The TOGAF® Enterprise Architecture Foundation Study Guide

Preparation for the TOGAF Enterprise Architecture Part 1 Examination

By Andrew Josey

Van Haren PUBLISHING

THE Open GROUP

Copyright protected. Use is for Single Users only via a VHP Approved License.
For information and printed versions please see www.vanharen.net

The TOGAF® Enterprise Architecture Foundation Study Guide

Copyright protected. Use is for Single Users only via a VHP Approved License.
For information and printed versions please see www.vanharen.net

The Open Group Publications available from Van Haren Publishing

The TOGAF® Standard, 10th Edition:
Introduction and Core Concepts
Architecture Development Method
Content, Capability, and Governance
Leader's Guide
ADM Practitioners' Guide
Business Architecture
Enterprise Agility and Digital Transformation
A Pocket Guide
TOGAF® Business Architecture Foundation Study Guide
TOGAF® Enterprise Architecture Foundation Study Guide

The TOGAF Series:
The TOGAF® Standard, Version 9.2
The TOGAF® Standard, Version 9.2 – A Pocket Guide
TOGAF® 9 Foundation Study Guide, 4th Edition
TOGAF® 9 Certified Study Guide, 4th Edition

The Open Group Series:
The IT4IT™ Standard, Version 3.0
IT4IT™ for Managing the Business of IT – A Management Guide
IT4IT™ Foundation Study Guide, 2nd Edition
The IT4IT™ Reference Architecture, Version 2.1 – A Pocket Guide
Cloud Computing for Business – The Open Group Guide
ArchiMate® 3.1 Specification – A Pocket Guide
ArchiMate® 3.2 Specification
The Digital Practitioner Pocket Guide
The Digital Practitioner Foundation Study Guide
Open Agile Architecture™ – A Standard of The Open Group

The Open Group Press:
The Turning Point: A Novel about Agile Architects Building a Digital Foundation
Managing Digital

The Open Group Security Series:
O-TTPS – A Management Guide
Open Information Security Management Maturity Model (O-ISM3)
Open Enterprise Security Architecture (O-ESA)
Risk Management – The Open Group Guide
The Open FAIR™ Body of Knowledge – A Pocket Guide

All titles are available to purchase from:
www.opengroup.org
www.vanharen.net
and also many international and online distributors.

Copyright protected. Use is for Single Users only via a VHP Approved License.
For information and printed versions please see www.vanharen.net

The TOGAF® Enterprise Architecture Foundation Study Guide

Preparation for the TOGAF Enterprise Architecture Part 1 Examination

by Andrew Josey

The TOGAF® Standard — 10th Edition

Van Haren PUBLISHING

Copyright protected. Use is for Single Users only via a VHP Approved License.
For information and printed versions please see www.vanharen.net

Title:	The TOGAF® Enterprise Architecture Foundation Study Guide
Subtitle:	Preparation for the TOGAF Enterprise Architecture Part 1 Examination
Series:	TOGAF Series
A Publication of:	The Open Group
Publisher:	Van Haren Publishing, 's-Hertogenbosch, www.vanharen.net
ISBN Hard copy:	978 94 018 1015 9
ISBN eBook (pdf):	978 94 018 1016 6
ISBN ePub:	978 94 018 1017 3
Edition:	First edition, first impression, April 2023
Layout:	The Open Group

Copyright: © 2023, The Open Group. All rights reserved.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior permission of the copyright owner.

Document Number: B230

Published by The Open Group, March 2023.

Comments relating to the material contained in this document may be submitted to:
The Open Group
Apex Plaza
Forbury Road
Reading
Berkshire, RG1 1AX
United Kingdom
or by electronic mail to: ogspecs@opengroup.org

Copyright protected. Use is for Single Users only via a VHP Approved License.
For information and printed versions please see www.vanharen.net

Table of Contents

Preface . . . ix
The Open Group . . . ix
This Document . . . ix
How to Use this Document . . . xi
Conventions Used in this Document . . . xi
About the TOGAF Standard . . . xiii
About the Author . . . xiv
Trademarks . . . xv
Acknowledgments . . . xvi
Referenced Documents . . . xvii
1. Introduction . . . 1
1.1. Key Learning Points . . . 1
1.2. The Open Group Certification for People Program . . . 1
1.3. The TOGAF Certification Portfolio . . . 2
1.4. TOGAF Enterprise Architecture Foundation . . . 2
1.4.1. Format of the Examination Questions . . . 3
1.4.2. What ID do I Need to Present to Take the Examination? . . . 4
1.4.3. Can I Refer to Materials While I Take the Examination? . . . 4
1.4.4. If I Fail, How Soon Can I Retake the Examination? . . . 4
1.5. Preparing for the Examination . . . 4
1.6. Summary . . . 4
1.7. Test Yourself Questions . . . 5
1.8. Recommended Reading . . . 5
2. Concepts . . . 7
2.1. Key Learning Points . . . 7
2.2. What is an Enterprise? . . . 7
2.3. The Purpose of Enterprise Architecture . . . 9
2.4. The Key Benefits of Enterprise Architecture . . . 9
2.5. What is the TOGAF Standard? . . . 10
2.5.1. Structure of the TOGAF Documentation . . . 10
2.6. A Framework for Enterprise Architecture . . . 11
2.7. Architecture Domains in the TOGAF Standard . . . 12
2.8. Architecture Abstraction in Enterprise Architecture . . . 13
2.9. The Enterprise Continuum . . . 14

Copyright protected. Use is for Single Users only via a VHP Approved License.
For information and printed versions please see www.vanharen.net

2.10. Architecture Repository . . . 15
2.11. TOGAF Content Framework and Enterprise Metamodel . . . 17
2.12. Architecture Capability . . . 19
2.13. Risk Management . . . 20
2.14. Gap Analysis . . . 21
2.15. Summary . . . 23
2.16. Test Yourself Questions . . . 24
2.17. Recommended Reading . . . 26
3. Terminology . . . 27
3.1. Key Learning Points . . . 27
3.2. Terms and Definitions . . . 27
3.3. Summary . . . 31
3.4. Test Yourself Questions . . . 31
3.5. Recommended Reading . . . 32
4. Introduction to the ADM . . . 33
4.1. Key Learning Points . . . 33
4.2. The TOGAF ADM and its Phases . . . 33
4.3. Draft and Approved Deliverables . . . 36
4.4. Iteration and the ADM . . . 36
4.5. Governing Enterprise Architecture . . . 37
4.6. Scoping an Architecture . . . 39
4.7. Architecture Alternatives and Trade-Off . . . 40
4.8. The Preliminary Phase . . . 41
4.9. Phase A . . . 42
4.10. Phases B, C, and D . . . 43
4.11. Phases E and F . . . 45
4.12. Phases G and H . . . 46
4.13. Requirements Management . . . 48
4.14. Information Flow and the TOGAF ADM . . . 48
4.15. Agile Software Development . . . 49
4.16. Summary . . . 49
4.17. Test Yourself Questions . . . 50
4.18. Recommended Reading . . . 54
5. ADM Techniques . . . 55
5.1. Key Learning Points . . . 55
5.2. Supporting Guidelines and Techniques . . . 55
5.3. Architecture Principles . . . 56

Copyright protected. Use is for Single Users only via a VHP Approved License.
For information and printed versions please see www.vanharen.net

5.4. Business Scenarios . . . 59
5.5. Gap Analysis . . . 60
5.6. Interoperability . . . 61
5.7. Business Transformation Readiness Assessment . . . 62
5.8. The Characteristics of Risk Management . . . 62
5.9. Summary . . . 63
5.10. Test Yourself Questions . . . 64
5.11. Recommended Reading . . . 66
6. Applying the ADM . . . 67
6.1. Key Learning Points . . . 67
6.2. How to Apply the TOGAF Standard . . . 67
6.3. Iteration within the ADM . . . 68
6.4. The Architecture Landscape . . . 70
6.5. Partitioning . . . 71
6.6. Purposes of Architecture . . . 72
6.7. The Digital Enterprise . . . 74
6.8. Summary . . . 74
6.9. Test Yourself Questions . . . 75
6.10. Recommended Reading . . . 76
7. Architecture Governance . . . 77
7.1. Key Learning Points . . . 77
7.2. Introduction to Governance . . . 77
7.3. Architecture Governance . . . 78
7.4. The Benefits of Architecture Governance . . . 79
7.5. The Role of an Architecture Board . . . 80
7.5.1. Responsibilities . . . 81
7.6. Architecture Contracts . . . 82
7.7. Architecture Compliance . . . 83
7.8. Summary . . . 84
7.9. Test Yourself Questions . . . 84
7.10. Recommended Reading . . . 84
8. Architecture Content . . . 85
8.1. Key Learning Points . . . 85
8.2. Concepts and Definitions . . . 85
8.3. Building Blocks . . . 88
8.4. Deliverables . . . 90
8.4.1. Architecture Contract . . . 91

Copyright protected. Use is for Single Users only via a VHP Approved License.
For information and printed versions please see www.vanharen.net

8.4.2. Architecture Definition Document . . . 92
8.4.3. Architecture Principles . . . 95
8.4.4. Architecture Requirements Specification . . . 95
8.4.5. Architecture Roadmap . . . 97
8.4.6. Architecture Vision . . . 99
8.4.7. Business Principles, Goals, and Drivers . . . 99
8.4.8. Capability Assessment . . . 99
8.4.9. Change Request . . . 101
8.4.10. Communications Plan . . . 101
8.4.11. Compliance Assessment . . . 102
8.4.12. Implementation and Migration Plan . . . 103
8.4.13. Implementation Governance Model . . . 104
8.4.14. Request for Architecture Work . . . 104
8.4.15. Requirements Impact Assessment . . . 105
8.4.16. Statement of Architecture Work . . . 105
8.5. Summary . . . 106
8.6. Test Yourself Questions . . . 107
8.7. Recommended Reading . . . 108
Appendix A: Answers to Test Yourself Questions . . . 109
Appendix B: Test Yourself Examination Paper . . . 119
B.1. Examination Paper . . . 120
Appendix C: Test Yourself Examination Paper Answers . . . 137
Appendix D: TOGAF Enterprise Architecture Level 1 Syllabus . . . 145
D.1. Learning Units . . . 145
D.1.1. Unit 1 . . . 145
D.1.2. Unit 2 . . . 147
D.1.3. Unit 3 . . . 148
D.1.4. Unit 4 . . . 149
D.1.5. Unit 5 . . . 150
D.1.6. Unit 6 . . . 152
D.1.7. Unit 7 . . . 153
D.1.8. Unit 8 . . . 154
D.2. Body of Knowledge . . . 154
Index . . . 155

Copyright protected. Use is for Single Users only via a VHP Approved License.
For information and printed versions please see www.vanharen.net

Preface

The Open Group

The Open Group is a global consortium that enables the achievement of business objectives through technology standards. With more than 900 member organizations, we have a diverse membership that spans all sectors of the technology community – customers, systems and solutions suppliers, tool vendors, integrators and consultants, as well as academics and researchers.

The mission of The Open Group is to drive the creation of Boundaryless Information Flow™ achieved by:

- Working with customers to capture, understand, and address current and emerging requirements, establish policies, and share best practices
- Working with suppliers, consortia, and standards bodies to develop consensus and facilitate interoperability, to evolve and integrate specifications and open source technologies
- Offering a comprehensive set of services to enhance the operational efficiency of consortia
- Developing and operating the industry's premier certification service and encouraging procurement of certified products

Further information on The Open Group is available at www.opengroup.org.

The Open Group publishes a wide range of technical documentation, most of which is focused on development of Standards and Guides, but which also includes white papers, technical studies, certification and testing documentation, and business titles. Full details and a catalog are available at www.opengroup.org/library.

This Document

This document is the Study Guide for the TOGAF Enterprise Architecture Foundation qualification. This document is aligned with the TOGAF Standard, 10th Edition.

It gives an overview of every learning objective included in the syllabus and in-depth coverage on preparing and taking the TOGAF Enterprise Architecture Part 1 examination. It is specifically designed to help individuals prepare for the examination.

Copyright protected. Use is for Single Users only via a VHP Approved License.
For information and printed versions please see www.vanharen.net

The audience for this Study Guide is:

- Individuals who need a basic understanding of a proven Enterprise Architecture methodology
- Professionals who work for or join an organization applying the TOGAF Standard
- Individuals who need to start to learn the TOGAF method
- Individuals who want to achieve the TOGAF® Enterprise Architecture Practitioner qualification in a stepwise manner, or other certifications and certification credentials from The Open Group where this certification is a prerequisite

A prior knowledge of Enterprise Architecture is advantageous but not required. While reading this Study Guide, the reader should also refer to the TOGAF Standard.

The structure of the document is as follows:

- Chapter 1, *Introduction* introduces TOGAF certification and the TOGAF Enterprise Architecture Foundation qualification, including the TOGAF Enterprise Architecture Part 1 examination
- Chapter 2, *Concepts* introduces the concepts of Enterprise Architecture and the TOGAF Standard; this includes the TOGAF Architecture Development Method, the contents of the TOGAF framework, and the TOGAF Library
- Chapter 3, *Terminology* defines the key terminology required for the TOGAF Enterprise Architecture Foundation qualification
- Chapter 4, *Introduction to the ADM* will help you understand the TOGAF ADM, including the objectives of the ADM phases, and how to adapt and scope the ADM for use
- Chapter 5, *ADM Techniques* introduces the techniques available to support application of the ADM
- Chapter 6, *Applying the ADM* introduces the guidance available to support application of the ADM, including iteration, partitioning, Agile delivery, and application in a digital enterprise
- Chapter 7, *Architecture Governance* describes how Architecture Governance contributes to architecture development
- Chapter 8, *Architecture Content* describes the key concepts related to the Architecture Content produced while executing the ADM, building blocks, and the key deliverables of the ADM phases

Copyright protected. Use is for Single Users only via a VHP Approved License.
For information and printed versions please see www.vanharen.net

- Appendix A, *Answers to Test Yourself Questions* provides the answers to the Test Yourself sections provided at the end of each chapter
- Appendix B, *Test Yourself Examination Paper* provides an examination to allow you to assess your knowledge of the TOGAF Enterprise Architecture Foundation Syllabus and your readiness to take the TOGAF Enterprise Architecture Part 1 Examination
- Appendix C, *Test Yourself Examination Paper Answers* provides the answers to the Test Yourself examination
- Appendix D, *TOGAF Enterprise Architecture Level 1 Syllabus* provides the TOGAF Enterprise Architecture Foundation Syllabus

How to Use this Document

The chapters in this document are arranged to cover the TOGAF Enterprise Architecture Foundation syllabus and should be read in order. Where a topic requires further information from a later part in the syllabus, a cross-reference is provided.

Within each chapter are “Key Learning Points” and “Summary” sections that help you to easily identify what you need to know for each topic.

Conventions Used in this Document

The following conventions are used throughout this document in order to help identify important information and avoid confusion over the intended meaning:

- (*Syllabus reference Unit X, Learning Outcome X.Y: Statement*)

  Used at the start of a text block to identify the TOGAF Enterprise Architecture Foundation syllabus learning outcome.

- Ellipsis (…)

  Indicates a continuation; such as an incomplete list of example items, or a continuation from preceding text.

- **Bold**

  Used to highlight specific terms.

- *Italics*

  Used for emphasis. May also refer to other external documents.

Copyright protected. Use is for Single Users only via a VHP Approved License.
For information and printed versions please see www.vanharen.net

In addition to typographical conventions, the following conventions are used to highlight segments of text:

Note

A Note box is used to highlight useful or interesting information.

Tip

A Tip box is used to provide key information that can save you time or that may not be entirely obvious.

Copyright protected. Use is for Single Users only via a VHP Approved License.
For information and printed versions please see www.vanharen.net

About the TOGAF Standard

The TOGAF Standard, a standard of The Open Group, is a proven Enterprise Architecture methodology and framework used by the world's leading organizations to improve business efficiency. It is the most prominent and reliable Enterprise Architecture standard, ensuring consistent standards, methods, and communication among Enterprise Architecture professionals. Those fluent in the TOGAF Standard enjoy greater industry credibility, job effectiveness, and career opportunities. The TOGAF Standard helps practitioners avoid being locked into proprietary methods, utilize resources more efficiently and effectively, and realize a greater return on investment.

Copyright protected. Use is for Single Users only via a VHP Approved License.
For information and printed versions please see www.vanharen.net

About the Author

This document builds on materials from the TOGAF Standard, 10th Edition published by The Open Group. The author listed here has prepared this document. See the Acknowledgements section for more information.

Andrew Josey, The Open Group

Andrew Josey is VP Standards and Certification, overseeing all certification and testing programs of The Open Group. He also manages the standards process for The Open Group. Since joining the company in 1996, Andrew has been closely involved with the standards development, certification, and testing activities of The Open Group. He has led many projects including specification and certification development for the ArchiMate®, TOGAF®, POSIX®, and UNIX® programs. Most recently he has led the development of the Open Agile Architecture™ Practitioner certification and the certification portfolio for the TOGAF Standard, 10th Edition. He has led the automation of The Open Group standards development using a GitLab-based automated build toolchain. He is the lead author of this document, and author of more than ten guides published by The Open Group.

He is a member of the IEEE, USENIX, and the Association of Enterprise Architects (AEA). He holds an MSc in Computer Science from University College London.

Copyright protected. Use is for Single Users only via a VHP Approved License.
For information and printed versions please see www.vanharen.net

Trademarks

ArchiMate, DirecNet, Making Standards Work, Open O logo, Open O and Check Certification logo, Platform 3.0, The Open Group, TOGAF, UNIX, UNIXWARE, and the Open Brand X logo are registered trademarks and Boundaryless Information Flow, Build with Integrity Buy with Confidence, Commercial Aviation Reference Architecture, Dependability Through Assuredness, Digital Practitioner Body of Knowledge, DPBoK, EMMM, FACE, the FACE logo, FHIM Profile Builder, the FHIM logo, FPB, Future Airborne Capability Environment, IT4IT, the IT4IT logo, O-AA, O-DEF, O-HERA, O-PAS, Open Agile Architecture, Open FAIR, Open Footprint, Open Process Automation, Open Subsurface Data Universe, Open Trusted Technology Provider, OSDU, Sensor Integration Simplified, SOSA, and the SOSA logo are trademarks of The Open Group.

Gartner is a registered trademark of Gartner, Inc.

ITIL is a registered trademark of AXELOS Limited.

POSIX is a trademark of the IEEE.

UML is a registered trademark and Unified Modeling Language is a trademark of Object Management Group, Inc.

All other brands, company, and product names are used for identification purposes only and may be trademarks that are the sole property of their respective owners.

Copyright protected. Use is for Single Users only via a VHP Approved License.
For information and printed versions please see www.vanharen.net

Acknowledgments

The Open Group gratefully acknowledges The Open Group Architecture Forum for developing the standard on which this document is based.

The Open Group gratefully acknowledges the contributions of the authors of the TOGAF Series Guides on which this Study Guide is based:

- Terence Blevins
- Sonia Gonzalez
- Heidi Hasz
- Dave Hornford
- Nathan Hornford
- Taylor Hornford
- Andy Ruth
- Sriram Sabesan
- Sadie Scotch
- Ken Street
- Samantha Toder

The Open Group gratefully acknowledges the following reviewers who participated in the review of this document:

- Shammi Bhandaru
- Steve Else
- Chris Frost
- Max Hemingway
- Paul Homan
- Jens Kjærby
- Rolf Knoll
- Rita Neelam
- Simon Parker
- Sundar Ramanathan
- Vidyasagar Uddagiri

Copyright protected. Use is for Single Users only via a VHP Approved License.
For information and printed versions please see www.vanharen.net

Referenced Documents

The following documents are referenced in this Guide.

(Please note that the links below are good at the time of writing but cannot be guaranteed for the future.)

[C220]	*The TOGAF® Standard, 10th Edition*, a standard of The Open Group (C220), published by The Open Group, April 2022; refer to: www.opengroup.org/library/c220
[G152]	*TOGAF® Series Guide: Integrating Risk and Security within a TOGAF® Enterprise Architecture* (G152), published by The Open Group, April 2022; refer to: www.opengroup.org/library/g152
[G217]	*TOGAF® Series Guide: Using the TOGAF® Standard in the Digital Enterprise* (G217), published by The Open Group, April 2022; refer to: www.opengroup.org/library/g217
[G20F]	*TOGAF® Series Guide: Enabling Enterprise Agility* (G20F), published by The Open Group, April 2022; refer to: www.opengroup.org/library/g20f
[G184]	*TOGAF® Series Guide: TOGAF® Leader's Guide to Establishing and Evolving an EA Capability* (G184), published by The Open Group, April 2022; refer to: www.opengroup.org/library/g184
[G186]	*TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM* (G186), published by The Open Group, April 2022; refer to: www.opengroup.org/library/g186
[W076]	*Why does Enterprise Architecture Matter?*, The Open Group White Paper (W076), published by The Open Group, November 2008; refer to: www.opengroup.org/library/w076
[W212]	*An Introduction to the TOGAF® Standard, 10th Edition*, The Open Group White Paper (W212), published by The Open Group, April 2022; refer to: www.opengroup.org/library/w212
[X1603]	*The Open Group Certification for People: Certification Policy for Examination-Based Programs* (X1603), published by The Open Group, April 2016; refer to: www.opengroup.org/library/x1603
[X2202]	*The Open Group Certification for People: Certification Policy for Examination-Based Programs (Multi-Level) Version 4.0* (X2202), published by The Open Group, April 2022; refer to: www.opengroup.org/library/x2202
[ISO 42010]	*ISO/IEC/IEEE 42010:2011, Systems and Software Engineering – Architecture Description*, published by ISO/IEC, December 2011; refer to: www.iso.org/standard/50508.html
[ISO 31000]	*ISO 31000:2108, Risk Management – Guidelines*, published by ISO, February 2018; refer to: www.iso.org/standard/65694.html

Copyright protected. Use is for Single Users only via a VHP Approved License.
For information and printed versions please see www.vanharen.net

[ISO 38500]	*ISO/IEC 38500:2015, Information Technology – Governance of IT for the Organization*, published by ISO/IEC, February 2015; refer to: www.iso.org/standard/62816.html
[Naidoo 2002]	*Corporate Governance*, Ranami Naidoo, published by Double Storey, 2002

The following web links are referenced in this Study Guide:

[WEB1]	TOGAF Enterprise Architecture Foundation Data Sheet: certification.opengroup.org/datasheets/togaf_ea_foundation.pdf
[WEB2]	The Open Group TOGAF Certification Portfolio website: www.opengroup.org/certifications/togaf-certification-portfolio
[WEB3]	The digital edition of the TOGAF Standard: www.opengroup.org/togaf/10thedition
[WEB4]	The TOGAF Library: www.opengroup.org/library/togaf-library

Copyright protected. Use is for Single Users only via a VHP Approved License.
For information and printed versions please see www.vanharen.net

Chapter 1. Introduction

This chapter provides an introduction to this document.

1.1. Key Learning Points

This document is a Study Guide for students studying for the TOGAF Enterprise Architecture Foundation qualification. This edition is aligned to the TOGAF Standard, 10th Edition [C220]. It will familiarize you with all the topics that you need to know in order to pass the TOGAF Enterprise Architecture Part 1 examination.

It gives an overview of every learning objective included in the syllabus and in-depth coverage on preparing and taking the examination. It is specifically designed to help individuals prepare for the examination.

(*Syllabus Reference: Unit 8, Learning Outcome 8.1: You should be able to explain the TOGAF Certification Program and distinguish between the levels for certification*)

This first chapter will provide you with important information on the TOGAF Certification Program, the TOGAF Enterprise Architecture Foundation qualification and the structure of the TOGAF Enterprise Architecture Part 1 examination.

1.2. The Open Group Certification for People Program

Certification is available to individuals who wish to demonstrate they have attained the required knowledge and understanding of a particular topic. It leads to the award of a certificate and Open Badge.

This Study Guide covers the TOGAF Enterprise Architecture Foundation qualification. It can be studied in its own right independent of other learning paths.

Why Become Certified?

Becoming certified demonstrates clearly to employers and peers your commitment to being an Enterprise Architect. In particular, it demonstrates that you possess a body of core knowledge about the TOGAF Standard as an open, industry standard framework. The Open Group publishes the definitive directory of certified individuals, and issues certificates and Open Badges.

Copyright protected. Use is for Single Users only via a VHP Approved License.
For information and printed versions please see www.vanharen.net