Standard as the basis for its practice and reports directly to the Executive Director of the agency.

The Enterprise Architecture team is engaged in a major initiative to develop an electronic voting (e-voting) system for use in future local and national elections. This will supplement the current ways of voting, in person, by postal vote, or by proxy. This will include voting via the Internet.

Establishing the digital identity for voters is a key challenge. The Enterprise Architecture team leader has come from a meeting where she was shown that an individual can currently have multiple incompatible identities within different government agencies. Concerns around fraud, security risks, and breaches of privacy were mentioned in the meeting, as well as worries that certain groups of society would be excluded by requiring this use of technology. It was noted at the meeting that four agencies had been attempting to unify identity for some years but had not made significant progress.

The Information Architect within the Enterprise Architecture team has identified two options for managing identity. At first sight the options appear to be competing options. The first is to introduce a new digital identity optimized for e-voting; the second to develop a federated model for identity that can also support the existing identities across multiple agencies.

Question

Refer to the Scenario.

You have been asked by the Enterprise Architecture team leader how you would select the best option for the e-voting initiative. Based on the TOGAF Standard, which of the following is the best answer?

A. You would start by identifying the key stakeholders and their concerns. You assess the impact of the two options in each architecture domain. In addition to working with other domain architects, you will collaborate with subject matter experts in the e-voting initiative and the four agencies. You will assess the set of implications in terms of possibility of the program meeting its objectives, and a set of risk and security concerns in the Business, Application, and Information Systems Architectures. You will facilitate your stakeholders selecting their preferred option by trading off different concerns, required changes, costs, and benefits.

B. You would start by identifying the stakeholders and key subject matter experts who are deeply involved in information management. You know that you will need to find stakeholder agents for many stakeholders since many under-value and under-engage in information-based issues. You will assess the impact of the options in terms of the e-voting initiative and the existing systems at the four agencies. You will collaborate with subject matter experts in the e-voting initiative and the four impacted agencies. You will assess the security concerns for a federated or new identity. You will then select the best option and propose it as the way forward.

C. You would start by identifying the e-voting initiative's stakeholders and leads from the four agencies. You would work with key subject matter experts who are involved in information and implementation of digital services to assess the two options. In conjunction with these subject matter experts, you would use the architecture trade-off method to define alternatives based on the two options. You would then draw up the list of advantages and disadvantages of each. You would then select the best option and integrate it into the Implementation and Migration Plan. You

would then explain the best option to the stakeholders and agency leads, and oversee the implementation.

D. You would start by identifying the new digital service's stakeholders and their concerns. The *TOGAF Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF ADM* provides a starting point for stakeholder classes and concerns. You assess the impact of two options in terms of the e-voting initiative and the existing IT systems at the four agencies. You will collaborate with subject matter experts in the e-voting initiative and the four impacted agencies. You will assess a set of security concerns in the Business, Application, and Information Systems Architectures. You will work with the stakeholders to trade off different concerns, required changes, costs, and benefits, so they can select their preferred option.

2.4   Question 4

Scenario 4

Your role is that of an Enterprise Architect recently recruited to work for a major bank. The bank has been in business for over 120 years, growing through a series of acquisitions with other financial institutions. This growth has resulted in duplicate systems, inconsistent data, and the reliance on in-house developed integrations.

The bank has an established Enterprise Architecture team, which has adopted the TOGAF Standard as the basis for its Enterprise Architecture practice. The CIO is the sponsor of the Enterprise Architecture program. The bank has a large IT service department and routinely has over 100 infrastructure and service projects in progress.

The Chair of the Governing Board noted at its most recent meeting that a significant number of customers are switching to the so-called "challenger banks" who are able to charge low fees, provide faster services, and deliver a better user experience through an always-available digital-first approach.

The CIO has initiated a transformation project to rethink how the bank should serve its customers. The goal is to provide a set of next-generation financial services. As part of that she has decided that the bank's core infrastructure and services need to be rationalized to support the transformation project. The CIO has stated that the core infrastructure and services must accommodate the constantly occurring changes to the technology and business landscapes.

You have been assigned to the core infrastructure and services project. An Architecture Vision has been approved, giving permission to proceed to develop a Target Architecture. A set of domain architectures together with a set of gaps to be addressed has been approved by the stakeholders. The Enterprise Architecture team has identified the work necessary to realize the changes.

Question

Refer to the Scenario.

You have been asked to recommend the best approach to move forward. Based on the TOGAF Standard, which of the following is the best answer?

A. You recommend that the Enterprise Architecture team review the existing projects and their deliverables to address the gap analysis results for the architecture domains. Each of the domain architects will then come up with specific projects to address their gaps and consider whether existing projects need to have their scope revised. The sum of the work required in each of the domains will then be consolidated into the Implementation and Migration Plan. The timeline for progression of deliverables will be documented in the Architecture Roadmap.

B. You recommend that the domain architectures are implemented, and all projects in progress have their scopes revised to align with the new architectures. You will then take the requirements from

Phases B through D that are not addressed by existing projects and create new IT projects for each of the requirements. You will ensure that all projects expose their data and functionality through defined service interfaces, and that all communication uses only these interfaces. You will then publish this as the Implementation and Migration Plan.

C. You recommend identifying dependencies between the proposed set of changes and organizing the sets of changes into work packages addressing the gaps. You would then assess the value, effort, and risk associated with each change and work package, considering stakeholder priorities and preferences. You would then identify a series of Transition Architectures, ensuring that measurable business value can be delivered incrementally. You would document the work packages and Transition Architectures in the Architecture Roadmap.

D. You recommend that the stakeholders provide input on what has to be done to implement the domain architectures. This will ensure that all stakeholders' priorities and preferences are considered in the Enterprise Architecture planning. This will then result in a detailed list of work activities that will be rolled into an IT portfolio plan that will lead to a series of projects. This will form a comprehensive Target Architecture that will include the detailed technology choices for the organization for the next five years.

2.5   Question 5

Scenario 5

Your role is that of the Lead Architect for a telecommunications company that recently formed through the merger of three telecommunication companies. The business operating model has been unified, and an Enterprise Architecture project is running as part of the management of the integration of the three organizations.

The company uses the TOGAF Standard, most notably the Architecture Development Method (ADM). The recently appointed CIO is the sponsor of the Enterprise Architecture program.

An outline Implementation and Migration Plan has been approved and planning exercises are underway to create a detailed migration plan. Conversations with the stakeholders have focused on value, effort, and risk. Budgetary spend is also a consideration.

It is recognized that others outside the Enterprise Architecture team will have the responsibility to fund, build, support, and use what is put in place based on the Enterprise Architecture. For the company, getting this right is critical especially as the competition in the marketplace has been fierce and the lines of business have been resistant to implementing any new business model.

The CIO who is concerned about risk reduction and also wants to show timely progress, has mandated an incremental approach to roll out the integration program, and wants to see key value delivered with each increment.

Question

Refer to the Scenario.

You have been asked to describe how the detailed Implementation and Migration Plan be created. Based on the TOGAF Standard, which of the following is the best answer?

A. You would manage the migration planning activity, working together with the domain architects to finalize the Implementation and Migration Plan. You would submit the plan to the Architecture Board for approval. The plan will include a prioritized list of projects, their approximate cost, and the estimated effort and schedule. Feedback from the Board would be incorporated into the plan. The Implementation and Migration Plan would include a sequenced timeline that could be used as the Architecture Roadmap.

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B. The Business Planning, Portfolio Management, and Operations Management groups should all be involved with the Enterprise Architecture team in the migration planning activity. Detailed resource estimates should be created for the work to be completed and the business value identified for all deliverables. A series of Transition Architectures should be planned that consider the stakeholder priorities. When this is completed, the Implementation and Migration Plan can be finalized. Once the deliverables have been completed, the architecture development cycle should be completed.

C. Migration planning should be conducted by the Project Managers using the Implementation and Migration Strategy from Phase E to create project plans focusing on scope, budget, and time. Project Management best practices can then be used to undertake more detailed analysis and define the business value on a project-by-project basis. Project Managers will select the projects with the highest business value and request funding from the Architecture Board. The approved project plans and roadmaps will serve as the detailed Implementation and Migration Plan.

D. Migration planning should be conducted by the Enterprise Architecture team, in particular the domain (Business, Data, Application, Technology, and Security) architects who will define a series of Transition Architectures to deliver value incrementally. The Enterprise Architecture team will then create a prioritized list of activities to realize the Transition Architectures, documenting them in the Implementation and Migration Plan, with a detailed schedule in the Architecture Roadmap. These deliverables would be circulated to the lines of business and the members of the Executive Board so that they would be ready to fund the proposed work.

2.6 Question 6

Scenario 6

Your role is that of the Lead Architect for an international container shipping company. The company offers regular services to over 300 ports.

The company uses an in-house developed system to manage the complex freight logistics. A weakness of the current system is that it does not provide the functionality to support the latest marketing activities. The limitations have been causing unacceptable delays and missed opportunities to meet market targets. It has been proposed to replace this part of the in-house system with an industry leading Commercial Off-the-Shelf (COTS) Market Analytics solution from a well-known vendor.

The company has a mature Enterprise Architecture capability and has adapted the TOGAF Standard as the basis for its Enterprise Architecture practice. The CIO is the sponsor of the Enterprise Architecture practice.

The Enterprise Architecture team has initiated a project to determine whether the change would achieve the stated objective and what would be needed to make the change. It has defined the business vision and requirements for a system that would address the limitations. This includes a detailed business process analysis. One of the architectures proposed can support the existing applications and technologies currently in place across the company, thereby limiting the need for reimplementation. It would require a non-standard platform to support the business application and also require a different web server solution to the current supported web server solutions. The Architecture Board has held a review, and it was noted that some of these project requirements were not consistent with the company's current infrastructure standards. It was also noted that although the initial costs of this approach appear low, there are integration issues to consider, as well as the long-term support and maintenance implications.

After discussions with the key stakeholders, the CIO feels that he must support the request to deploy the Market Analytics package, and that it should be implemented as soon as possible. He has approved the set of projects identified in the Architecture Roadmap to implement the COTS solution. A project manager has been appointed to oversee the implementation. The CIO has stressed that the key performance

metrics for system performance and security need to be maintained or exceeded, and that the project remains within budget.

Question

Refer to the Scenario.

You have been asked to recommend a plan to implement the direction from the CIO. Based on the TOGAF Standard, which of the following is the best answer?

A. Based on the review held by the Architecture Board, you recommend the vendor modify the web server components in the product so they can meet the current infrastructure standards. You recommend development of a prototype to emulate the COTS product to investigate the change options for other in-house applications and systems. You would then obtain the approval of the internal development leads for supporting the implementation and integration efforts for the actual COTS product, develop an Architecture Contract, and provide the project plan to the project manager, emphasizing adherence to schedule. After the completion of the implementation, you schedule frequent operational reviews to monitor performance of the solution.

B. You review the output from the Architecture Board and recommend the co-existence of a second web server standard, noting the need for in-house training and skills to support this addition. You add this standard to the set of organizational standards in use in the company, which are documented in the company's Standards Library. You direct the project architects to construct an Architecture Contract with the implementation team. You emphasize the importance of using appropriate architecture compliance reviews during the implementation, in addition to the test plans required for performance, and monitor the testing results. You establish Service-Level Agreements (SLAs) and delivery dates. After implementation, you identify re-usable objects and procedures.

C. Based on the recommendations of the Architecture Board, you would eliminate the non-standard web server from the possible solution. You create a revised plan and Architecture Contract for the development of a replacement application and server environment using standard re-usable components and internal development resources. You would inform the CIO that in the long term the development of this standardized version is the lower-cost option. You ensure that the budget implications to these recommendations are presented to the finance committee. You hold frequent project management meetings to monitor compliance to standards and the revised schedule.

D. You would prepare a detailed risk assessment and inform the implementation team of the required deliverables and the dates for deploying the COTS-based solution. You prepare a detailed impact analysis of the use of the "non-standard" web server platform. You construct an Architecture Contract and obtain approval from the CIO prior to commencing the implementation. You schedule a test of the solution just prior to deployment to confirm it meets the user performance requirements. You deliver the required project artifacts to the Architecture Repository and archive them when implementation is completed.

2.7 Question 7

Scenario 7

Your role is that of an Architect within an Enterprise Architecture team at a supermarket chain. The chain has over 300 stores, and predominantly sells groceries. After several years of continued profitable operations, the Board of Directors has approved a plan to expand its online offerings. Initially, online sales were outsourced through an online food retailer, but the decision has now been made to take this in-house and to establish its own ".com" business.

To realize this change, an Enterprise Architecture project has been put in place to plan and oversee the implementation. The Board of Directors has set an ambitious timeline of 18 months to complete the first phase. The program needs to consider how to take the current organization, physical plant, and information systems and transform them to additionally support online operations.

The TOGAF Standard is used as the methodology and framework for all Enterprise Architecture projects within the chain. The CIO is the sponsor.

Sufficient architecture development has been completed within all domains for the key stakeholders to understand and agree at a high level about the work that must be undertaken to make the changes. There is an existing Baseline Description of the current Business Architecture comprising a number of business models, including a business capability map and a set of value stream descriptions.

A major concern that must be addressed is how to migrate from a "best-of-breed" logistics system that was built for the physical stores, to adapt to online orders and fulfillment. The CIO recognizes this and has decided that the initial phase of change will be limited to 24 stores. The CIO also has an option to purchase a packaged solution from an industry leader in online sales and fulfillment. One disadvantage of the packaged solution is that it does not align well to the current systems.

Question

Refer to the Scenario.

The Enterprise Architecture team leader asks you to explain how you would identify the required changes in the Business Architecture. Based on the TOGAF Standard, which of the following is the best answer?

    A. You would review the current architecture descriptions and update them if necessary to reflect the current state of the enterprise. You would then draw up architecture descriptions to reflect the Target Architecture. This would include defining new value streams for the online business, and a capability map for those, mapping value stream stages to capabilities, then performing a gap analysis for the capabilities to show what needs to change.

    B. You would determine where the business – for example, current organizational design, business processes, etc. – does not support the proposed change. This would enable you to identify what needs to change, and the work necessary to realize the change. You would describe the options for change to the stakeholders and the associated costs of change, allowing the stakeholders to make informed decisions. You would identify where trade-off decisions are needed, and work with the stakeholders to resolve them.

    C. You would model the current state of the business using business modeling techniques. This includes business capabilities, value streams, organization mapping, and information mapping. You will focus on improvements to the business capabilities and value streams as there are existing baseline descriptions. This will enable to you to document where the business needs to make changes to implement the changes necessary for the new Target Architecture.

    D. You would request detailed documentation for the packaged solution. You would define the changes necessary to enable an alignment of the package solution with the existing systems. You would sequence those changes into an Architecture Roadmap, ensuring continuous value is delivered. You would request references from other users of the package to verify that the vendor will be able to meet the organization's target date for delivery and other Service-Level Agreements (SLAs).

2.8   Question 8

Scenario 8

Your role is a Senior Architect working with the Enterprise Architecture team at a consumer goods firm. Historically, the firm has only developed physical goods but has recently commenced on a Digital Transformation that enables it to offer digital products.

Your area of responsibility is the corporate Customer Relationship Management (CRM) Roadmap, where you are working on a project which has the scope of extending it to include digital products. Previously a review had identified the core motivations for the key stakeholder communities as digital product time-to-market, customer experience, and driving down sustained cost.

A review of the Business Architecture has been completed with the key stakeholders. This review identified where the current value streams and information flows had created a poor customer experience. Changes to the information flows are needed to improve customer experience, and this will require changes in activity inside the value streams.

The Enterprise Architecture team leader has noted that although all the stakeholders agree customer experience can be improved, the value streams consume substantial IT resources which drives up the costs.

Question

Refer to the Scenario.

The Enterprise Architecture team leader asks what you need to know to address the motivation to drive down sustained costs. Based on the TOGAF Standard, which of the following is the best answer?

A. You would identify where the Application Architecture, specifically the information system service and logical application component, fails to support product time-to-market, customer experience, and leads to driving costs up. You would determine the changes to the information flows that will enable faster time-to-market, improve customer experience, and drive down sustained cost. Finally, you would identify stakeholder priorities for the enhanced business capability, improved value stream, and improved information flow.

B. You would produce application and data models of the current state of the system. You would then develop a Target Architecture model showing how you will enable faster time-to-market and drive down sustained cost. You would then create views that describe the changes to the system in the context of time-to-market and sustained cost. Finally, you would identify the gaps between the current and target to create roadmap components of the things that must be changed.

C. You would determine where the Application Architecture and Data Architecture of the systems create the information flow problem. You would identify the changes needed to the system to fix the information flow. You would look for incremental changes that deliver an improvement to customer experience. You would identify what the one-time work and impact would be to reduce the sustainment cost. Finally, you will check with the stakeholders if they think the improvements in customer experience are worth the one-time and final ongoing cost.

D. You would determine where the Application Architecture and Data Architecture fail to support product time-to-market, customer experience, and lead to driving costs up. You would focus on the logical application components and logical data components. You would identify what changes to those components will enable faster time-to-market, improve customer experience, and drive down sustained cost. You would determine what work is required to improve the system in terms of time-to-market, customer experience, and cost. Finally, you would obtain the priorities that the stakeholders place on the application development, data structures, and interfaces that improve time-to-market, customer experience, and cost.

TOGAF® Certification for People

TOGAF® Enterprise Architecture Part 2 Practice Test – Answer Book

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Contents

1.   Introduction

This document is the Answer Book for the TOGAF Enterprise Architecture Part 2 Practice Test.

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2.   Answers

Question 1

Topic		Risk and Security Considerations for Architecture Implementation
Scenario		1
Subject(s)		G152 §5.6, §5.7, §5.8, LU 5, LO 5.1
Rationale		It is important that the candidate can explain the risk and security considerations when identifying opportunities and solutions, migration planning, and implementation governance. How the risks associated with an architecture activity can be identified, categorized, and mitigated.
Most Correct	B	This is the best answer. The development is in ADM Phase E. It summarizes the approach recommended in §5.6 of the *TOGAF Series Guide: Integrating Risk and Security within a TOGAF Enterprise Architecture*. It recognizes that risk has to be evaluated in drawing up the Architecture Roadmap, ensuring that the stakeholders' security and risk concerns are addressed, and that the work package deliverables include measures related to risk and security. The Risk Mitigation Plan is an appropriate specific deliverable.
Second Best	D	This choice is less correct since it omits evaluation of the security and risk impacts in drawing up the Architecture Roadmap. It also omits explicit reference to the stakeholders' concerns relating to risk and security.
Third Best	C	The TOGAF Standard does recommend conducting risk classification in Phase A; however, the classifications being proposed do not address the concerns being put forward. This answer does not address security, the mitigation of risks, or residual risk assessment for the proposed architecture, instead focusing on Implementation Governance which is likely too late.
Distracter	A	This answer is incorrect. Providing training to the implementation team does not address inherent issues in the architecture development. Training, if applicable, should also apply to users of the systems and not just the implementers. Risk mitigation does not measure an organization's risk appetite (willingness to accept risk, etc.). The TOGAF Standard also does not recommend such an activity as part of Phase D. Putting in place a parallel solution would seem excessive and have its own risks.

Question 2

Topic	Stakeholder Management
Scenario	2
Subject(s)	G186 §3.3.1, §5.2.1, LU 2, LO 2.1
Rationale	Explain how to identify stakeholders, their concerns, views, and the communication involved.

Most Correct	D	This is the best answer. Stakeholder analysis and the development of a Stakeholder Map is the technique that the TOGAF Standard recommends for identifying and engaging the key stakeholders in Phase A. The Stakeholder Map is a major product output and used to support other outputs in this phase.
Second Best	B	This answer is less correct since it omits the Stakeholder Map approach recommended by the TOGAF Standard to explicitly identify stakeholders. Business Scenarios are an appropriate technique to develop the Architecture Vision and can accomplish some of the engagement. This answer also lacks the identification of key players and the active engagement policy of Stakeholder Analysis.
Third Best	A	This answer is less correct since it focuses on stakeholders at the new acquisition only, thus omitting key stakeholders that should be involved. The Communications Plan is produced from the work done by the Stakeholder Management approach suggested in answer A.
Distracter	C	This answer is incorrect. The TOGAF Standard does not recommend implementing pilot projects in Phase A to assess solution feasibility. This also does not follow the recommended approach for creation and approval of a Statement of Architecture Work.

Question 3

Topic	Context for Enterprise Architecture/Governance Competing initiatives
Scenario	3
Subject(s)	Explain the role of Architecture Governance and the Enterprise Architect (LU 5)
Rationale	G186 §15.1 This is a governance issue as the architect must resolve the competing initiatives with the stakeholders. G152 §1, §4 Security cross-cutting, managing uncertainty.
Most Correct	A	This is the best answer. You perform the work of assessing the Information Architects' options in terms of other domains and multiple concerns so that the stakeholders can make a well-informed decision. Stakeholders need to select the target based on their assessment of the value and costs across multiple domains. Concerns provide a mechanism for you to assess the Target Architecture, and the changes required. Security Architecture carries two aspects – one is the effect of uncertainty in meeting objectives (risk) and the second is the ability to defend against threats. Both uncertainty and threats play out in every Enterprise Architecture domain. Each of the two options is from the perspective of one domain. The problem of identity may have a very different answer when optimized for different concerns. Consider optimizing for the initiative's time-to-market, or optimizing for multi-year, multi-agency sustainability. The stakeholders need to decide the relative merit of different concerns when they are in conflict.

Second Best	D	This answer is less correct. You have narrowed your scope from the initiative to the digital service's stakeholders. The digital service stakeholders may be tightly aligned with the initiative. They are not the only stakeholders. Also, the answer limits assessment to the four agencies' IT systems. You cannot assume there is no impact to the Business Architect. The answer only looks at part of the Security Architecture. It misses the effect of uncertainty on meeting objectives. This concept is critical to best practice Security Architecture which is equally concerned with enabling positive outcomes as avoiding downsides.
Third Best	B	This answer is less correct. The center of Architecture Governance and good Enterprise Architecture is the stakeholder making informed decisions, especially where there are competing interests.
		Good steps are damaged when the architect will select a best option on unstated criteria, sell the option, then work to push it through.
		The answer only looks at part of the Security Architecture; it misses the effect of uncertainty on meeting objectives. This concept is critical to best practice Security Architecture which is equally concerned with enabling positive outcomes as avoiding downsides.
		Only stakeholders can approve the Target Architecture, and they must approve it based on understanding the implications.
Distracter	C	This answer is incorrect. You are not advising stakeholders of the best option across all their concerns. Instead, you are selling an idea based on the narrow interests of an implementation.

Question 4

Topic	ADM Phases: Architecture Definition; Phase E: Opportunities and Solutions
Scenario	4
Subject(s)	Implementing the Architecture (LU 5, L0 5.4, LO 5.5)
Rationale	This question determines whether the candidate understands how to identify and group work packages, also how to create and document Transition Architectures.
Most Correct	C	This is the best answer. It considers dependencies between the set of changes, how to organize them into work packages, as well as considering stakeholder priorities and preferences. It recommends the use of Transition Architectures as an incremental approach to deliver business value which addresses the concern that the implementation has the ability to accommodate changes to the technology and business landscape. It describes the migration planning techniques to deliver Transition Architectures and organizes them to deliver an Architecture Roadmap.
Second Best	A	This is a less correct approach that addresses the deliverables of the architectures but in an uncoordinated way. It looks at rolling up the work in each domain rather than consolidating the gaps and creating projects as a function of capability management. It also does not directly describe the use of Transition Architectures. It does describe the role of the Implementation and Migration Plan and the Architecture Roadmap accurately.

Third Best	D	This is less correct. Although it does consider stakeholder priorities and preferences, the end result focuses on detailed technology choices negating the impact of using Transition Architectures to deliver incremental business value that could absorb technology and business environment change.
Distracter	B	This answer is incorrect. This approach does not address the concerns, nor follow the TOGAF Standard guidance for this stage of a project. It jumps to a specific direction without considering stakeholder input. It does not consider how to transition, instead focusing on a technical solution to improve interoperability.

Question 5

Topic	ADM Phases: Architecture Definition; Phase F: Migration Planning
Scenario	5
Subject(s)	How to prioritize migration projects, and complete migration planning (LU 5)
Rationale	This question determines whether the candidate understands the implications of Architecture Transformation especially in an existing environment in Phase F: Migration Planning.
Most Correct	B	This is the best answer. The answer is concise and complete as per Phase F, with an emphasis on building corporate consensus and ensuring that the Transition Architectures are solidly based upon business value and stakeholder views taken into consideration.
Second Best	D	This is a less correct approach, as it is incomplete, missing key steps of Phase F. This also lacks the collaborative planning in close cooperation with the stakeholders within and outside of the organization.
Third Best	A	The approach is also incomplete. Phase F emphasizes collaborative planning in close cooperation with the stakeholders within and outside of the organization, and this lacks that approach.
Distracter	C	This is a wrong answer. The intent of Enterprise Architecture using the TOGAF Standard is to provide detailed guidance to the projects so that they can focus on operational design issues rather than strategic ones.

Question 6

Topic	ADM Phases: Governance (Phase G)
Scenario	6
Subject(s)	Implementation Governance (LU 5, LO 5.12, LO 5.14)
Rationale	Explain how Implementation Governance is executed.

Most Correct	B	This is the best answer. All of the criteria fall within Phase G. The architect accepts the direction of the CIO who has discussed the issue with key stakeholders, and adds the platform as another organizational standard, noting the need for training and skills to support it. The architect then works with the implementation team to draw up an Architecture Contract. The architect emphasizes use of compliance reviews, the testing of the performance as the solution is developed (a critical user requirement), and gets buy-in and visibility of Service-Level Agreements (SLAs) and schedule with the business unit. Finally, after implementation, re-useable artifacts and objects are collected and are available for future projects.
Second Best	A	This answer is less correct as the response (to recommend the vendor change the product) may take time and also incur costs and, as noted in the scenario, the project must be implemented as soon as possible and remain within budget. Performing a prototype would reduce the risk, but again at the expense of time and budget.
		The project plan should be drawn up by the project manager not the architect.
		Finally, performance is paramount, yet the architect is suggesting monitoring the performance after implementation, rather than testing the product's performance during implementation.
Third Best	D	This approach follows the CIO direction but focuses on risk rather than co-existence. There is no negotiation with the implementation team – just a handover of schedules – or with the business unit regarding service levels.
		The suggestion to test the solution just prior to implementation is too late since the solution has already been constructed and any surprises will likely impact schedule and budget. The attention to project artifacts is superfluous.
Distracter	C	This answer is incorrect. The scenario states that the decision has already been made by the CIO and based on stakeholder input. This approach does not address the CIO direction which stated that this should be implemented as soon as possible and approval had been given to move ahead. The claims of a cost saving are not substantiated. The consultation with the finance committee is irrelevant. Holding frequent project management meetings is not the job of the Enterprise Architect, but the job of the project manager.

Question 7

Topic	ADM Phases: Phase B: Business Architecture
Scenario	7
Subject(s)	Architecture Development: Phase B (LU 4)
Rationale	Explain how to apply Phase B and how it can contribute to architecture development.
Most Correct	B	This is the best answer. This answer is focused on the business and engaging with the stakeholders. It identifies what needs to change, what the cost of change will be, and then works with the stakeholders to take the decisions that include trade-offs.

Second Best	A	This answer is less correct. This focuses on model kinds rather than changes in the business itself. Re-using the existing architecture descriptions, checking they are current, then drawing up descriptions to reflect the Target Architecture is a technique to identify what needs to change. The architecture at this stage does not need to decide whether a packaged solution is appropriate.
Third Best	C	This answer is less correct. This is focused again only on modeling; it has no engagement with stakeholders. It incorrectly assumes that a focus be placed on business capabilities and value streams since baseline descriptions exist.
Distracter	D	This answer is incorrect. It is not an application of Business Architecture, nor architecting. It is an example of implicit architecture where the architect is acting as the stakeholder agent, subject matter expert, and implementer and producing an end result.

Question 8

Topic	Architecture Development; Phase C: Information Systems Architecture
Scenario	8
Subject(s)	Architecture Development: what do we need to know to drive down sustained costs using Phase C: Information Systems Architecture?
Rationale	Applying the Information Systems Architecture concepts.
Most Correct	C	This is the best answer. All changes carry a benefit/value and cost. Stakeholders accept a Target Architecture not on a theoretic concept of a data model, or a functionality decomposition diagram, but on cost of change and expected outcome. You perform architecture analysis to get to these answers. This knowledge is used in Phase E to develop a roadmap of work packages and dependencies, and in Phase F to develop an implementation plan.
		It is known that the problems in the value stream and information flow create a shortfall in expectations. In this case, the shortfall is a poor customer experience. To apply Phase C, you need to discover where in the current Application Architecture and Data Architecture information systems contribute to the deficiency. Correcting the deficiency will require change in the applications or platforms. To determine whether the change is acceptable, the stakeholders will need to assess the direct and sustainment cost of the change.
Second Best	A	This is the second best answer. You have determined stakeholder priorities for business capability, value stream, and information flow, but not for customer experience. In this answer you stopped at developing the architecture components and did not proceed to analyze actual change. Without this information you do not have the information necessary for Phase E to develop a roadmap of work packages and dependencies, and in Phase F to develop an implementation plan.

Third Best	D	This is the third best answer. There is no analysis of information flows which are known to have caused the deficiencies in customer experience. This answer focuses on logical components and has not considered an actual Target Architecture for change. Without this information you do not have the information necessary for Phase E to develop a roadmap of work packages and dependencies, and in Phase F to develop an implementation plan. Further, you have also asked stakeholders for priorities related to Application Architecture implementation details.
Distracter	B	This answer is incorrect. The Business Architecture identified value chain and information flow deficiencies that created a poor customer experience, which in turn led to high sustained costs. This answer jumps to modeling and then optimizing the Application Architecture and Data Architecture for time-to-market as well as cost. There is no linkage to the value stream and information flow deficiencies from the Business Architecture.

The Open Group® Certification for People

TOGAF® Certification Program Conformance Requirements (Multi-Level)

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The Open Group® Certification for People:
TOGAF® Certification Program Conformance Requirements (Multi-Level)

Contents

1. Background

1.1 Introduction

This document – The Open Group® Certification for People: TOGAF® Certification Program Conformance Requirements (Multi-Level) – is an integral part of The Open Group Certification for People: TOGAF Certification Program (the Program). Defined terms herein are in addition to definitions in the TOGAF Program Configuration document applicable to this document.

This document defines the Learning Outcome requirements for certification of individuals within the Program, which in turn form the Learning Outcome requirements for Accredited Training Courses.

1.2 Terminology and Definitions

This table defines terms or clarifies the meaning of words used within this document. Where an acronym is also used, it is provided in parentheses.

Accredited Training Course (ATC)	A training course, operated by a third party, that has successfully completed the accreditation process, and which is listed in the register of Accredited Training Courses on the Certification Authority's website.
Body of Knowledge (BoK)	The set of information within the subject area of which a Candidate is expected to have understanding in order to achieve certification within the Program.
Candidate	A person seeking certification.
Certification Authority	The organization that manages the day-to-day operations of the Program. The Open Group is the Certification Authority for the Program.
Examination Provider	The organization(s) contracted by The Open Group to provide and administer examinations.
Key Learning Point (KLP)	A self-contained learning object, derived from the Body of Knowledge with a unique reference, typically ranging from 2 to 15 minutes' study time.
Learning Outcome	What the Candidate should know, understand, or be able to do on completion of learning about one or more Key Learning Points. Each Learning Outcome should have at least one Key Learning Point reference and define the depth of knowledge required for each Key Learning Point.
Learning Unit	A related set of Learning Outcomes. It is expected that a Learning Unit would equate to between 30 and 90 minutes of taught or self-study learning equivalence.

2.   Conformance Terminology

The Conformance Requirements by certification level are specified as sets of Learning Units. To achieve certification for a given level, Candidates must complete the applicable Learning Units and successfully pass the corresponding Indicator of Compliance (see Section 5).

The definition of the Learning Units does not dictate the structure, order, or time duration that topics should be taught in an Accredited Training Course. Training organizations are free to structure their courses as they see fit, so long as Candidates have the mandatory Learning Outcomes at the end of a course for the target certification level.

2.1   Learning Unit Format

Each Learning Unit is defined in a table organized as follows:

	UNIT Number	Unit Name – A descriptive name for the Learning Unit		Bloom's Taxonomy Level	KLP Reference
(A)	**Purpose**	…			
(B)	**Learning Outcome**	1.1	The Candidate …		
		1.2		(C)	(D)
		1.3			

Notes

(A)   Purpose: The purpose of the Learning Unit. What a Candidate will have learned by completing the Unit. Most of the time this corresponds with a chapter or major section of the Body of Knowledge.

(B)   One or more detailed Learning Outcome statements together with an associated Bloom's Taxonomy level and KLP Reference. A specific term is used to define the depth of learning, from low to high as follows:

— Identify – name one or more items

— List – name multiple items

— Define – provide a definition of a term

— Demonstrate – describe and explain a concept or term

— Describe/State – provide a description of or statement for a concept or item; give a factual statement

— Explain – provide a description with a rationale

— Discuss – the ability to write logically about a topic

— Justify – demonstrate the correctness of an assertion through a written discussion

(The adverb *briefly* is used to qualify Learning Outcome statements where Candidates are expected to

be able to concisely or succinctly describe or explain the item.)

(C)   Bloom's Taxonomy Level: Defined using "Bloom" action verbs (see Section 7.1).

(D)   KLP Reference: A reference back to the Key Learning Point within the Body of Knowledge (see Section 6). **This is required for traceability.**

3.   TOGAF Enterprise Architecture Conformance Requirements

To achieve certification at Level 1, Candidates must complete all Learning Units defined in this section and successfully pass the corresponding Indicator of Compliance for Level 1 certification (see Section 5).

3.1   Level 1 Syllabus

3.1.1   Unit 1 – Concepts

UNIT 1	Concepts		Bloom's Taxonomy Level	KLP Reference
Purpose	The purpose of this Learning Unit is to introduce the concepts of Enterprise Architecture and the TOGAF Standard.			
Learning Outcomes		The Candidate is able to …		
	1.1	Describe what an enterprise is.	1_Remembering	{S0} §1.1
	1.2	Explain the purpose of Enterprise Architecture.	2_Understanding	{S0} §1.1 G186 §3.1 G20F §1.2
	1.3	List the key benefits of having an Enterprise Architecture.	1_Remembering	{S0} §1.1 G184 §3.6
	1.4	Explain why the TOGAF Standard is suitable for use as a framework for Enterprise Architecture.	2_Understanding	{S0} §1.1 G20F §1.2
	1.5	List the four architecture domains that are commonly accepted as subsets of an overall Enterprise Architecture and which the TOGAF Standard supports.	1_Remembering	{S0} §3.3
	1.6	Briefly describe how architecture abstraction can be used in Enterprise Architecture.	1_Remembering	{S0} §3.7
	1.7	Briefly describe the Enterprise Continuum.	1_Remembering	{S0} §3.10 {S4} §6.2
	1.8	Briefly explain the Architecture Repository.	2_Understanding	{S0} §3.11 G186 §5.1
	1.9	Briefly explain the TOGAF Content Framework and Enterprise Metamodel.	2_Understanding	{S0} §3.12 G184 §8.3
	1.10	Briefly explain what an Architecture Capability is.	2_Understanding	{S0} §3.13, 3.14 G184 §3.3, 5.1

UNIT 1		Concepts	Bloom's Taxonomy Level	KLP Reference
	1.11	Briefly explain risk management.	2_Understanding	{S2} §9.1 G152 §3.1.1
	1.12	Briefly explain gap analysis.	2_Understanding	{S2} §5.1 G186 §15.2.3

3.1.2   Unit 2 – Definitions

UNIT 2		Definitions – Level 1	Bloom's Taxonomy Level	KLP Reference
Purpose		The purpose of this Learning Unit is to help the Candidate understand relevant terminology.		
Learning Outcomes		The Candidate is able to …		
	2.1	Define the following concepts:	1_Remembering	
		Application Architecture		{S0} §4.3
		Architecture Landscape		{S0} §4.15
		Architecture Model		{S0} §4.17
		Artifact		{S0} §4.23
		Business Architecture		{S0} §4.27
		Business Model		{S0} §4.31
		Capability		{S0} §4.33
		Capability Architecture		{S0} §4.34
		Data Architecture		{S0} §4.39
		Deliverable		{S0} §4.40
		Gap		{S0} §4.47
		Metamodel		{S0} §4.54
		Modeling		{S0} §4.56
		Requirement		{S0} §4.64
		Role		{S0} §4.66
		Segment		{S0} §4.67
		Architecture		{S0} §4.75
		Stakeholder		{S0} §4.77
		Strategic Architecture		{S0} §4.80
		Technology Architecture		{S0} §4.83
		Transition Architecture		{S0} §4.88
		Work Package		
		Note: 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.		

3.1.3   Unit 3 – Introduction to the ADM

UNIT 3	Introduction to the ADM – Level 1		Bloom's Taxonomy Level	KLP Reference
Purpose	The purpose of this Learning Unit is to help the Candidate understand the Architecture Development Method (ADM) and briefly explain the purpose and objectives of each phase, including at a high level how to adapt and scope the ADM for use.			
Learning Outcomes		The Candidate is able to …		
	3.1	Briefly describe the ADM and its phases.	1_Remembering	{S0) 3.4 {S1} §1.2.2
	3.2	Describe the difference between "draft" and "approved" deliverables.	1_Remembering	{S1} §1.2.2
	3.3	Explain the iterative approach of the ADM.[1]	2_Understanding	{S1} §1.2.1 G186 §5.2, 5.2.3
	3.4	Explain the need to govern the creation, development, and maintenance of Enterprise Architecture.	2_Understanding	{S1} §1.4 G186 §15.1.1, 15.1.2, 15.2.1
	3.5	Briefly explain how to scope an architecture.	1_Remembering	{S1} §1.5
	3.6	Briefly explain the reasons for considering architecture alternatives, including understanding concerns and trade-off.	2_Understanding	{S1} §1.6, 1.6.1
	3.7	Briefly explain the purpose of the Preliminary Phase in developing an Enterprise Architecture Capability.	1_Remembering	G184 §13.1
	3.8	Describe the objectives of the Preliminary Phase.	1_Remembering	{S1} §2.1
	3.9	Briefly explain the purpose of Phase A.	2_Understanding	G186 §5.2.1, 5.2.2 Table 4
	3.10	Describe the objectives of Phase A.	1_Remembering	{S1} §3.1
	3.11	Briefly explain the purpose of Phases B, C, and D.	2_Understanding	G186 §5.2.2 Table 4
	3.12	Describe the objectives of Phase B.	1_Remembering	{S1} §4.1
	3.13	Describe the objectives of Phase C for Data Architecture and Application Architecture.	1_Remembering	{S1} §5.1, 6.1, 7.1
	3.14	Describe the objectives of Phase D.	2_Understanding	{S1} §8.1

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[1] It is recommended to use the GANTT chart example in G186 to illustrate the inter-dependent nature of the ADM phases, highlighting that many of the steps can be executed simultaneously, and that phases can be continually revisited iteratively.

UNIT 3		Introduction to the ADM – Level 1	Bloom's Taxonomy Level	KLP Reference
	3.15	Briefly explain the purpose of Phase E.	1_Remembering	G186 §5.2.2 Table 4
	3.16	Describe the objectives of Phase E.	2_Understanding	{S1} §9.1
	3.17	Briefly explain the purpose of Phase F.	2_Understanding	G186 §5.2.2 Table 4
	3.18	Describe the objectives of Phase F.	1_Remembering	{S1} §10.1
	3.19	Briefly explain the purpose of Phase G.	2_Understanding	G186 §5.2.2 Table 4
	3.20	Describe the objectives of Phase G.	1_Remembering	{S1} §11.1
	3.21	Briefly explain the purpose of Phase H.	2_Understanding	G186 §5.2.2 Table 4
	3.22	Describe the objectives of Phase H.	1_Remembering	{S1} §12.1
	3.23	Describe the objectives of the Requirements Management process.	1_Remembering	{S1} §13.1
	3.24	Describe the purpose of Requirements Management.	1_Remembering	G186 §6.1.1
	3.25	Explain the information flow between the ADM phases.[2]	2_Understanding	G186 §5.2
	3.26	Explain how developing architecture for different purposes, or levels of detail, can be applied to support Agile software development.	2_Understanding	G186 §12.1

3.1.4 Unit 4 – Introduction to ADM Techniques

UNIT 4		Introduction to ADM Techniques – Level 1	Bloom's Taxonomy Level	KLP Reference
Purpose		The purpose of this Learning Unit is to introduce the Candidate to ADM techniques available to support application of the ADM.		
Learning Outcomes		The Candidate is able to …		
	4.1	Briefly describe how the ADM and Supporting Guidelines and Techniques relate to each other.	1_Remembering	{S1} §1.1.3
	4.2	Explain the purpose of Architecture Principles.	2_Understanding	G184 §4.3.3

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[2] The ADM is not a linear waterfall process.

UNIT 4		Introduction to ADM Techniques – Level 1	Bloom's Taxonomy Level	KLP Reference
	4.3	Explain the recommended template for Architecture Principles.	2_Understanding	{S2} §2.3
	4.4	Explain what makes a good Architecture Principle.	2_Understanding	{S2} §2.4, 2.4.1
	4.5	Briefly explain business scenarios.	2_Understanding	G176 §1
	4.6	Explain the purpose of gap analysis.	2_Understanding	{S2} §5.1
	4.7	Briefly explain interoperability and how it is used.	2_Understanding	{S0} §3.9
	4.8	Explain Business Transformation Readiness Assessment and where it can be used in the ADM.	2_Understanding	{S2} §8.1
	4.9	Briefly explain the characteristics of architecture risk management and where it is used within the TOGAF ADM.	2_Understanding	{S2} §9.1

3.1.5   Unit 5 – Introduction to Applying the ADM

UNIT 5		Introduction to Applying the ADM – Level 1	Bloom's Taxonomy Level	KLP Reference
Purpose		The purpose of this Learning Unit is to introduce the Candidate to the guidance available to support application of the ADM, including use of iteration, partitioning, Agile delivery, and application in a Digital enterprise.		
Learning Outcomes		The Candidate is able to …		
	5.1	Describe where guidance on how to apply the TOGAF Standard is provided.	1_Remembering	{S0} §2.2
	5.2	Explain how iteration within the ADM enables concurrent operation of multiple ADM phases.	2_Understanding	{S3} §2.1
	5.3	List the three levels of the Architecture Landscape.	2_Understanding	{S3} §3.2
	5.4	Briefly explain how partitioning helps simplify the development of an Enterprise Architecture.	2_Understanding	{S3} §4.1
	5.5	List the four purposes that help to frame the planning horizon and breadth and depth of the Architecture Project.	2_Understanding	G186 §3.2.2
	5.6	Briefly explain how the TOGAF Standard can be applied to support the Digital enterprise.	2_Understanding	G217 §2.1

3.1.6　　　Unit 6 – Introduction to Architecture Governance

UNIT 6	Introduction to Architecture Governance – Level 1	Bloom's Taxonomy Level	KLP Reference
Purpose	The purpose of this Learning Unit is to help the Candidate understand how Architecture Governance contributes to the architecture development.		
Learning Outcomes		The Candidate is able to …		
	6.1	Briefly explain the concept of Architecture Governance.	2_Understanding	{S5} §3.1.1, 3.1.2.1 G184 §6.1, 6.1.1
	6.2	Explain why Architecture Governance is beneficial.	2_Understanding	{S5} §3.1.2 G184 §6.1.1
	6.3	Briefly explain the role of an Architecture Board and its responsibilities.	2_Understanding	{S5} §4.1, 4.2 G184 §6.2
	6.4	Briefly explain the role of Architecture Contracts.	2_Understanding	{S5} §5.1
	6.5	Briefly explain the need for Architecture Compliance.	2_Understanding	{S5} §6.1

3.1.7　　　Unit 7 – Architecture Content

UNIT 7	Architecture Content	Bloom's Taxonomy Level	KLP Reference
Purpose	The purpose of this Learning Unit is to help the Candidate understand which outputs can be produced while executing the ADM.		
Learning Outcomes		The Candidate is able to …		
	7.1	Define and explain the following key concepts: stakeholders, concerns, architecture views, architecture viewpoints, and their relationships.	2_Understanding	{S4} §3.1
	7.2	Explain what building blocks are and their use in the ADM.	2_Understanding	{S4} §5.2.2, 5.3.2
	7.3	Briefly describe the TOGAF Standard deliverables created and consumed in different TOGAF ADM phases:	2_Remembering	{S4}
		Architecture Contract		{S4} §4.2.2
		Architecture Definition Document		{S4} §4.2.3
		Architecture Principles		{S4} §4.2.4
		Architecture Requirements Specification		{S4} §4.2.6
		Architecture Roadmap		{S4} §4.2.7

UNIT 7	Architecture Content		Bloom's Taxonomy Level	KLP Reference
		Architecture Vision		{S4} §4.2.8
		Business Principles, Business Goals, and Business Drivers		{S4} §4.2.9
		Capability Assessment		{S4} §4.2.10
		Change Request		{S4} §4.2.11
		Communications Plan		{S4} §4.2.12
		Compliance Assessment		{S4} §4.2.13
		Implementation and Migration Plan		{S4} §4.2.14
		Implementation Governance Model		{S4} §4.2.15
		Request for Architecture Work		{S4} §4.2.17
		Requirements Impact Assessment		{S4} §4.2.18
		Statement of Architecture Work		{S4} §4.2.20

3.1.8 Unit 8 – TOGAF Certification Program

UNIT 8	TOGAF Certification Program		Bloom's Taxonomy Level	KLP Reference
Purpose	The purpose of this Learning Unit is to help the Candidate understand the TOGAF Certification Program.			
Learning Outcomes		The Candidate is able to …		
	8.1	Explain the TOGAF Certification Program, and distinguish between the levels for certification.		None

3.2 Level 2 Syllabus

To achieve certification at Level 2, Candidates must complete all Learning Units defined in Section 3.1, as well as this section, and successfully pass the corresponding Indicator of Compliance for Level 2 certification (see Section 5).

3.2.1 Unit 1 – The Context for Enterprise Architecture

UNIT 1	The Context for Enterprise Architecture		Bloom's Taxonomy Level	KLP Reference
Purpose	The purpose of this Learning Unit is to help the Enterprise Architecture practitioner understand the context within which they must operate.			
Learning		The Candidate is able to …		

Outcomes	1.1	Explain why guiding effective change is the purpose of Enterprise Architecture.	2_Understanding	G186 §3.1

UNIT 1	The Context for Enterprise Architecture		Bloom's Taxonomy Level	KLP Reference
	1.2	Explain what an Enterprise Architecture looks like.	2_Understanding	G186 §3.2.3
	1.3	Explain what an Architecture Capability is.	2_Understanding	{S0} §3.13 G184 §3.3
	1.4	Explain the role of Architecture Governance and the role of an Enterprise Architect.	2_Understanding	G186 §15.1
	1.5	Explain Architecture Compliance, levels of conformance, reviews, and the role of the architect.[3]	2_Understanding	{S5} §6.1, 6.2, 6.3 G186 §15.2.1, 15.2.2
	1.6	Explain how an architecture enables alignment to organizational objectives using Agile development as an example.	2_Understanding	G186 §12.1, 11.4
	1.7	Explain the need to manage multiple architecture states (e.g., candidate, current, transition, target).	2_Understanding	G186 §5.4, 13
	1.8	Briefly explain Enterprise Security Architecture.	2_Understanding	G152 §1
	1.9	Explain how security is a cross-cutting concern.	2_Understanding	G152 §4
	1.10	Explain why it is important to create an environment in which uncertainty of the success of change can be managed to optimize maximum business benefit and minimum business loss.	2_Understanding	G152 §3.1.1
	1.11	Briefly explain the role of the Enterprise Architect and Enterprise Architecture in a Digital enterprise for the four contexts of the DPBoK™ Standard.	2_Understanding	G217 §4.2.1, 4.2.2, 4.2.3, 4.2.4

3.2.2 Unit 2 – Stakeholder Management

UNIT 2	Stakeholder Management — Level 2	Bloom's Taxonomy Level	KLP Reference
Purpose	The purpose of this Learning Unit is to help the Candidate understand how to apply Stakeholder Management.		

Learning		The Candidate is able to …		

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[3] Using the TOGAF diagram and the checklists from G186.

UNIT 2		Stakeholder Management — Level 2	Bloom's Taxonomy Level	KLP Reference
Outcomes	2.1	Explain how to identify stakeholders, their concerns, views, and the communication involved.	3_Applying	G186 §3.3.1, B
	2.2	Explain the use of architecture views.	2_Understanding	{S4} §3.2
	2.3	Explain how to manage stakeholders' engagement and requirements.	3_Applying	G186 §6.1.1
	2.4	Explain how to use trade-off to support the architecture development.	3_Applying	{S2} §10.2 G186 §6.1.2, 6.2

3.2.3 Unit 3 – Phase A, the Starting Point

UNIT 3		Phase A, the Starting Point	Bloom's Taxonomy Level	KLP Reference
Purpose		The purpose of this Learning Unit is to help the Candidate understand how to execute the Architecture Vision phase and applicable techniques.		
Learning Outcomes		The Candidate is able to …		
	3.1	Explain how to identify the information necessary to execute the Architecture Vision phase and how iteration cycles will provide more information to take into account in order to execute the phase.	3_Applying	{S1} §3.2 G186 §5.2.1
	3.2	Explain how to apply the phase and how it contributes to the architecture development work: • Scope of the Architecture Project • Stakeholders, their concerns, and business requirements • Business goals, business drivers, and constraints	3_Applying	{S1} §3.3 G186 §5.2.1
	3.3	Describe a security-specific architecture design to be carried out that is sufficient.	1_Remembering	G152 §5.2
	3.4	Explain the outputs necessary to proceed with the architecture development work: • Statement of Architecture Work • Architecture Vision • Communications Plan	3_Applying	{S1} §3.4 {S4} §4.2 G186 §5.2.2

3.2.4　Unit 4 – Architecture Development

UNIT 4	Architecture Development		Bloom's Taxonomy Level	KLP Reference
Purpose	The purpose of this Learning Unit is to help the Candidate understand how to develop the architecture (Phases B, C, and D) and useful techniques.			
Learning Outcomes		The Candidate is able to …		
	4.1	Explain the steps applicable to all phases.	2_Understanding	G186 §6.3 (including §6.3.1-6.3.6)
	4.2	Explain risk and security considerations during the architecture development.	2_Understanding	G152 §5.3, 5.4, 5.5
	4.3	Explain the information that is relevant to produce outputs valuable to the architecture development: • Business principles • Business goals • Business drivers	3_Applying	{S1} §4.2 {S4} §4.2.9 G186 §5.2.2
	4.4	Explain how to apply Phase B and how it contributes to the architecture development work.	3_Applying	{S1} §4.5 G186 §5.2.2
	4.5	Explain the information that is relevant to Phase C (Data and Applications) to produce outputs relevant to the architecture development.	3_Applying	{S1} §6.2, 7.2 G186 §5.2.2
	4.6	Explain how to apply Phase C and how it contributes to the architecture development work.	3_Applying	{S1} §6.5, 7.5 G186 §5.2.2
	4.7	Explain the information needed in Phase D to produce outputs relevant to the architecture development.	3_Applying	{S1} §8.2 G186 §5.2.2
	4.8	Explain how to apply Phase D and how it contributes to the architecture development work.	3_Applying	{S1} §8.5 G186 §5.2.2
	4.9	Explain the outputs of Phases B, C, and D necessary to proceed with the architecture development work.	3_Applying	{S1} §4.4, 6.4, 7.4, 8.4 G186 §5.2.2

3.2.5   Unit 5 – Implementing the Architecture

UNIT 5	Implementing the Architecture		Bloom's Taxonomy Level	KLP Reference
Purpose	The purpose of this Learning Unit is to help the Candidate understand how to implement the architecture (Phases E, F, and G) and useful techniques.			
Learning Outcomes		The Candidate is able to …		
	5.1	Explain the risk and security considerations for the three Phases (E, F, and G).	2_Understanding	G152 §5.6, 5.7, 5.8
	5.2	Describe the steps (Phase E) to create the Implementation and Migration Strategy.	1_Remembering	{S1} §9.3
	5.3	Describe three basic approaches to implementation.	3_Applying	{S1} §9.3.8
	5.4	Explain how to identify and group work packages.	3_Applying	{S1} §9.3.9
	5.5	Explain how to create and document Transition Architectures.	3_Applying	{S1} §9.3.10
	5.6	Explain the impact of the migration projects on the organization and the coordination required.	3_Applying	{S1} §10.3 G186 §5.2.2, 9, 10.4, 10.6
	5.7	Explain why and how business value is assigned to each work package.	2_Understanding	{S1} §10.3.2 G186 §3.4, 9.2.2
	5.8	Describe how to prioritize the migration projects (Phase F).	1_Remembering	{S1} §10.3.4
	5.9	Describe how to confirm the Architecture Roadmap (Phase F).	1_Remembering	{S1} §10.3.5
	5.10	Explain the outputs necessary to proceed with the architecture implementation work.	2_Understanding	{S1} §10.4 G186 §5.2.2
	5.11	Explain the inputs to Phase G.	2_Understanding	{S1} §11.2
	5.12	Explain how the Implementation Governance is executed (Phase G).	3_Applying	{S1} §11.3 G186 §11.4, 15.1.2
	5.13	Explain the outputs necessary to support Architecture Governance.	2_Understanding	{S1} §11.4 G186 §5.2.2
	5.14	Explain how Architecture Contracts are used to communicate with implementers.	3_Applying	{S5} §5.2 G186 §3.3.2

UNIT 5		Implementing the Architecture	Bloom's Taxonomy Level	KLP Reference
	5.15	Explain how to balance opportunity and viability.	2_Understanding	G186 §8.3

3.2.6   Unit 6 – Architecture Change Management

UNIT 6		Architecture Change Management	Bloom's Taxonomy Level	KLP Reference
Purpose	The purpose of this Learning Unit is to help the Candidate understand Architecture Change Management and the relation to Stakeholder Management.			
Learning Outcomes		The Candidate is able to …		
	6.1	Explain the inputs triggering change management: • Change Requests	2_Understanding	{S1} §12.2 {S4} 4.2.11 G186 §14
	6.2	Explain the activities necessary for effective change management (Stakeholder Management).	2_Understanding	{S1} §12.3 G186 §14
	6.3	Explain the outputs relevant to proceed.	2_Understanding	{S1} §12.4 G186 §5.2.2

3.2.7   Unit 7 – Requirements Management

UNIT 7		Requirements Management	Bloom's Taxonomy Level	KLP Reference
Purpose	The purpose of this Learning Unit is to help the Candidate understand how to apply the process of managing architecture requirements and the relation to Stakeholder Management.			
Learning Outcomes		The Candidate is able to …		
	7.1	Explain the inputs that can feed the Requirements Management phase.	2_Understanding	{S1} §13.2 G186 §6.1.1, 6.1.2
	7.2	Explain how the Requirements Management steps correspond to ADM phase steps.	2_Understanding	{S1} §13.3
	7.3	Explain the purpose of the outputs of Requirements Management.	2_Understanding	{S1} §13.4 {S4} §4.2.6, 4.2.18

3.2.8　Unit 8 – Supporting the ADM Work

UNIT 8	Supporting the ADM Work		Bloom's Taxonomy Level	KLP Reference
Purpose	The purpose of this Learning Unit is to help the Candidate understand which supporting means can be used while executing the ADM.			
Learning Outcomes		The Candidate is able to …		
	8.1	Describe how The Open Group TOGAF Library can be used to support the practitioner's work.	2_Understanding	{S0} §2
	8.2	Briefly explain the business scenario technique.	2_Understanding	G176 §1, 3.1
	8.3	Explain the purpose of compliance assessments.	2_Understanding	{S5} §6.3.1 G186 §5.1.5
	8.4	Explain how migration planning techniques are used to review and consolidate the gap analysis results from earlier phases.	2_Understanding	{S2} §6
	8.5	Describe how a repository can be structured using the TOGAF repository as an example: • Architecture Landscape • Reference Library • Standards Library • Governance Repository • Architecture Requirements Repository • Solutions Landscape • Enterprise Repository	1_Remembering	{S4} §7.2, 7.3, 7.4, 7.5, 7.6, 7.7, 7.8
	8.6	Explain what to expect in a well-run Architecture Repository.	2_Understanding	G186 §5.1
	8.7	Explain how the concepts of Architecture Levels are used to organize the Architecture Landscape.	2_Understanding	{S3} §3.1, 3.2, 3.3, 3.4
	8.8	Explain the different levels of architecture that exist in an organization.	2_Understanding	{S3} §3.2
	8.9	Explain at which level an architecture is being developed and the associated level of detail expected.	2_Understanding	{S3} §3.2 G186 §3.2.1
	8.10	Explain the role of Architecture Building Blocks (ABBs) and when they are used.	2_Understanding	{S4} §5.2.3

UNIT 8		Supporting the ADM Work	Bloom's Taxonomy Level	KLP Reference
	8.11	Briefly explain the guidelines and techniques that can be used during the Business Architecture phase: • Applying business capabilities • Applying value streams • Applying the organization map • Applying information mapping • Applying modeling techniques	2_Understanding	{S1} §4.5.3, 4.5.4, 4.5.5, 4.5.6, 4.5.7 G178, G18A, G190, G206, G211
	8.12	Explain the technique of gap analysis and where it can be applied.	2_Understanding	{S2} §5.1, 5.2 G186 §6.3.2
	8.13	Explain how iteration can be used in architecture practices.	2_Understanding	{S3} §2.1, 2.2, 2.3 G186 §5.2, 5.2.3
	8.14	Describe how the Implementation Factor Catalog can be used: • Consolidated Gaps, Solutions, and Dependencies Matrix • Architecture Definition Increments Table	1_Remembering	{S2} §6.1
	8.15	Explain the need for an enterprise metamodel/modeling and how it relates to the ACF.	2_Understanding	{S4} §1.2.1, 1.2.3 G186 A
	8.16	Explain when the ACF needs to be filled throughout the ADM cycles.	2_Understanding	{S4} §1.3 G186 E
	8.17	Describe the usage of an enterprise metamodel using the TOGAF Enterprise Metamodel as an example.	1_Remembering	{S4} §2.2
	8.18	Explain the use of a taxonomy.	2_Understanding	{S4} §2.2
	8.19	Explain how risk assessment can be used.	2_Understanding	{S2} §9.4 G152 §3.2.1, 5.3.4, 5.6.1, 5.7

4. TOGAF Business Architecture Conformance Requirements

4.1 Level 1

To achieve certification at this level, Candidates must complete all Learning Units defined in this section and successfully pass the corresponding Indicator of Compliance for Level 1 certification (see Section 5).

4.1.1 Unit 1 – Introduction and Concepts

UNIT 1	Introduction and Concepts		Bloom's Taxonomy Level	KLP Reference
Purpose	The purpose of this Learning Unit is to introduce the concepts of Enterprise Architecture and the TOGAF Standard.			
Learning Outcomes		The Candidate is able to …		
	1.1	Describe what an enterprise is.	1_Remembering	{S0} §1.1
	1.2	Explain the purpose of Enterprise Architecture.	2_Understanding	{S0} §1.1 G186 §3.1 G20F §1.2
	1.3	List the business benefits of having an Enterprise Architecture.	1_Remembering	{S0} §1.1 G184 §3.6
	1.4	Explain why the TOGAF Standard is suitable as a framework for Enterprise Architecture.	2_Understanding	{S0} §1.1 G20F §1.2
	1.5	List the four architecture domains that are commonly accepted as subsets of an overall Enterprise Architecture and which the TOGAF Standard supports.	1_Remembering	{S0} §3.3
	1.6	Briefly explain the ADM phases and their purpose.	2_Understanding	{S0} §3.4
	1.7	Briefly describe how architecture abstraction can be used in Enterprise Architecture.	1_Remembering	{S0} §3.7
	1.8	Briefly explain Architecture Principles.	2_Understanding	{S0} §3.8
	1.9	Briefly describe the Enterprise Continuum.	1_Remembering	{S0} §3.10
	1.10	Briefly explain the Architecture Repository.	2_Understanding	{S0} §3.11 G186 §5.1
	1.11	Briefly explain the TOGAF Content Framework and Enterprise Metamodel.	2_Understanding	{S0} §3.12 G184 §8.3

UNIT 1		Introduction and Concepts	Bloom's Taxonomy Level	KLP Reference
	1.12	Briefly explain Architecture Capability.	2_Understanding	{S0} §3.13 G184 §5.1
	1.13	Explain the use of the TOGAF Standard with other frameworks.	2_Understanding	{S0} §3.15 G184 §7, 7.1
	1.14	Briefly explain risk management.	2_Understanding	{S2} §9.1 G152 §3.1.1
	1.15	Briefly explain gap analysis.	2_Understanding	{S2} §5.1 G186 §15.2.3

4.1.2 Unit 2 – Definitions

UNIT 2		Definitions – Level 1	Bloom's Taxonomy Level	KLP Reference
Purpose		The purpose of this Learning Unit is to help the Candidate understand relevant terminology.		
Learning Outcomes		The Candidate is able to …		
	2.1	Define the following concepts: Application Architecture Architecture Landscape Architecture Model Artifact Business Architecture Business Model Capability Capability Architecture Data Architecture Deliverable Digital Architecture Gap Metamodel Modeling Requirement Role Segment Architecture Stakeholder Strategic Architecture Technology Architecture Transition Architecture Work Package Note: 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.	1_Remembering	{S0} §4.3 {S0} §4.15 {S0} §4.17 {S0} §4.23 {S0} §4.27 {S0} §4.31 {S0} §4.33 {S0} §4.34 {S0} §4.39 {S0} §4.40 {S0} §4.41 {S0} §4.47 {S0} §4.54 {S0} §4.56 {S0} §4.64 {S0} §4.66 {S0} §4.67 {S0} §4.75 {S0} §4.77 {S0} §4.80 {S0} §4.83 {S0} §4.88

4.1.3　Unit 3 – Introduction to the ADM

UNIT 3	Introduction to the ADM – Level 1		Bloom's Taxonomy Level	KLP Reference
Purpose	The purpose of this Learning Unit is to help the Candidate understand the ADM cycle, briefly explain the objective of each phase in the cycle, and how to adapt and scope the ADM for use.			
Learning Outcomes		The Candidate is able to …		
	3.1	Briefly describe the ADM and its phases.	1_Remembering	{S0} 3.4 {S1} §1.2.2
	3.2	Describe the difference between "draft" and "approved" deliverables.	1_Remembering	{S1} §1.2.2
	3.3	Explain the iterative nature of the ADM.	2_Understanding	{S1} §1.2.1 G186 §5.2.3
	3.4	Explain the need to govern the creation, development, and maintenance of Enterprise Architecture.	2_Understanding	{S1} §1.4 G186 §15.1.1, 15.1.2, 15.2.1
	3.5	Briefly explain how to scope an architecture.	1_Remembering	{S1} §1.5
	3.6	Briefly explain the reasons for considering architecture alternatives, including understanding concerns and trade-off.	2_Understanding	{S1} §1.6, 1.6.1
	3.7	Briefly explain the purpose of the Preliminary Phase.	1_Remembering	G184 §13.1
	3.8	Describe the objectives of the Preliminary Phase.	1_Remembering	{S1} §2.1
	3.9	Briefly explain the purpose of Phase A.	2_Understanding	G186 §5.2.1, 5.2.2 Table 4
	3.10	Explain how iteration within the ADM enables concurrent operation of multiple ADM phases.	2_Understanding	{S3} §2.1
	3.11	Briefly explain the purpose of Phase B.	2_Understanding	G186 §5.2.2 Table 4

4.1.4   Unit 4 – Business Modeling

UNIT 4	Business Modeling		Bloom's Taxonomy Level	KLP Reference
Purpose	The purpose of this Learning Unit is to create an understanding of the topic of business modeling and how it relates to Enterprise Architecture within the context of the TOGAF Standard.			
Learning Outcomes		The Candidate is able to …		
	4.1	Define what a business model is.	1_Remembering	G18A §2
	4.2	Describe the impact and benefits of business models.	1_Remembering	G18A §3
	4.3	Describe different example representations of business models.	1_Remembering	G18A §2
	4.4	Explain the typical contents of a business model, using the nine building blocks of the business model canvas as an example.	2_Understanding	G18A §7, A
	4.5	Explain the relationship between business models and Business Architecture.	2_Understanding	G18A §4
	4.6	Explain how business models can be used according to the TOGAF Standard.	2_Understanding	G18A §5
	4.7	Explain why business model innovation should be approached in a structured manner.	2_Understanding	G18A §6, 7

4.1.5   Unit 5 – Business Capabilities

UNIT 5	Business Capabilities		Bloom's Taxonomy Level	KLP Reference
Purpose	The purpose of this Learning Unit is to create an understanding of the concept of business capabilities and how they can be modeled with business capability maps.			
Learning Outcomes		The Candidate is able to …		
	5.1	Describe what a business capability is.	1_Remembering	G211 §1, 2
	5.2	Explain how a business capability can be defined.	2_Understanding	G211 §1, 2.1
	5.3	List the components of a business capability.	1_Remembering	G211 §2.2
	5.4	Describe what a business capability map is.	1_Remembering	G211 §3
	5.5	Explain the capability mapping approach.	2_Understanding	G211 §3.1
	5.6	Explain how a business capability map can be structured.	2_Understanding	G211 §3.2

UNIT 5		Business Capabilities	Bloom's Taxonomy Level	KLP Reference
	5.7	Explain how business capabilities can be mapped to other business perspectives.	2_Understanding	G211 §5
	5.8	Describe the characteristics of heat mapping.	1_Remembering	G211 §5.1
	5.9	Explain how to interpret a heat map.	2_Understanding	G211 §5.1
	5.10	Describe the characteristics and types of relationship mapping.	1_Remembering	G211 §5.2

4.1.6 Unit 6 – Value Streams

UNIT 6		Value Streams	Bloom's Taxonomy Level	KLP Reference
Purpose	The purpose of this Learning Unit is to create an understanding of value streams and value stream mapping and how they can be applied.			
Learning Outcomes		The Candidate is able to …		
	6.1	Describe what "value" is in the context of Business Architecture.	1_Remembering	G178 §1.1
	6.2	Explain the benefits of value streams and value stream mapping.	2_Understanding	G178 §1.5
	6.3	Briefly describe different approaches to value analysis (including value streams, value chains, value networks, and lean value streams).	1_Remembering	G178 §1.2, A
	6.4	Explain the use of value streams in Business Architecture.	2_Understanding	G178 §1.3
	6.5	Explain the relationship of value streams to other Business Architecture concepts, including process, capability, value stage, value, and stakeholder.	2_Understanding	G178 §1.4
	6.6	Explain how a value stream is defined.	2_Understanding	G178 §2.1
	6.7	Explain how a value stream can be decomposed to a value stream stage.	2_Understanding	G178 §2.2
	6.8	Describe the purpose of mapping capabilities to value stream stages.	1_Remembering	G178 §2.3
	6.9	Explain the approach and guiding principles to creating value streams.	2_Understanding	G178 §3, 3.1
	6.10	Explain with an example how a value stream is decomposed into value stream stages.	2_Understanding	G178 §4.1

UNIT 6		Value Streams	Bloom's Taxonomy Level	KLP Reference
	6.11	Explain with an example how value streams/value stream stages can be mapped to business capabilities.	2_Understanding	G178 §4.2
	6.12	Explain with an example how heat mapping can be applied to a mapping of value streams/value stream stages to business capabilities.	2_Understanding	G178 §4.3

4.1.7   Unit 7 – Business Scenarios

UNIT 7		Business Scenarios	Bloom's Taxonomy Level	KLP Reference
Purpose		The purpose of this Learning Unit is to create an understanding of the business scenario method and where it is used in the TOGAF ADM.		
Learning Outcomes		The Candidate is able to …		
	7.1	Describe what a TOGAF business scenario is and its purpose.	1_Remembering	G176 §1, 2
	7.2	Describe the benefits of developing a TOGAF business scenario.	1_Remembering	G176 §2
	7.3	Explain where TOGAF business scenarios are used in the TOGAF ADM.	2_Understanding	G176 §1, 6
	7.4	Explain how to develop and validate a TOGAF business scenario.	2_Understanding	G176 §3.1, 3.2, 7
	7.5	Describe where business capabilities and value streams are used in developing a TOGAF business scenario.	1_Remembering	G176 §3.1

4.1.8   Unit 8 – Information Mapping

UNIT 8		Information Mapping	Bloom's Taxonomy Level	KLP Reference
Purpose		The purpose of this Learning Unit is to create an understanding of the topic of information mapping, how it relates to Enterprise Architecture, and how it supports the TOGAF Standard.		
Learning Outcomes		The Candidate is able to …		
	8.1	Describe what an information map is.	1_Remembering	G190 §2
	8.2	Explain the impact and benefits of information mapping.	2_Understanding	G190 §3

UNIT 8		Information Mapping	Bloom's Taxonomy Level	KLP Reference
	8.3	Explain the relationships of information maps to other Business Architecture concepts.	2_Understanding	G190 §4
	8.4	Explain the relationship of information maps to data models.	2_Understanding	G190 §5
	8.5	Explain how information maps can be used with the TOGAF ADM.	2_Understanding	G190 §6

4.1.9 Unit 9 – Organization Mapping

UNIT 9		Organization Mapping	Bloom's Taxonomy Level	KLP Reference
Purpose		The purpose of this Learning Unit is to create an understanding of the topic of organization mapping, how it relates to Enterprise Architecture, and how it supports the TOGAF Standard.		
Learning Outcomes		The Candidate is able to …		
	9.1	Describe what an organization map is.	1_Remembering	G206 §2
	9.2	Explain the difference between organization maps and organization charts.	2_Understanding	G206 §3
	9.3	Explain the impact and benefits of organization mapping.	2_Understanding	G206 §4
	9.4	Explain the relationships of organization maps to other domains.	2_Understanding	G206 §5 Table 2
	9.5	Explain how organization maps can be used with the TOGAF ADM.	2_Understanding	G206 §6

4.1.10 Unit 10 – Applying Business Architecture Techniques within the TOGAF ADM

UNIT 10		Applying Business Architecture Techniques within the TOGAF ADM	Bloom's Taxonomy Level	KLP Reference
Purpose		The purpose of this Learning Unit is to create an understanding of how a Business Architecture can be developed with the TOGAF ADM.		
Learning Outcomes		The Candidate is able to …		
	10.1	Explain how Business Architecture concepts (business capabilities, value streams, and organization maps) are used in creating the Architecture Vision in Phase A.	2_Understanding	{S1} §3.5.2
	10.2	Explain the approach to creating the Business Architecture in Phase B.	2_Understanding	{S1} §4.5.1, 4.5.2

UNIT 10	Applying Business Architecture Techniques within the TOGAF ADM		Bloom's Taxonomy Level	KLP Reference
	10.3	Explain the application of Business Architecture concepts (business capabilities, values streams, organization maps, information maps, and modeling techniques) as applied in Phase B.	2_Understanding	{S1} §4.5.3, 4.5.4, 4.5.5, 4.5.6, 4.5.7

4.1.11 Unit 11 – TOGAF Certification Program

UNIT 11	TOGAF Certification Program		Bloom's Taxonomy Level	KLP Reference
Purpose	The purpose of this Learning Unit is to help the Candidate understand the TOGAF Certification Program.			
Learning Outcomes		The Candidate is able to …		
	11.1	Explain the TOGAF Certification Program, and distinguish between the levels for certification.		None

5.   Indicators of Compliance

The Indicators of Compliance for the Program are The Open Group examinations.

The descriptions of the examinations for each level are maintained by the Certification Authority and displayed on The Open Group website. This includes a description of the examination type (for example, simple multiple-choice, complex scenario, etc.), the number of questions, the duration, supervision requirements, whether an examination is open book, the pass score, the language(s) in which the examination is offered, and the prerequisites for taking the examination.

6.   The Body of Knowledge

This section defines the Body of Knowledge for this certification.

6.1   Documents Comprising the Body of Knowledge

Document Reference	Document Title	KLP Ref.
TOGAF Standard: Fundamental Content	TOGAF® Standard – Introduction and Core Concepts	{S0}
	TOGAF® Standard – Architecture Development Method	{S1}
	TOGAF® Standard – ADM Techniques	{S2}
	TOGAF® Standard – Applying the ADM TOGAF®	{S3}
	Standard – Architecture Content	{S4}
	TOGAF® Standard – Enterprise Architecture Capability and Governance	{S5)
TOGAF Standard: TOGAF Series Guides	TOGAF® Series Guide: The TOGAF Leader's Guide to Establishing and Evolving an EA Capability	G184
	TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM	G186
	TOGAF® Series Guide: Enabling Enterprise Agility TOGAF®	G20F
	Series Guide: Business Models	G18A
	TOGAF® Series Guide: Business Capabilities, Version 2	G211
	TOGAF® Series Guide: Business Scenarios	G176
	TOGAF® Series Guide: Information Mapping	G190
	TOGAF® Series Guide: Organization Mapping	G206
	TOGAF® Series Guide: Value Streams	G178
	TOGAF® Series Guide: Integrating Risk and Security within a TOGAF® Enterprise Architecture	G152
	TOGAF® Series Guide: Using the TOGAF Standard in the Digital Enterprise	G217

7. Rationale (Informative)

This section contains informative rationale.

7.1 Bloom's Taxonomy

The terms used to define the depth of learning are drawn from Bloom's Taxonomy.

Bloom's Taxonomy	Level	Cognitive Dimension	Examples of Action Verbs
Lower-order Learning Skills	1	Remembering	Define, list, describe …
	2	Understanding	Explain, summarize …
	3	Applying	Apply, explain, illustrate, interpret …
Higher-order Learning Skills	4	Analyzing	Analyze, classify, distinguish …
	5	Evaluating	Evaluate, justify …
	6	Creating	Construct, design, plan …

7.2 Learning Levels

The learning levels that need to be addressed for this certification range from 1 to 2. The following table shows examples of learning activities for each (Bloom) learning level.

Level	Cognitive Dimension	Examples of Learning Activities
1	Remembering	Lecture, video-clip, examples, illustrations, metaphors, guided reading
2	Understanding	Interactive lecture, Q&A, group discussions, tests
3	Applying	Practice exercises, demonstrations, simple projects, simulations, role play
4	Analyzing	Practical (case-based) exercises, higher-level tests
5	Evaluating	Project, complex case studies, appraisals, debating
6	Creating	Development of plans, complex projects, constructing