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The TOGAF® Standard — *Version 9.2*

THE ARCHITECTURE DEVELOPMENT METHOD

REFERENCE CARDS

THE Open GROUP

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The Architecture Development Method

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Introduction to the TOGAF Standard

The TOGAF standard is a framework for Enterprise Architecture. Put simply, it is a standard approach for assisting in the acceptance, production, use, and maintenance of Enterprise Architectures. It is based on an iterative process model supported by best practices and a re-usable set of existing architectural assets.

The TOGAF standard is developed and maintained by members of The Open Group, working within the Architecture Forum. The original development of the TOGAF standard in 1995, was based on the US Department of Defense Technical Architecture Framework for Information Management (TAFIM). Starting from this sound foundation, The Open Group Architecture Forum has developed successive versions of the TOGAF standard at regular intervals and published each one on The Open Group public website.

The TOGAF standard can be used for developing a broad range of different Enterprise Architectures. It complements, and can be used in conjunction with, other frameworks that are more focused on specific deliverables for particular vertical sectors such as Government, Telecommunications, Manufacturing, Defense, and Finance. A key part of the TOGAF standard is the method – the TOGAF Architecture Development Method (ADM) – for developing an Enterprise Architecture that addresses business needs.

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The TOGAF Standard

The TOGAF standard is divided into six parts, as summarized in Table 1.

Table 1: Structure of the TOGAF Standard

Part I: Introduction	This part provides a high-level introduction to the key concepts of Enterprise Architecture and, in particular, to the TOGAF approach. It contains the definitions of terms used throughout the standard.
Part II: Architecture Development Method	This part is the core of the TOGAF framework. It describes the TOGAF Architecture Development Method (ADM) – a step-by-step approach to developing an Enterprise Architecture.
Part III: ADM Guidelines and Techniques	This part contains a collection of guidelines and techniques available for use in applying the TOGAF approach and the TOGAF ADM. Additional guidelines and techniques are also in the TOGAF Library.
Part IV: Architecture Content Framework	This part describes the TOGAF content framework, including a structured metamodel for architectural artifacts, the use of re-usable Architecture Building Blocks (ABBs), and an overview of typical architecture deliverables.
Part V: Enterprise Continuum and Tools	This part discusses appropriate taxonomies and tools to categorize and store the outputs of architecture activity within an enterprise.
Part VI: Architecture Capability Framework	This part discusses the organization, processes, skills, roles, and responsibilities required to establish and operate an architecture practice within an enterprise.

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The TOGAF Library

The TOGAF Library is a reference library containing guidelines, templates, patterns, and other forms of reference material to accelerate the creation of new architectures for the enterprise.

It is structured as follows:

Section 1: Base Documents	Broadly applicable information relating to the subject of the TOGAF framework or Enterprise Architecture.
Section 2: Generic Guidance and Techniques	Information describing architecture styles and how the TOGAF framework and Enterprise Architecture can be adapted to exploit the characteristics of a more specific context.
Section 3: Industry-Specific Guidance and Techniques	Information describing how the TOGAF framework and Enterprise Architecture can be applied to meet the specific needs of a vertical industry segment.
Section 4: Organization-Specific Guidance and Techniques	Information describing how the TOGAF framework and Enterprise Architecture have been applied to meet the needs of specific enterprises.

The TOGAF Library: www.opengroup.org/togaf-library

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P Preliminary Phase

Preliminary Phase			
Objectives	**Steps**	**Inputs**	**Outputs**
Determine the Architecture Capability desired by the organization: • Review the organizational context for conducting Enterprise Architecture • Identify and scope the elements of the enterprise organizations affected by the Architecture Capability • Identify the established frameworks, methods, and processes that intersect with the Architecture Capability • Establish Capability Maturity target Establish the Architecture Capability: • Define and establish the Organizational Model for Enterprise Architecture • Define and establish the detailed process and resources for Architecture Governance • Select and implement tools that support the Architecture Capability • Define the Architecture Principles	Scope the enterprise organizations impacted Confirm governance and support frameworks Define and establish Enterprise Architecture team and organization Identify and establish Architecture Principles Tailor the TOGAF framework and, if any, other selected architecture frameworks Develop strategy and implementation plans for tools and techniques	The TOGAF Library Other architecture framework(s) Board strategies, business plans, business strategy, IT Strategy, business principles, business goals, and business drivers Major frameworks operating in the business Governance and legal frameworks Architecture Capability Partnership and contract agreements Existing organizational model for Enterprise Architecture Existing architecture framework, if any, including: • Architecture method • Architecture content • Configured and deployed tools • Architecture Principles • Architecture Repository	Organizational Model for Enterprise Architecture Tailored Architecture Framework, including Architecture Principles Initial Architecture Repository Restatement of, or reference to, business principles, business goals, and business drivers Request for Architecture Work Architecture Governance Framework

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R Requirements Management

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Requirements Management			
Objectives	**Steps**	**Inputs**	**Outputs**
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 relevant architecture requirements are available for use by each phase as the phase is executed	Identify/document requirements Baseline requirements Monitor baseline requirements Identify changed requirements; remove, add, modify, and re-assess priorities Identify changed requirements and record priorities; identify and resolve conflicts; generate requirements impact statements Assess impact of changed requirements on current and previous ADM phases Implement requirements arising from Phase H Update the Architecture Requirements Repository Implement change in the current phase Assess and revise gap analysis for past phases	The inputs to the Requirements Management process are the requirements-related outputs from each ADM phase The first high-level requirements are produced as part of the Architecture Vision Each architecture domain then generates detailed requirements Deliverables in later ADM phases contain mappings to new types of requirements (for example, conformance requirements)	Changed requirements Requirements Impact Assessment, which identifies the phases of the ADM that need to be revisited to address any changes The final version must include the full implications of the requirements (e.g., costs, timescales, and business metrics)

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A Architecture Vision

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Architecture Vision			
Objectives	**Steps**	**Inputs**	**Outputs**
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	Establish the architecture project Identify stakeholders, concerns, and business requirements Confirm and elaborate business goals, business drivers, and constraints Evaluate capabilities Assess readiness for business transformation Define scope Confirm and elaborate architecture principles, including business principles Develop Architecture Vision Define the Target Architecture value propositions and KPIs Identify business transformation risks and mitigation activities Develop Statement of Architecture Work; secure approval	Request for Architecture Work Business principles, business goals, and business drivers Organizational Model for Enterprise Architecture Tailored Architecture Framework, including tailored architecture method, architecture content, architecture principles, configured and deployed tools Populated Architecture Repository; that is, existing architecture documentation (framework description, architecture descriptions, existing baseline descriptions, etc.)	Approved Statement of Architecture Work Refined statements of business principles, business goals, and business drivers Architecture Principles Capability Assessment Tailored Architecture Framework Architecture Vision, including: • Refined key high-level stakeholder requirements Draft Architecture Definition Document, including (when in scope): • Baseline Business Architecture (high-level) • Baseline Data Architecture (high-level) • Baseline Application Architecture (high-level) • Baseline Technology Architecture (high-level) • Target Business Architecture (high-level) • Target Data Architecture (high-level) • Target Application Architecture (high-level) • Target Technology Architecture (high-level) • Communications Plan • Additional content populating the Architecture Repository

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B Business Architecture

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Phase B: Business Architecture

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

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C Data Architecture

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Phase C: Information Systems Architectures – Data Architecture

Objectives	Steps	Inputs	Outputs
Develop the Target Data Architecture that enables the Business Architecture 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	Select reference models, viewpoints, and tools Develop Baseline Data Architecture Description Develop Target Data Architecture Description Perform gap analysis Define candidate roadmap components Resolve impacts across the Architecture Landscape Conduct formal stakeholder review Finalize the Data Architecture Create Architecture Definition Document	Request for Architecture Work Capability Assessment Communications Plan Organizational Model for Enterprise Architecture Tailored Architecture Framework Data principles Statement of Architecture Work Architecture Vision Architecture Repository Draft Architecture Definition Document containing: • Baseline Business Architecture (detailed) • Target Business Architecture (detailed) • Baseline Data Architecture (high-level) • Target Data Architecture (high-level) • Baseline Application Architecture (detailed or high-level) • Target Application Architecture (detailed or high-level) • Baseline Technology Architecture (high-level) • Target Technology Architecture (high-level) Draft Architecture Requirements Specification • including: • Gapanalysisresults • Relevanttechnicalrequirements • Business Architecture components of an Architecture Roadmap	Statement of Architecture Work, updated if necessary Validated data principles, or new data principles Draft Architecture Definition Document containing content updates: • Baseline Data Architecture • Target Data Architecture • DataArchitectureviews corresponding to the selected viewpoints, addressing key stakeholder concerns Draft Architecture Requirements Specification including content updates: • 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 • Updated business requirements • Updated application requirements Data Architecture components of an Architecture Roadmap

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C Application Architecture

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Phase C: Information Systems Architectures – Application Architecture

Objectives	Steps	Inputs	Outputs
Develop the Target Application Architecture that enables the Business Architecture 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 Application Architectures	Select reference models, viewpoints, and tools Develop Baseline Application Architecture Description Develop Target Application Architecture Description Perform gap analysis Define candidate roadmap components Resolve impacts across the Architecture Landscape Conduct formal stakeholder review Finalize the Application Architecture Create Architecture Definition Document	Request for Architecture Work Capability Assessment Communications Plan Organizational Model for Enterprise Architecture Tailored Architecture Framework Application Principles Statement of Architecture Work Architecture Vision Architecture Repository Draft Architecture Definition Document containing: • Baseline Business Architecture (detailed) • Target Business Architecture (detailed) • Baseline Data Architecture (detailed or high-level) • Target Data Architecture (detailed or high-level) • Baseline Application Architecture (high-level) • Target Application Architecture (high-level) • Baseline Technology Architecture (high-level) • Target Technology Architecture (high-level) Draft Architecture Requirements Specification including: • Gap analysis results • Relevant technical requirements • Business and Data Architecture components of an Architecture Roadmap	Statement of Architecture Work, updated if necessary Validated application principles, or new application principles Draft Architecture Definition Document containing content updates: • Baseline Application Architecture • Target Application Architecture • Application Architecture views corresponding to the selected viewpoints, addressing key stakeholder concerns Draft Architecture Requirements Specification including content updates: • Gap analysis results • Application interoperability requirements • Relevant technical requirements that will apply to this evolution of the architecture development cycle • Constraints on the Technology Architecture • Updated business requirements • Updated data requirements Application Architecture components of an Architecture Roadmap

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D Technology Architecture

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Phase D: Technology Architecture

Objectives	Steps	Inputs	Outputs
Develop the Target Technology Architecture that enables the Architecture Vision, target business, data, and application building blocks to be delivered through technology components and technology services, 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 Technology Architectures	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 Create Architecture Definition Document	Request for Architecture Work Capability Assessment Communications Plan Organizational Model for Enterprise Architecture Tailored Architecture Framework Technology principles Statement of Architecture Work Architecture Vision Architecture Repository Draft Architecture Definition Document containing: • Baseline Business Architecture (detailed) • Target Business Architecture (detailed) • Baseline Data Architecture (detailed) • Target Data Architecture (detailed) • Baseline Application Architecture (detailed) • Target Application Architecture (detailed) • Baseline Technology Architecture (high-level) • Target Technology Architecture (high-level) Draft Architecture Requirements Specification including: • Gap analysis results • Relevant technical requirements • Business, Data, and Application Architecture components of an Architecture Roadmap	Statement of Architecture Work, updated if necessary Validated technology principles or new technology principles (if generated here) Draft Architecture Definition Document containing content updates: • Baseline Technology Architecture, if appropriate • Target Technology Architecture • Technology Architecture views corresponding to the selected viewpoints, addressing key stakeholder concerns Draft Architecture Requirements Specification including content updates: • Gap analysis results • Requirements output from Phases B and C • Updated technology requirements Technology Architecture components of an Architecture Roadmap

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E Opportunities & Solutions

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Phase E: Opportunities & Solutions

Objectives	Steps	Inputs	Outputs
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 (SBBs) to finalize the Target Architecture based on the Architecture Building Blocks (ABBs)	Determine/confirm key corporate change attributes Determine business constraints for implementation Review and consolidate gap analysis results from Phases B to D Review consolidated requirements across related business functions Consolidate and reconcile interoperability requirements Refine and validate dependencies Confirm readiness and risk for business transformation Formulate Implementation and Migration Strategy Identify and group major work packages Identify Transition Architectures Create Architecture Roadmap & Implementation and Migration Plan	Product information Request for Architecture Work Capability Assessment Communications Plan Planning methodologies Organizational model for Enterprise Architecture Governance models and frameworks Tailored Architecture Framework Statement of Architecture Work Architecture Vision Architecture Repository Draft Architecture Definition Document Draft Architecture Requirements Specification Change Requests for existing programs and projects Candidate Architecture Roadmap components from Phases B, C, and D	Statement of Architecture Work, updated if necessary Architecture Vision, updated if necessary Draft Architecture Definition Document, including: • Transition Architectures, number and scope, if any Draft Architecture Requirements Specification, updated if necessary Capability Assessment, including: • Business Capability • IT Capability Architecture Roadmap, including: • Work Package portfolio • Identification of Transition Architectures, if any • Implementation recommendations Implementation and Migration Plan (outline), including: • Implementation and Migration Strategy

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F Migration Planning

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Phase F: Migration Planning

Objectives	Steps	Inputs	Outputs
Finalize the Architecture Roadmap and the supporting Implementation and Migration Plan Ensure that the Implementation and Migration Plan is coordinated with the enterprise's approach to managing and implementing change in the enterprise's overall change portfolio Ensure that the business value and cost of work packages and Transition Architectures is understood by key stakeholders	Confirm management framework interactions for Implementation and Migration Plan Assign a business value to each work package Estimate resource requirements, project timings, and availability/ delivery vehicle Prioritize the migration projects through the conduct of a cost/benefit assessment and risk validation Confirm Architecture Roadmap and update Architecture Definition Document Complete the Implementation and Migration Plan Complete the architecture development cycle and document lessons learned	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 Draft Architecture Definition Document, including: • Transition Architectures, if any Draft Architecture Requirements Specification Change Requests for existing programs and projects Architecture Roadmap Capability Assessment, including: • Business Capability • IT Capability Implementation and Migration Plan (outline), including: • High-level Implementation and Migration Strategy	Implementation and Migration Plan (detailed), including: • Implementation and Migration Strategy • Project and portfolio breakdown of the implementation • Project charters (optional) Finalized Architecture Definition Document, including: • Finalized Transition Architectures, if any Finalized Architecture Requirements Specification Finalized Architecture Roadmap Re-Usable Architecture Building Blocks Requests for Architecture Work for a new iteration of the ADM cycle (if any)Implementation Governance Model Change Requests for the Architecture Capability arising from lessons learned

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G Implementation Governance

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Phase G: Implementation Governance

Objectives	Steps	Inputs	Outputs
Ensure conformance with the Target Architecture by implementation projects Perform appropriate Architecture Governance functions for the solution and any implementation-driven architecture Change Requests	Confirm scope and priorities for deployment with development management Identify deployment resources and skills Guide development of solutions deployment Perform enterprise architecture compliance reviews Implement business and IT operations Perform post-implementation review and close the implementation	Request for Architecture Work Capability Assessment Organizational Model for Enterprise Architecture Tailored Architecture Framework Statement of Architecture Work Architecture Vision Architecture Repository Architecture Definition Document Architecture Requirements Specification Architecture Roadmap Implementation Governance Model Architecture Contract Request for Architecture Work identified in Phases E and F Implementation and Migration Plan	Architecture Contract (signed) Compliance Assessments Change Requests Architecture-compliant solutions deployed, including: • The architecture-compliant implemented system • Populated Architecture Repository • Architecture compliance recommendations and dispensations • Recommendations on service delivery requirements • Recommendations on performance metrics • Service Level Agreements (SLAs) • Architecture Vision, updated post-implementation • Architecture Definition Document, updated post-implementation • Business and IT operating models for the implemented solution

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H Architecture Change Management

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Phase H: Architecture Change Management

Objectives	Steps	Inputs	Outputs
Ensure that the architecture lifecycle is maintained Ensure that the Architecture Governance Framework is executed Ensure that the Enterprise Architecture Capability meets current requirements	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	Request for Architecture Work Capability Assessment Organizational Model for Enterprise Architecture Tailored Architecture Framework Statement of Architecture Work Architecture Vision Architecture Repository Architecture Definition Document Architecture Requirements Specification Architecture Roadmap Implementation Governance Model Architecture Contract Request for Architecture Work identified in Phases E and F Implementation and Migration Plan	Architecture updates Changes to architecture framework and principles New Request for Architecture Work, to initiate another cycle of the ADM Statement of Architecture Work, updated if necessary Architecture Contract, updated if necessary Compliance Assessments, updated if necessary

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About The Open Group

Leading the development of open, vendor-neutral technology standards and certifications

The Open Group is a global consortium that enables the achievement of business objectives through technology standards. The Open Group works with customers, suppliers, consortia, and other standards bodies. Its role is to capture, understand, and address current and emerging requirements, establish policies, and share best practices; to facilitate interoperability, develop consensus, and evolve and integrate specifications and open source technologies; and to operate the industry's premier certification service.

Keys facts include:

- Over 585 member organizations, with 43,000+ participants in The Open Group activities from 126 countries - our Platinum Members are DXC Technology, Fujitsu, HCL, Huawei, IBM, Micro Focus, Oracle, and Philips
- Services provided include strategy, management, innovation and research, standards, certification, and test development
- Vision of Boundaryless Information Flow™, with Enterprise Architecture as a critical element for making the vision a reality; the TOGAF® Architecture Development Method (ADM) provides an important toolset

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