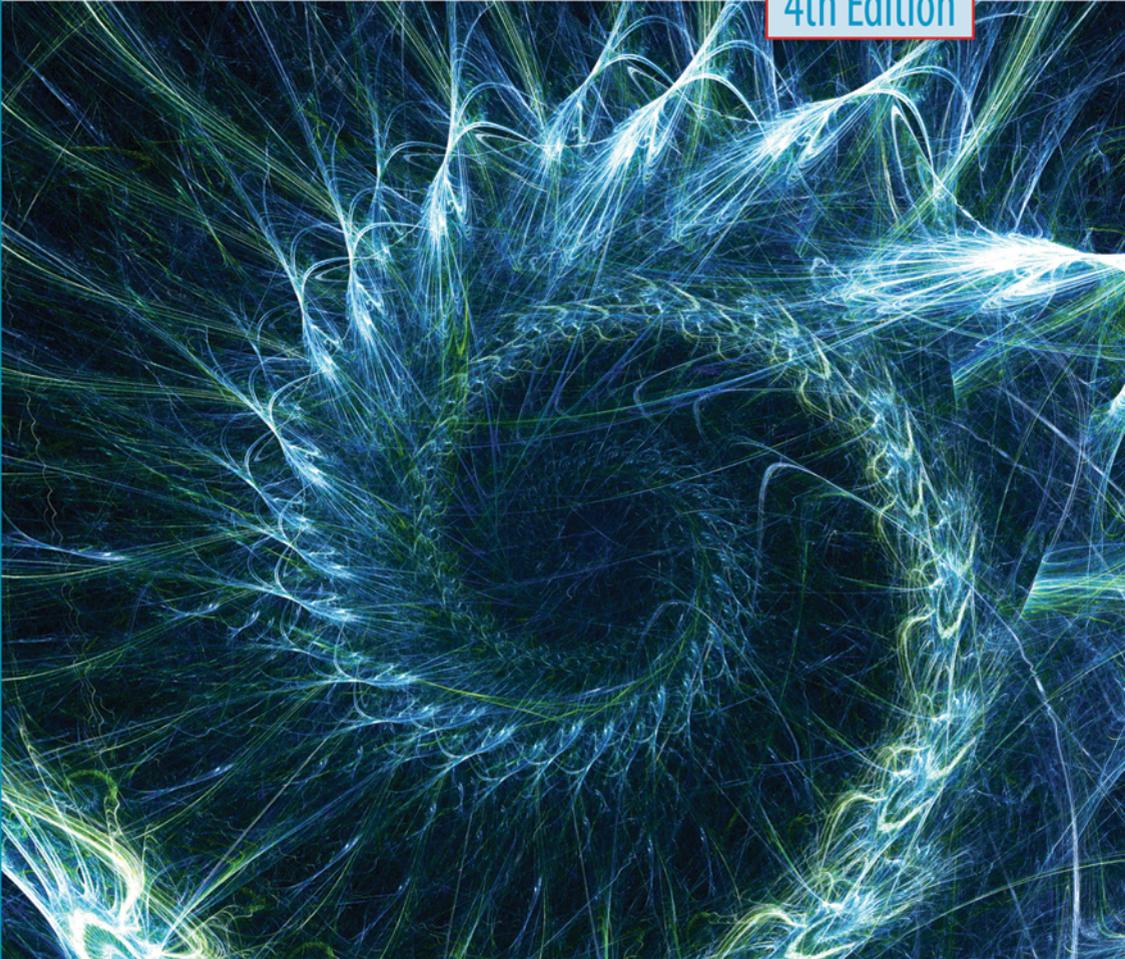


TOGAF® 9 Foundation Study Guide

Preparation for the TOGAF 9 Part 1 Examination

4th Edition



Rachel Harrison and Andrew Josey

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Prepared by Rachel Harrison of Oxford Brookes University and
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Preface

This Document

This document is a Study Guide for the TOGAF® 9 Foundation qualification. This fourth edition is based on Version 3 of The Open Group Certification for People: Conformance Requirements (Multi-Level), and is aligned with the TOGAF Standard, Version 9.2.

It gives an overview of every learning objective for the TOGAF 9 Foundation Syllabus and in-depth coverage on preparing and taking the TOGAF 9 Part 1 Examination. It is specifically designed to help individuals prepare for certification.

The audience for this Study Guide is:

- Individuals who require a basic understanding of the TOGAF 9 framework
- Professionals who are working in roles associated with an architecture project such as those responsible for planning, execution, development, delivery, and operation
- Architects who are looking for a first introduction to the TOGAF 9 framework
- Architects who want to achieve Level 2 certification in a stepwise manner

A prior knowledge of Enterprise Architecture is advantageous but not required. While reading this Study Guide, the reader should also refer to the TOGAF 9 standard.¹

The Study Guide is structured as shown below. The order of topics corresponds to the learning units of the TOGAF 9 Foundation Syllabus (see Appendix D).

- Chapter 1 (Introduction) provides a brief introduction to TOGAF certification and the TOGAF 9 Part 1 Examination that leads to TOGAF 9 Foundation, as well as how to use this Study Guide

¹ The TOGAF Standard, Version 9.2 (C182), available at www.opengroup.org/library/c182.

- Chapter 2 (Basic Concepts) introduces the basic concepts of Enterprise Architecture and the TOGAF standard; this provides a high-level view of the TOGAF framework, Enterprise Architecture, architecture frameworks, the contents of the TOGAF standard, and the TOGAF Library
- Chapter 3 (Core Concepts) describes the core concepts of the TOGAF 9 framework
- Chapter 4 (Key Terminology) introduces the key terminology of the TOGAF 9 standard
- Chapter 5 (Introduction to the ADM) introduces the Architecture Development Method (ADM), the objectives of each phase of the ADM, and how to adapt and scope the ADM for use
- Chapter 6 (The Enterprise Continuum and Tools) describes the Enterprise Continuum and tools; its purpose, and its constituent parts
- Chapter 7 (The ADM Phases) describes how each of the ADM phases contributes to the success of Enterprise Architecture
- Chapter 8 (ADM Guidelines and Techniques) describes guidelines and techniques provided to support application of the ADM
- Chapter 9 (Architecture Governance) describes Architecture Governance
- Chapter 10 (Views, Viewpoints, and Stakeholders) introduces the concepts of views and viewpoints and their role in communicating with stakeholders
- Chapter 11 (Building Blocks) introduces the concept of building blocks
- Chapter 12 (ADM Deliverables) describes the key deliverables of the ADM cycle and their purpose
- Chapter 13 (TOGAF Reference Models) describes the TOGAF reference models from the TOGAF Library: the Technical Reference Model (TRM) and the Integrated Information Infrastructure Reference Model (III-RM)
- 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 Papers) provides two Test Yourself examinations to allow you to assess your knowledge of the TOGAF 9 Foundation Syllabus and readiness to take the TOGAF 9 Part 1 Examination
- Appendix C (Test Yourself Examination Paper Answers) provides the answers to the examinations in Appendix B
- Appendix D (TOGAF 9 Foundation Syllabus) provides the TOGAF 9 Foundation Syllabus

How to Use this Study Guide

The chapters in this Study Guide are arranged to follow the organization of the TOGAF 9 Foundation Syllabus (see Appendix D) and should be read in order. However, you may wish to use this Study Guide during review of topics with which you are already familiar, and it is possible to select topics for review in any 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.

Each chapter has a “Test Yourself” questions section that will help you to test your understanding of the chapter and prepare for the TOGAF 9 Part 1 Examination. The purpose of this is to reinforce key learning points in the chapter. These are multiple-choice format questions where you must identify one correct answer.

Each chapter also has a “Recommended Reading” section that indicates the relevant sections in the TOGAF 9 documentation that can be read to obtain a further understanding of the subject material.

Finally, at the end of this Study Guide are two “Test Yourself” examination papers that you can use to test your readiness to take the official TOGAF 9 Part 1 Examination. These papers are designed to include the same question formats and a similar difficulty level to the official TOGAF 9 Part 1 Examination.

Conventions Used in this Study Guide

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

- *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.

- (Syllabus reference: Unit X, Learning Outcome Y: Statement)
Used at the start of a text block to identify the TOGAF 9 Foundation Syllabus learning outcome.

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



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



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

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.

About The Open Group

The Open Group is a global consortium that enables the achievement of business objectives through technology standards. Our diverse membership of more than 580 organizations includes customers, systems and solutions suppliers, tools vendors, integrators, academics, and consultants across multiple industries.

The Open Group aims to:

- Capture, understand, and address current and emerging requirements, establish policies, and share best practices

- Facilitate interoperability, develop consensus, and evolve and integrate specifications and open source technologies
- Operate the industry's premier certification service

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 Open Group 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.

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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.

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References

The following documents are referenced in this Study Guide:

- Analysis Patterns – Reusable Object Models, M. Fowler, Addison-Wesley
- Bill Estrem: “TOGAF to the Rescue” (www.opengroup.org/downloads)
- EU Directives on the Award of Public Contracts
- Interoperable Enterprise Business Scenario, October 2002 (K022), published by The Open Group; refer to: www.opengroup.org/library/k022
- ISO/IEC/IEEE 15288:2015, Systems and Software Engineering – System Life Cycle Processes
- ISO/IEC/IEEE 42010:2011, Systems and Software Engineering – Architecture Description
- The Clinger-Cohen Act (US Information Technology Management Reform Act 1996)
- The Open Group Certification for People: Certification Policy for Examination-Based Programs, April 2016 (X1603), published by The Open Group; refer to: www.opengroup.org/library/x1603
- The Open Group Certification for People: Program Summary Datasheet, 2018, published by The Open Group (www.opengroup.org/togaf9/cert/docs/togaf9_cert_summary.pdf)
- The Open Group Certification for People: TOGAF® Conformance Requirements (Multi-Level), Version 3.0, April 2018 (X1810), published by The Open Group; refer to: www.opengroup.org/library/x1810
- The Sarbanes-Oxley Act (US Public Company Accounting Reform and Investor Protection Act 2002)
- The TOGAF® Standard, Version 9.2, a standard of The Open Group, April 2018 (C182), published by The Open Group; refer to: www.opengroup.org/library/x1810
- TOGAF® 9 Foundation Datasheet, 2018, published by The Open Group (www.opengroup.org/togaf9/cert/docs/togaf9_foundation.pdf)
- TOGAF® Series Guide: Business Scenarios, September 2017 (G176), published by The Open Group; refer to www.opengroup.org/library/g176
- TOGAF® Series Guide: The TOGAF Integrated Information Infrastructure Reference Model (III- RM): An Architected Approach to Boundaryless Information Flow™, November 2017 (G179), published by The Open Group; refer to www.opengroup.org/library/g179

- TOGAF® Series Guide: The TOGAF Technical Reference Model (TRM), September 2017 (G175), published by The Open Group; refer to www.opengroup.org/library/g175
- Why Does Enterprise Architecture Matter?, White Paper by Simon Townson, SAP, November 2008 (W076), published by The Open Group; refer to: www.opengroup.org/library/w076

The following web links are referenced in this Study Guide:

- The Open Group TOGAF 9 Certification website: www.opengroup.org/certifications/togaf
- The TOGAF information website: www.togaf.info

Introduction

1.1 Key Learning Points

This document is a Study Guide for students planning to become certified for TOGAF 9 Foundation. This edition is aligned to the approved syllabus for the TOGAF Standard, Version 9.2. It will familiarize you with all the topics that you need to know in order to pass the TOGAF 9 Part 1 Examination.

It gives an overview of every learning objective for the TOGAF 9 Foundation Syllabus and in-depth coverage on preparing and taking the TOGAF 9 Part 1 Examination. It is specifically designed to help individuals prepare for certification.

This first chapter will familiarize you with the TOGAF 9 certification program and its principles, as well as give you important information about the structure of the TOGAF 9 Part 1 Examination.

The objectives of this chapter are as follows:

- To provide an understanding of TOGAF certification and why you should become certified
- To learn key facts about the TOGAF 9 Part 1 Examination

1.2 The Open Group Certification for People Program

(Syllabus Reference: Unit 13, Learning Outcome 1: You should be able to briefly explain the TOGAF certification program, and distinguish between the levels for certification.)

Certification is available to individuals who wish to demonstrate they have attained the required knowledge and understanding of the TOGAF Standard, Version 9.²

² This edition of this Study Guide covers Version 3 of The Open Group Certification for People: TOGAF Conformance Requirements (Multi-Level), which are aligned to the TOGAF Standard, Version 9.2.

There are two levels defined for TOGAF 9 People certification, denoted Level 1 and Level 2, which lead to certification at TOGAF 9 Foundation and TOGAF 9 Certified, respectively. This Study Guide covers the first of these – TOGAF 9 Foundation. Studying for TOGAF 9 Foundation can be used as a learning objective towards achieving TOGAF 9 Certified, as the learning outcomes in TOGAF 9 Foundation are also required in TOGAF 9 Certified.

Table 1: Certification Levels and Associated Labels

Certification Level	Certification Label
Level 1	TOGAF 9 Foundation
Level 2	TOGAF 9 Certified



Why is TOGAF certification important?

The existence of a certification program for the TOGAF standard provides a strong incentive for organizations to standardize on the TOGAF standard as the open method for Enterprise Architecture, and so avoid lock-in to proprietary methods. It is an important step in making Enterprise Architecture a well-recognized discipline, and in introducing rigor into the procurement of tools and services for Enterprise Architecture.

The two certification levels are summarized in Figure 1. Figure 1 shows the relationship between Level 1 and Level 2. Level 2 (TOGAF 9 Certified) is a superset of the requirements for Level 1 (TOGAF 9 Foundation).³

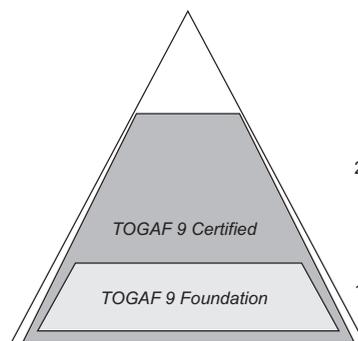


Figure 1: TOGAF 9 Certification Program Overview

³ The gap at the top of the pyramid is to signify that additional credential-based certification is planned beyond Level 2.

1.2.1 Certification Document Structure

The documents available to support the Program are as shown in Figure 2.

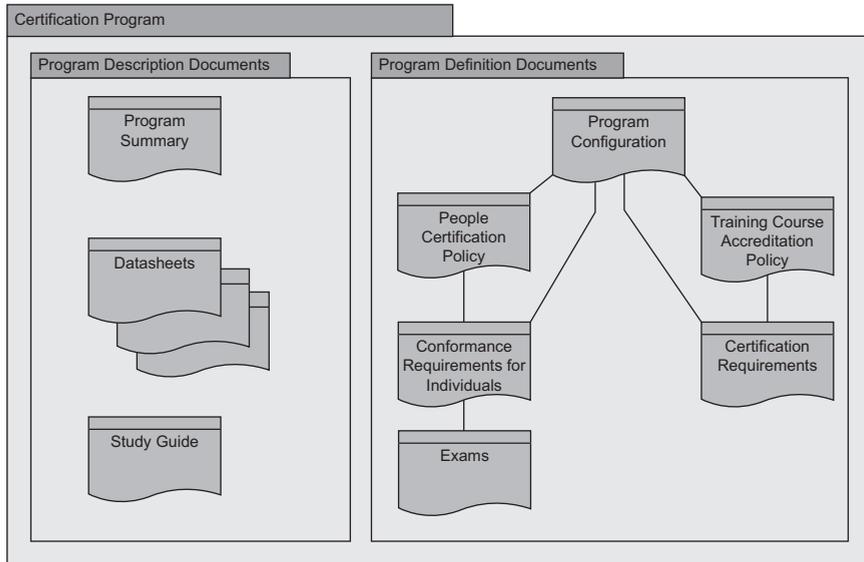


Figure 2: Certification Document Structure

Program description documents, such as this Study Guide, are intended for an end-user audience including those interested in becoming certified. The Program definition documents are intended for trainers, examination developers, and the Certification Authority. All these documents are available from The Open Group website.⁴



Why become certified?

Becoming certified demonstrates clearly to employers and peers your commitment to Enterprise Architecture as a discipline. In particular, it demonstrates that you possess a body of core knowledge about the TOGAF standard as an open, industry standard framework and method for Enterprise Architecture. The Open Group publishes the definitive directory of TOGAF Certified individuals, and certified service and product offerings, and issues certificates.

⁴ Available from the TOGAF 9 Certification website at www.opengroup.org/certifications/togaf9, or from The Open Group Library at www.opengroup.org/library.

1.2.2 Program Vision and Principles

The vision for the Program is to define and promote a market-driven education and certification program to support the TOGAF 9 framework. The Open Group certification programs are designed with the following principles in mind:

Table 2: The Open Group Certification Program Principles

Principle	Certification Aspects
Openness	Certification is open to applicants from all countries. ⁵
Fairness	Certification is achieved only by passing an examination that is equivalent to that taken by any other candidate.
Market Relevance	Each Program is designed to meet the perceived needs of the market.
Learning Support	Training courses are provided by third parties, according to the needs of the market.
Quality	Training course providers may choose to seek accreditation from The Open Group for their courses. Accredited courses are listed on The Open Group website.
Best Practice	The Programs are designed to follow industry best practice for equivalent certification programs.

1.2.3 TOGAF 9 Foundation

The purpose of certification to TOGAF 9 Level 1, known as TOGAF 9 Foundation, is to provide validation that the candidate has gained an acceptable level of knowledge of the TOGAF terminology, structure, and basic concepts, and understands the core principles of Enterprise Architecture and the TOGAF standard.

The learning objectives at this level focus on knowledge and comprehension. Individuals certified at this level will have demonstrated their understanding of:

- The basic concepts of Enterprise Architecture and the TOGAF framework

⁵ Subject to compliance with applicable United States laws, regulations, or orders including those relating to export including but not limited to International Traffic in Arms Regulations (ITAR) and/or Export Administration Act/Regulations (EAR).

- The core concepts of the TOGAF standard
- The key terminology of the TOGAF standard
- The ADM cycle and the objectives of each phase, and how to adapt and scope the ADM
- The concept of the Enterprise Continuum; its purpose, and its constituent parts
- How each of the ADM phases contributes to the success of Enterprise Architecture
- The ADM guidelines and techniques
- How Architecture Governance contributes to the Architecture Development Cycle
- The concepts of views and viewpoints and their role in communicating with stakeholders
- The concept of building blocks
- The key deliverables of the ADM cycle
- The two example TOGAF reference models
- The TOGAF certification program

Examination

Certification for TOGAF 9 Foundation is achieved by passing the TOGAF 9 Part 1 Examination. This is a multiple-choice examination with 40 questions.⁶



What is the relationship between TOGAF 9 Foundation and TOGAF 9 Certified?

The learning outcomes for TOGAF 9 Foundation are a subset of those for TOGAF 9 Certified. Candidates are able to choose whether they wish to become certified in a stepwise manner by starting with TOGAF 9 Foundation and then at a later date TOGAF 9 Certified, or alternately to go direct to TOGAF 9 Certified by taking the combined examination.

1.2.4 The Certification Process

This Study Guide is aimed at preparing you to become certified for TOGAF 9 Foundation.

The TOGAF 9 Foundation Syllabus for the examination is contained in

⁶ For the latest information on examinations, see the TOGAF 9 Certification website at www.opengroup.org/certifications/togaf9.

Appendix D. Certain topic areas are weighted as more important than others and thus have more questions. The 11 topic areas covered by the examination together with the number of questions per area in the examination follow:

1. Basic Concepts (3 questions)
2. Core Concepts (3 questions)
3. Introduction to the ADM (3 questions)
4. The Enterprise Continuum and Tools (4 questions)
5. ADM Phases (9 questions)
6. ADM Guidelines and Techniques (6 questions)
7. Architecture Governance (4 questions)
8. Architecture Views, Viewpoints, and Stakeholders (2 questions)
9. Building Blocks (2 questions)
10. ADM Deliverables (2 questions)
11. TOGAF Reference Models (2 questions)

1.2.4.1 Format of the Examination Questions

The examination questions are multiple-choice questions. These are very similar in format to the Test Yourself questions included in each chapter. Note that the exact format for display is test center-specific and will be made clear on the screens when taking the examination.



Exam Tip

Please read each question carefully before reading the answer options. Be aware that some questions may seem to have more than one right answer, but you are to look for the one that makes the most sense and is the most correct.

1.2.4.2 What do I need to bring with me to take the Examination?

You should consult with the exam provider regarding the forms of picture ID you are required to bring with you to verify your identification.

1.2.4.3 Can I refer to materials while I take the Examination?

No; it is a closed-book examination.

1.2.4.4 *If I fail, how soon can I retake the Examination?*

You should check the current policy on The Open Group website. At the time of writing, the policy states that individuals who have failed the examination are not allowed to retake the examination within one (1) month of the first sitting.

1.2.5 Preparing for the Examination

You can prepare for the examination by working through this Study Guide section-by-section. A mapping of the sections of this Study Guide to the TOGAF 9 Foundation Syllabus is given in Appendix D. After completing each section, you should answer the Test Yourself questions and read the referenced sections from the TOGAF documentation. Once you have completed all the sections in this Study Guide, you can then attempt the Test Yourself examination papers in Appendix B. These are designed to give a thorough test of your knowledge. If you have completed all the prescribed preparation and can attain a pass mark for the Test Yourself examination papers as described in Appendix C, then it is likely you are ready to sit the examination.

1.3 Summary

The Open Group Certification for People: TOGAF Certification Program is a knowledge-based certification program. It has two levels, Level 1 and Level 2, which lead to certification for TOGAF 9 Foundation and TOGAF 9 Certified, respectively.

The topic for this Study Guide is preparation for taking the TOGAF 9 Part 1 Examination that leads to the TOGAF 9 Foundation certification. The examination comprises 40 simple multiple-choice questions to be completed in one hour.⁷

Preparing for the examination includes the following steps:

- You should work through this Study Guide step-by-step
- At the end of each chapter, you should complete the Test Yourself questions and read the sections of the TOGAF documentation listed under Recommended Reading

⁷ Additional time is allowed for candidates for whom English is a second language where the examination is not available in the local language. For further information see the advice to candidates sheet on The Open Group TOGAF 9 Certification website.

- Once you have completed all the chapters in this Study Guide, you should attempt the Test Yourself examination papers given in Appendix B
- If you can attain the target score in Appendix C, then you have completed your preparation

1.4 Test Yourself Questions

Q1: Which of the following describes the TOGAF 9 Part 1 Examination?

- A. It is an open book examination
- A. It has 40 simple multiple-choice questions
- B. The exam policy requires you to wait 60 days before a retake
- C. It contains at least four questions related to building blocks

Q2: Which one of the following is the entry-level certification for an individual?

- A. TOGAF 9 Certified
- B. TOGAF 9 Foundation
- C. TOGAF 9 Professional
- D. TOGAF 9 Architect

Q3: Which one of the following describes three principles of The Open Group Certification for People: TOGAF Certification Program?

- A. Integrity, Scalability, Flexibility
- B. Objectivity, Robustness, Simplicity
- C. Openness, Fairness, Quality
- D. Knowledge-based, Valuable, Simplicity
- E. All of these

Q4: Which of the following topic areas is *not* included in the TOGAF 9 Foundation Syllabus?

- A. Architecture Governance
- B. Basic Concepts
- C. Building Blocks
- D. Guidelines for adapting the ADM: Iteration and Levels
- E. Introduction to the ADM

1.5 Recommended Reading

The following are recommended sources of further information for this chapter:

- The Open Group Certification for People: Program Summary Datasheet
- TOGAF 9 Foundation Datasheet
- The Open Group Certification for People: Certification Policy for Examination-Based Programs
- The Open Group Certification for People: TOGAF Conformance Requirements (Multi-Level)
- The Open Group TOGAF 9 Certification website: www.opengroup.org/certifications/togaf9
- The TOGAF information website: www.togaf.info