

The TOGAF® Standard

10th Edition

Architecture Development Method



The
TOGAF®
Standard — *10th Edition*



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® Standard, 10th Edition
Architecture Development Method

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

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
TOGAF® Business Architecture Level 1 Study Guide

The Open Group Series:

The IT4IT™ Reference Architecture, Version 2.1
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® 3.1 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.

The TOGAF® Standard, 10th Edition Architecture Development Method

The
TOGAF®
Standard — 10th Edition



Title: The TOGAF® Standard, 10th Edition — Architecture Development Method
Series: TOGAF Series
A Publication of: The Open Group

Publisher: Van Haren Publishing, 's-Hertogenbosch - NL, www.vanharen.net
ISBN Hardcopy: 978 94 018 0862 0
ISBN eBook: 978 94 018 0863 7
ISBN ePUB: 978 94 018 0864 4
Edition: First edition, first impression, April 2022

Layout and Cover Design: The Open Group

Copyright: © 2022 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. Any use of this publication for commercial purposes is subject to the terms of the Annual Commercial License relating to it. For further information, see www.opengroup.org/legal/licensing.

The TOGAF® Standard, 10th Edition — Architecture Development Method

Document number: C220

Published by The Open Group, April 2022.

Comments relating to the material contained in this document may be submitted to:

The Open Group
Apex Plaza
Reading
Berkshire, RG1 1AX
United Kingdom

or by electronic mail to: ogspecs@opengroup.org

Contents

Volume	Architecture Development Method.....	1
Chapter 1	Introduction	3
1.1	ADM Overview.....	3
1.1.1	The ADM, Enterprise Continuum, and Architecture Repository	3
1.1.2	The ADM and the Foundation Architecture	4
1.1.3	ADM and Supporting Guidelines and Techniques.....	4
1.2	Architecture Development Cycle	5
1.2.1	Key Points.....	5
1.2.2	Basic Structure	5
1.3	Adapting the ADM	7
1.4	Architecture Governance.....	9
1.5	Scoping the Architecture	9
1.5.1	Breadth	11
1.5.2	Depth	11
1.5.3	Time Period	12
1.5.4	Architecture Domains	13
1.6	Architecture Alternatives.....	13
1.6.1	Method.....	14
1.7	Architecture Integration	15
1.8	Summary	16
Chapter 2	Preliminary Phase	17
2.1	Objectives.....	18
2.2	Inputs.....	18
2.2.1	Reference Materials External to the Enterprise.....	18
2.2.2	Non-Architectural Inputs	18
2.2.3	Architectural Inputs.....	19
2.3	Steps	19
2.3.1	Scope the Enterprise Organizations Impacted.....	20
2.3.2	Confirm Governance and Support Frameworks	20
2.3.3	Define and Establish Enterprise Architecture Team and Organization	20
2.3.4	Identify and Establish Architecture Principles.....	21
2.3.5	Tailor the TOGAF Framework and, if any, Other Selected Architecture Framework(s)	21
2.3.6	Develop a Strategy and Implementation Plan for Tools and Techniques	22
2.4	Outputs	23
2.5	Approach	23

2.5.1	Enterprise	24
2.5.2	Organizational Context	25
2.5.3	Requirements for Architecture Work.....	26
2.5.4	Principles	26
2.5.5	Management Frameworks	26
2.5.6	Relating the Management Frameworks.....	28
2.5.7	Planning for Enterprise Architecture/Business Change Maturity Evaluation	29
Chapter 3	Phase A: Architecture Vision	31
3.1	Objectives	32
3.2	Inputs.....	32
3.2.1	Reference Materials External to the Enterprise.....	32
3.2.2	Non-Architectural Inputs	32
3.2.3	Architectural Inputs.....	32
3.3	Steps	33
3.3.1	Establish the Architecture Project.....	33
3.3.2	Identify Stakeholders, Concerns, and Business Requirements	34
3.3.3	Confirm and Elaborate Business Goals, Business Drivers, and Constraints	34
3.3.4	Evaluate Capabilities	35
3.3.5	Assess Readiness for Business Transformation.....	35
3.3.6	Define Scope	36
3.3.7	Confirm and Elaborate Architecture Principles, including Business Principles	36
3.3.8	Develop Architecture Vision.....	36
3.3.9	Define the Target Architecture Value Propositions and KPIs.....	37
3.3.10	Identify the Business Transformation Risks and Mitigation Activities	37
3.3.11	Develop Statement of Architecture Work; Secure Approval.....	38
3.4	Outputs	38
3.5	Approach	39
3.5.1	General.....	39
3.5.2	Creating the Architecture Vision.....	40
Chapter 4	Phase B: Business Architecture	43
4.1	Objectives	44
4.2	Inputs.....	44
4.2.1	Reference Materials External to the Enterprise.....	44
4.2.2	Non-Architectural Inputs	44
4.2.3	Architectural Inputs.....	44
4.3	Steps	45
4.3.1	Select Reference Models, Viewpoints, and Tools.....	46
4.3.2	Develop Baseline Business Architecture Description.....	48
4.3.3	Develop Target Business Architecture Description.....	49
4.3.4	Perform Gap Analysis.....	49

Contents

- 4.3.5 Define Candidate Roadmap Components..... 49
- 4.3.6 Resolve Impacts Across the Architecture Landscape 49
- 4.3.7 Conduct Formal Stakeholder Review 50
- 4.3.8 Finalize the Business Architecture 50
- 4.3.9 Create/Update the Architecture Definition
 - Document 50
- 4.4 Outputs 51
- 4.5 Approach 52
 - 4.5.1 General..... 52
 - 4.5.2 Developing the Baseline Description 53
 - 4.5.3 Applying Business Capabilities..... 53
 - 4.5.4 Applying Value Streams 54
 - 4.5.5 Applying the Organization Map 54
 - 4.5.6 Applying Information Maps 55
 - 4.5.7 Applying Modeling Techniques 55
 - 4.5.8 Architecture Repository 57
- Chapter 5 Phase C: Information Systems Architectures 59**
 - 5.1 Objectives 60
 - 5.2 Approach 60
- Chapter 6 Phase C: Information Systems Architectures — Data Architecture..... 61**
 - 6.1 Objectives 61
 - 6.2 Inputs 61
 - 6.2.1 Reference Materials External to the Enterprise..... 61
 - 6.2.2 Non-Architectural Inputs 61
 - 6.2.3 Architectural Inputs 62
 - 6.3 Steps 63
 - 6.3.1 Select Reference Models, Viewpoints, and Tools 63
 - 6.3.2 Develop Baseline Data Architecture Description 66
 - 6.3.3 Develop Target Data Architecture Description..... 66
 - 6.3.4 Perform Gap Analysis..... 66
 - 6.3.5 Define Candidate Roadmap Components..... 67
 - 6.3.6 Resolve Impacts Across the Architecture Landscape 67
 - 6.3.7 Conduct Formal Stakeholder Review 67
 - 6.3.8 Finalize the Data Architecture 68
 - 6.3.9 Create/Update the Architecture Definition
 - Document 68
 - 6.4 Outputs 68
 - 6.5 Approach 69
 - 6.5.1 Data Structure 69
 - 6.5.2 Key Considerations for Data Architecture 70
 - 6.5.3 Architecture Repository 71
- Chapter 7 Phase C: Information Systems Architectures — Application Architecture..... 73**
 - 7.1 Objectives 73
 - 7.2 Inputs..... 73
 - 7.2.1 Reference Materials External to the Enterprise..... 73

7.2.2	Non-Architectural Inputs	73
7.2.3	Architectural Inputs	73
7.3	Steps	74
7.3.1	Select Reference Models, Viewpoints, and Tools	75
7.3.2	Develop Baseline Application Architecture Description.....	78
7.3.3	Develop Target Application Architecture Description.....	78
7.3.4	Perform Gap Analysis	79
7.3.5	Define Candidate Roadmap Components	79
7.3.6	Resolve Impacts Across the Architecture Landscape	79
7.3.7	Conduct Formal Stakeholder Review	80
7.3.8	Finalize the Application Architecture	80
7.3.9	Create/Update the Architecture Definition Document	80
7.4	Outputs	80
7.5	Approach	81
7.5.1	Architecture Repository	81
Chapter 8	Phase D: Technology Architecture	83
8.1	Objectives	84
8.2	Inputs	84
8.2.1	Reference Materials External to the Enterprise	84
8.2.2	Non-Architectural Inputs	84
8.2.3	Architectural Inputs	84
8.3	Steps	85
8.3.1	Select Reference Models, Viewpoints, and Tools	86
8.3.2	Develop Baseline Technology Architecture Description.....	89
8.3.3	Develop Target Technology Architecture Description.....	90
8.3.4	Perform Gap Analysis	90
8.3.5	Define Candidate Roadmap Components	91
8.3.6	Resolve Impacts Across the Architecture Landscape	91
8.3.7	Conduct Formal Stakeholder Review	91
8.3.8	Finalize the Technology Architecture	91
8.3.9	Create/Update the Architecture Definition Document	92
8.4	Outputs	92
8.5	Approach	93
8.5.1	Emerging Technologies	93
8.5.2	Architecture Repository	93
Chapter 9	Phase E: Opportunities & Solutions.....	95
9.1	Objectives	96
9.2	Inputs	96
9.2.1	Reference Materials External to the Enterprise	96
9.2.2	Non-Architectural Inputs	96
9.2.3	Architectural Inputs	96
9.3	Steps	97

Contents

9.3.1	Determine/Confirm Key Corporate Change Attributes	98
9.3.2	Determine Business Constraints for Implementation	98
9.3.3	Review and Consolidate Gap Analysis Results from Phases B to D.....	98
9.3.4	Review Consolidated Requirements Across Related Business Functions	99
9.3.5	Consolidate and Reconcile Interoperability Requirements	99
9.3.6	Refine and Validate Dependencies	100
9.3.7	Confirm Readiness and Risk for Business Transformation.....	100
9.3.8	Formulate Implementation and Migration Strategy.....	100
9.3.9	Identify and Group Major Work Packages	101
9.3.10	Identify Transition Architectures.....	101
9.3.11	Create the Architecture Roadmap & Implementation and Migration Plan.....	101
9.4	Outputs	102
9.5	Approach	104
Chapter 10	Phase F: Migration Planning.....	105
10.1	Objectives	106
10.2	Inputs.....	106
10.2.1	Reference Materials External to the Enterprise.....	106
10.2.2	Non-Architectural Inputs	106
10.2.3	Architectural Inputs.....	106
10.3	Steps	108
10.3.1	Confirm Management Framework Interactions for the Implementation and Migration Plan	108
10.3.2	Assign a Business Value to Each Work Package	109
10.3.3	Estimate Resource Requirements, Project Timings, and Availability/Delivery Vehicle	110
10.3.4	Prioritize the Migration Projects through the Conduct of a Cost/Benefit Assessment and Risk Validation	110
10.3.5	Confirm Architecture Roadmap and Update Architecture Definition Document.....	110
10.3.6	Complete the Implementation and Migration Plan.....	111
10.3.7	Complete the Architecture Development Cycle and Document Lessons Learned	111
10.4	Outputs	111
10.5	Approach	112
Chapter 11	Phase G: Implementation Governance.....	113
11.1	Objectives.....	114
11.2	Inputs.....	114
11.2.1	Reference Materials External to the Enterprise.....	114
11.2.2	Non-Architectural Inputs	114
11.2.3	Architectural Inputs.....	114
11.3	Steps	115
11.3.1	Confirm Scope and Priorities for Deployment with	

	Development Management.....	116
11.3.2	Identify Deployment Resources and Skills	116
11.3.3	Guide Development of Solutions Deployment	116
11.3.4	Perform Enterprise Architecture Compliance Reviews	117
11.3.5	Implement Business and IT Operations	117
11.3.6	Perform Post-Implementation Review and Close the Implementation	117
11.4	Outputs	118
11.5	Approach	118
Chapter 12	Phase H: Architecture Change Management.....	121
12.1	Objectives	122
12.2	Inputs	122
12.2.1	Reference Materials External to the Enterprise	122
12.2.2	Non-Architectural Inputs	122
12.2.3	Architectural Inputs	122
12.3	Steps	124
12.3.1	Establish Value Realization Process	124
12.3.2	Deploy Monitoring Tools	124
12.3.3	Manage Risks.....	125
12.3.4	Provide Analysis for Architecture Change Management.....	125
12.3.5	Develop Change Requirements to Meet Performance Targets.....	125
12.3.6	Manage Governance Process	125
12.3.7	Activate the Process to Implement Change	125
12.4	Outputs	126
12.5	Approach	126
12.5.1	Drivers for Change.....	127
12.5.2	Enterprise Architecture Change Management Process	128
12.5.3	Guidelines for Maintenance versus Architecture Redesign	129
Chapter 13	ADM Architecture Requirements Management.....	131
13.1	Objectives	132
13.2	Inputs.....	132
13.3	Steps	133
13.4	Outputs	136
13.5	Approach	137
13.5.1	General.....	137
13.5.2	Requirements Development	137
13.5.3	Resources	138
Volume	ADM Techniques	139
Chapter 1	Introduction	141
Chapter 2	Architecture Principles	143

Contents

2.1	Introduction.....	143
2.2	Characteristics of Architecture Principles.....	144
2.3	Components of Architecture Principles.....	144
2.4	Developing Architecture Principles.....	145
2.4.1	Qualities of Principles.....	145
2.5	Applying Architecture Principles.....	146
2.6	Example Set of Architecture Principles.....	147
2.6.1	Business Principles.....	147
2.6.2	Data Principles.....	151
2.6.3	Application Principles.....	156
2.6.4	Technology Principles.....	157
Chapter 3	Stakeholder Management.....	161
3.1	Introduction.....	161
3.2	Approach to Stakeholder Management.....	161
3.3	Steps in the Stakeholder Management Process.....	162
3.3.1	Identify Stakeholders.....	162
3.3.2	Classify Stakeholder Positions.....	164
3.3.3	Determine Stakeholder Management Approach.....	164
3.3.4	Tailor Engagement Deliverables.....	165
3.4	Template Stakeholder Map.....	165
Chapter 4	Architecture Patterns.....	179
4.1	Introduction.....	179
4.1.1	Background.....	179
4.1.2	Content of a Pattern.....	180
4.1.3	Terminology.....	181
4.2	Some Pattern Resources.....	182
Chapter 5	Gap Analysis.....	185
5.1	Introduction.....	185
5.2	Suggested Steps.....	186
5.3	Example.....	186
Chapter 6	Migration Planning Techniques.....	189
6.1	Implementation Factor Catalog.....	189
6.2	Consolidated Gaps, Solutions, & Dependencies Matrix.....	190
6.3	Architecture Definition Increments Table.....	190
6.4	Transition Architecture State Evolution Table.....	191
6.5	Business Value Assessment Technique.....	192
Chapter 7	Interoperability Requirements.....	193
7.1	Overview.....	193
7.2	Defining Interoperability.....	193
7.3	Enterprise Operating Model.....	195
7.4	Refining Interoperability.....	195
7.5	Determining Interoperability Requirements.....	196
7.6	Reconciling Interoperability Requirements with Potential Solutions.....	198

Chapter 8	Business Transformation Readiness Assessment.....	199
8.1	Introduction.....	199
8.1.1	Business Transformation Enablement Program (BTEP).....	200
8.2	Determine Readiness Factors	200
8.3	Present Readiness Factors	202
8.4	Assess Readiness Factors	203
8.4.1	Readiness Factor Vision.....	204
8.4.2	Readiness Factor Rating	204
8.4.3	Readiness Factor Risks & Actions.....	205
8.5	Readiness and Migration Planning.....	206
8.6	Marketing the Implementation Plan	206
8.7	Conclusion.....	206
Chapter 9	Risk Management.....	207
9.1	Introduction.....	207
9.2	Risk Classification	208
9.3	Risk Identification	208
9.4	Initial Risk Assessment.....	208
9.5	Risk Mitigation and Residual Risk Assessment.....	210
9.6	Conduct Residual Risk Assessment.....	210
9.7	Risk Monitoring and Governance (Phase G).....	210
9.8	Summary	211
Chapter 10	Architecture Alternatives and Trade-Offs.....	213
10.1	Concept	213
10.2	Method.....	213
10.2.1	Criteria	214
10.2.2	Identify Alternatives	215
10.2.3	Choose from Alternatives and Define in Detail.....	216
Volume	Applying the ADM	217
Chapter 1	Introduction	219
1.1	Using the TOGAF Framework with Different Architecture Styles.....	219
Chapter 2	Applying Iteration to the ADM	221
2.1	Overview.....	221
2.2	Iteration Cycles.....	222
2.3	Classes of Architecture Engagement	223
2.4	Approaches to Architecture Development	227
2.5	Iteration Considerations.....	228
2.5.1	Iteration between ADM Cycles	228
2.5.2	Iteration within an ADM Cycle	230
2.6	Conclusions	233
Chapter 3	Applying the ADM Across the Architecture Landscape	235
3.1	Overview.....	235

Contents

3.2	Architecture Landscape	235
3.3	Developing Architectures at Different Levels	237
3.4	Organizing the Architecture Landscape to Understand the State of the Enterprise.....	237
Chapter 4	Architecture Partitioning	239
4.1	Overview.....	239
4.2	Applying Classification to Create Partitioned Architectures.....	239
4.2.1	Activities within the Preliminary Phase	241
4.3	Integration.....	242
	Index	245

List of Figures

1-1	Architecture Development Cycle	5
1-2	Architecture Alternatives Method.....	14
1-3	Integration of Architecture Artifacts	15
2-1	Preliminary Phase	17
2-2	Management Frameworks to Co-ordinate with the TOGAF Framework.....	27
2-3	Interoperability and Relationships between Management Frameworks	28
3-1	Phase A: Architecture Vision	31
4-1	Phase B: Business Architecture	43
4-2	UML Business Class Diagram	56
5-1	Phase C: Information Systems Architectures	59
8-1	Phase D: Technology Architecture	83
9-1	Phase E: Opportunities & Solutions	95
10-1	Phase F: Migration Planning	105
11-1	Phase G: Implementation Governance	113
12-1	Phase H: Architecture Change Management	121
13-1	ADM Architecture Requirements Management	131
3-1	Sample Stakeholders and Categories	163
3-2	Stakeholder Power Grid.....	164
5-1	Gap Analysis Example	186
6-1	Implementation Factor Catalog.....	189
6-2	Consolidated Gaps, Solutions, and Dependencies Matrix	190
6-3	Architecture Definition Increments Table	190
6-4	Transition Architecture State Evolution Table	191
6-5	Sample Project Assessment with Respect to Business Value and Risk.....	192
7-1	Business Information Interoperability Matrix.....	197
7-2	Information Systems Interoperability Matrix	197
8-1	Business Transformation Readiness Assessment – Maturity Model.....	203
8-2	Summary Table of Business Transformation Readiness Assessment.....	204
9-1	Risk Classification Scheme	209

9-2	Sample Risk Identification and Mitigation Assessment Worksheet	210
10-1	Architecture Trade-Off Method	213
2-1	Iteration Cycles	222
2-2	Classes of Enterprise Architecture Engagement.....	223
2-3	A Hierarchy of ADM Processes Example	228
2-4	Activity by Iteration for Baseline First Architecture Definition.....	230
2-5	Activity by Iteration for Target First Architecture Definition.....	230
3-1	Summary Classification Model for Architecture Landscapes	235
3-2	Summary of Architecture Continuum.....	236
4-1	Allocation of Teams to Architecture Scope	242
4-2	Architecture Content Aggregation	243

List of Tables

2-1	Recommended Format for Defining Principles	144
3-1	Example Stakeholder Analysis	164

Preface

The Open Group

The Open Group is a global consortium that enables the achievement of business objectives through technology standards. With more than 870 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 a compilation of three documents within the TOGAF® Standard:

- The TOGAF Standard — Architecture Development Method
This document describes the TOGAF Architecture Development Method (ADM) — an iterative approach to developing an Enterprise Architecture.
- The TOGAF Standard — ADM Techniques
This document contains a collection of techniques available for use in applying the TOGAF approach and the TOGAF ADM.
- The TOGAF Standard — Applying the ADM
This document contains guidelines for adapting the TOGAF ADM to address the specific style of architecture required in a practical context.

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,¹ an extensive and growing portfolio of guidance material, providing practical guidance in the application of the TOGAF framework in specific contexts.

The TOGAF Documentation

The TOGAF documentation consists of a set of documents:

- The TOGAF Standard, which describes the generally applicable approach to Enterprise and IT Architecture
- The TOGAF Library, a portfolio of additional guidance material, which supports the practical application of the TOGAF approach

Intended Audience

The TOGAF Standard is intended for Enterprise Architects, Business Architects, IT Architects, Data Architects, Systems Architects, Solution Architects, and anyone responsible for the architecture function within an organization.

Acknowledgements

The Open Group is grateful for the contribution of many individuals and organizations in the development of the TOGAF Standard. See the TOGAF Standard — Introduction and Core Concepts for details.

1. The TOGAF Library (see www.opengroup.org/togaf-library) is a structured library of resources that support the TOGAF Standard.

Trademarks

ArchiMate, DirecNet, Making Standards Work, Open O logo, Open O and Check Certification logo, 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.

COBIT is a registered trademark of the Information Systems Audit and Control Association (ISACA) and the IT Governance Institute.

FICO is a registered trademark of Fair Isaac Corporation in the United States and other countries.

ITIL and PRINCE2 are registered trademarks of AXELOS Limited.

Java is a registered trademark of Oracle and/or its affiliates.

MDA, Model-Driven Architecture, Object Management Group, OMG, and UML are registered trademarks and BPMN, Business Process Modeling Notation, and Unified Modeling Language are trademarks of the Object Management Group.

PMBOK is a registered trademark of the Project Management Institute, Inc. which is registered in the United States and other nations.

Zachman is a registered trademark of Zachman International, Inc.

The Open Group acknowledges that there may be other company names and products that might be covered by trademark protection and advises the reader to verify them independently.

Referenced Documents

Please refer to the TOGAF Standard — Introduction and Core Concepts: Appendix A for documents referenced in the TOGAF Standard.

The TOGAF Standard

The TOGAF® Standard, 10th Edition — Architecture Development Method

The Open Group

Chapter 1: Introduction

This chapter introduces the Architecture Development Method (ADM) cycle, adapting the ADM, architecture scope, and architecture integration.

1.1 ADM Overview

The TOGAF ADM describes a method for developing and managing the lifecycle of an Enterprise Architecture, and forms the core of the TOGAF Standard.

It integrates elements of the TOGAF Standard, as well as other available architectural assets, to meet the business needs of an organization.

1.1.1 The ADM, Enterprise Continuum, and Architecture Repository

The Enterprise Continuum provides a framework and context to support the leverage of relevant architecture assets in executing the ADM. These assets may include Architecture Descriptions, models, and patterns taken from a variety of sources, as explained in the TOGAF Standard — Architecture Content.

The Enterprise Continuum categorizes architectural source material — both the contents of the organization's own enterprise repositories and the set of relevant, available reference models and standards in the industry.

The practical implementation of the Enterprise Continuum will typically take the form of an Architecture Repository (see the TOGAF Standard — Architecture Content) that includes reference architectures, models, and patterns that have been accepted for use within the enterprise, and actual architectural work done previously within the enterprise. The architect would seek to re-use as much as possible from the Architecture Repository that was relevant to the project in hand. (In addition to the collection of architecture source material, the repository would also contain architecture development work-in-progress.)

At relevant places throughout the ADM there are reminders to consider which, if any, architecture assets from the Architecture Repository the architect should use. In some cases — for example, in the development of a Technology Architecture — this may be the TOGAF Foundation Architecture. In other cases — for example, in the development of a Business Architecture — it may be a reference model for e-Commerce taken from the industry at large.

The criteria for including source materials in an organization's Architecture Repository will typically form part of the Enterprise Architecture Governance process. These governance processes should consider available resources both within and outside the enterprise in order to determine when general resources can be adapted for specific enterprise needs and also to determine where specific solutions can be generalized to support wider re-use.

While using the ADM, the architect is developing a snapshot of the enterprise's decisions and

their implications at particular points in time. Each iteration of the ADM will populate an organization-specific landscape with all the architecture assets identified and leveraged through the process, including the final organization-specific architecture delivered.

Architecture development is a continuous, cyclical process, and in executing the ADM repeatedly over time, the architect gradually adds more and more content to the organization's Architecture Repository. Although the primary focus of the ADM is on the development of the enterprise-specific architecture, in this wider context the ADM can also be viewed as the process of populating the enterprise's own Architecture Repository with relevant re-usable building blocks taken from the "left", more generic side of the Enterprise Continuum.

In fact, the first execution of the ADM will often be the hardest, since the architecture assets available for re-use will be relatively scarce. Even at this stage of development, however, there will be architecture assets available from external sources such as the TOGAF Standard, as well as the IT industry at large, that could be leveraged in support of the effort.

Subsequent executions will be easier as more and more architecture assets become identified, are used to populate the organization's Architecture Repository, and are thus available for future re-use.

1.1.2 The ADM and the Foundation Architecture

The ADM is also useful to populate the Foundation Architecture of an enterprise. Business requirements of an enterprise may be used to identify the necessary definitions and selections in the Foundation Architecture. This could be a set of re-usable common models, policy and governance definitions, or even as specific as overriding technology selections (e.g., if mandated by law). Population of the Foundation Architecture follows similar principles as for an Enterprise Architecture, with the difference that requirements for a whole enterprise are restricted to the overall concerns and thus less complete than for a specific enterprise.

It is important to recognize that existing models from these various sources, when integrated, may not necessarily result in a coherent Enterprise Architecture. "Integratability" of Architecture Descriptions is considered in Section 1.7.

1.1.3 ADM and Supporting Guidelines and Techniques

The application of the TOGAF ADM is supported by an extended set of resources — guidelines, templates, checklists, and other detailed materials. These are included in:

- The TOGAF Standard — ADM Techniques
- TOGAF Series Guides — the Guidance part of the Standard (guidance material on how to use and adapt the TOGAF Standard for specific needs)
- White Papers and Guides published by The Open Group, classified and referenced in the TOGAF Library (see www.opengroup.org/togaf-library)

The individual guidelines and techniques are described separately so that they can be referenced from the relevant points in the ADM as necessary, rather than having the detailed text clutter the description of the ADM itself.

1.2 Architecture Development Cycle

1.2.1 Key Points

The following are the key points about the ADM:

- The ADM is iterative, over the whole process, between phases, and within phases (see the TOGAF Standard — ADM Techniques)

For each iteration of the ADM, a fresh decision must be taken as to:

- The breadth of coverage of the enterprise to be defined
- The level of detail to be defined
- The extent of the time period aimed at, including the number and extent of any intermediate time periods
- The architectural assets to be leveraged, including:
 - Assets created in previous iterations of the ADM cycle within the enterprise
 - Assets available elsewhere in the industry (other frameworks, systems models, vertical industry models, etc.)
- These decisions should be based on a practical assessment of resource and competence availability, and the value that can realistically be expected to accrue to the enterprise from the chosen scope of the architecture work
- As a generic method, the ADM is intended to be used by enterprises in a wide variety of different geographies and applied in different vertical sectors/industry types

As such, it may be, but does not necessarily have to be, tailored to specific needs. For example, it may be used in conjunction with the set of deliverables of another framework, where these have been deemed to be more appropriate for a specific organization. (For example, many US Federal agencies have developed individual frameworks that define the deliverables specific to their particular departmental needs.)

These issues are considered in detail in Section 1.3.

1.2.2 Basic Structure

The basic structure of the ADM is shown in Figure 1-1.

Throughout the ADM cycle, there needs to be frequent validation of results against the original expectations, both those for the whole ADM cycle, and those for the particular phase of the process.

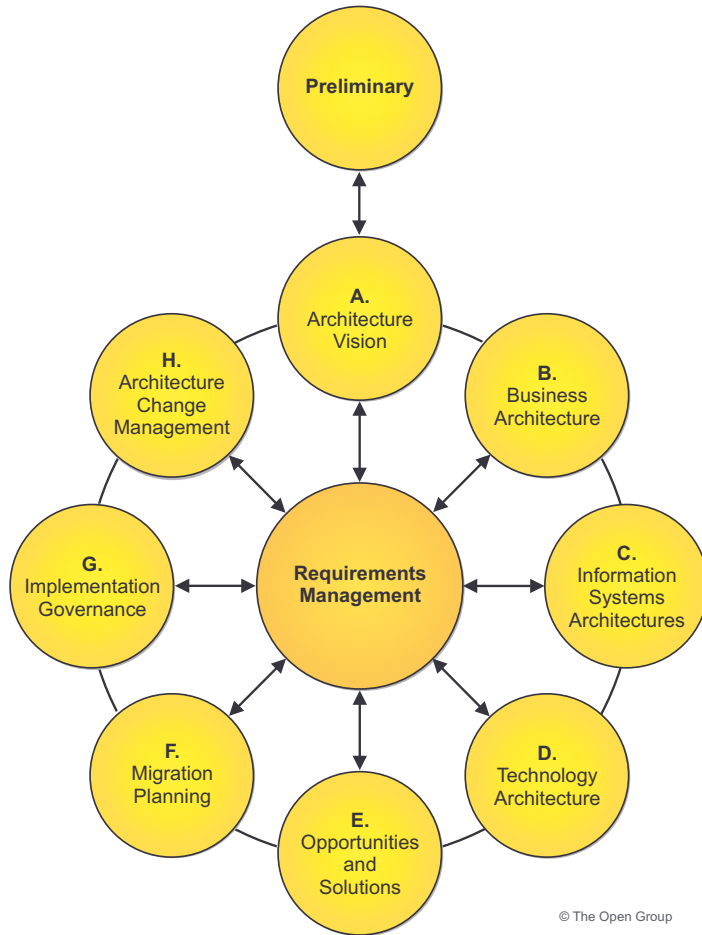


Figure 1-1 Architecture Development Cycle

The phases of the ADM cycle are further divided into steps, which are defined in the detailed description of each phase.

The Requirements Management phase is a continuous phase which ensures that any changes to requirements are handled through appropriate governance processes and reflected in all other phases. An enterprise may choose to record all new requirements, including those which are in scope of the current Statement of Architecture Work through a single Requirements Repository.

The phases of the cycle are described in detail in the following chapters.

Note that output is generated throughout the process, and that the output from an early phase may be modified in a later phase. In the ADM, the status of outputs at each stage is defined.