Self Study Exam TOGAF Preparation Guide - Covers All TOGAF Exam Topics

TOGAF 9 Foundation Part 1 Exam Preparation Course in a Book for Passing the

TOGAF 9 Foundation Part 1 Certified Exam

Second Edition

The How To Pass on Your First Try Certification Study Guide

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1 Foreword

This Exam Preparation book is intended for those preparing for The Open Group Architecture Framework (TOGAF) Certification.

The Art of Service has been an Accredited Training Organization for this program since 1998. The strategies and content in this book are a result of experience and understanding of the TOGAF distinctions and the exam requirements.

This book is not a replacement for completing the course. This is a study aid to assist those who have completed an accredited course and are preparing for the exam.

While it is not possible to pre-empt every question and content that MAY be asked in the exam, this book covers the main concepts covered within The Open Group Architecture Framework discipline.

The advantages of using the TOGAF approach are that it provides:

- A process for designing an information system, in terms of a set of building blocks.
- Establishes a common vocabulary for use in the design, implementation and governance.
- Includes a list of recommended standards to use with the organization's enterprise architecture.
- Contains a set of structured and rigorous methods for the implementation and governance of enterprise architecture.

Due to licensing rights, we are unable to provide actual TOGAF Exams. However, the study notes and sample exam questions in this book will allow you to more easily prepare for a TOGAF exam.

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The Art of Service

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2 Contents

3 The Open Group Architecture Framework

The Open Group is a consortium neutral to vendor and technology and intent on creating open standards and global inter-operability to enable access to integrated information within and between enterprises.

One of the certification programs, The Open Group Architecture Forum (TOGAF), provides an opportunity for service providers and tool vendors to demonstrate their products and service ability to support the enterprise.

TOGAF is an industry standard architecture framework to develop information systems architecture within the enterprise using the TOGAF Architecture Development Method (ADM).

Certification for TOGAF comes in two levels or parts: Foundation and Certified.

- Foundation Certification demonstrates a candidates knowledge of the terminology and basic concepts of TOGAF, as well as the core principles.
- The Certified level shows a candidate's ability to apply their knowledge of TOGAF.

The TOGAF 9 Part 1 exam covers the following eleven topics:

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

The TOGAF 9 Part 2 exam draws its questions from the following topic areas:

- ADM Phases: Project Establishment
- ADM Phases: Architecture Definition
- ADM Phases: Transition Planning
- ADM Phases: Governance
- Adapting the ADM
- Architecture Content Framework
- TOGAF Reference Models
- Architecture Capability Framework

4 Exam Specifics

TOGAF 9 Part 1 – Foundation exam is comprised of 40 simple multiple choice questions to be completed in one hour. A candidate must pass the exam with 55% of the questions answered correctly. There are no prerequisites to take this exam.

TOGAF 9 Part 2 – Certified exam is comprised of eight complex scenario-based questions with gradient scoring to be completed in 90 minutes. A candidate must pass with a score of 60% or better. In order to take the exam, the candidate must be certified to TOGAF 9 Foundation or take and pass the Part 1 exam on the same day from the same test provider providing the Part 2 exam. This test is open book.

The exams can be taken as separate exams or as a combined exam. If taken as a combined exam, the above rules still apply to each section of the combined exam (i.e. part 1 and part 2).

The Open Group exams are proctored by Prometric Services. Scheduling and location of test sites can be obtained at www.prometric.com. Tests are conducted at a testing center. Two valid forms of ID are required when arriving at the center. Training in TOGAF is required and a voucher for completing training, self-study or classroom is required.

If a candidate fails an exam, they must wait at least one month before retaking.

5 The Open Group Architecture Framework

5.1 TOGAF Overview

The Open Group Architecture Framework (TOGAF) provides several opportunities for enterprise architects and IT organizations, including:

- An iterative process model supported by best practices
- A re-usable set of existing architecture assets
- Methods and tools for the acceptance, development, use, and maintenance of an enterprise architecture

5.1.1 Defining Architecture

The definition of 'architecture' from ISO/IEC 42010:2007 is:

"The fundamental organization of a system, embodied in its components, their relationships to each other and the environment, and the principles governing its design and evolution."

TOGAF supports this definition by remaining consistent with the terminology of the ISO/IEC 42010:2007 but views the meaning of 'architecture' differently based on the context used. For TOGAF, architectures are:

- A formal description of a system or detailed plan of a system at the component level for guiding implementation.
- The structure of components, their relationships to each other, and the principles and guidelines underlining there design and evolution over time.

An enterprise architecture is comprised of four commonly accepted domains:

- Business Architecture
- Data Architecture
- Applications Architecture
- Technology Architecture

5.1.2 Approaches to Architecture Development

On large scale, complex architecture development projects, the focus and scope of the project is a critical component to the project's success.

Two approaches are typically adopted:

- Vertical Approach—enterprise is divided into segments representing independent business sectors
- Horizontal Approach—enterprise is divided into architecture domains

5.1.3 Architecture Capability

Creating architecture for an enterprise requires the organization to have the business capability to support the architecture through structures, roles, responsibilities, skills, and processes.

TOGAF architecture capability builds on the Architecture Repository and Enterprise Continuum by identifying the architecture components providing the capability and their relationships to each other.

The components include:

- Skilled Resource Pool
- Roles and Responsibilities
- Contracts
- Projects and Portfolios
- Governance of Projects and Portfolios
- Business Operations
- Governance Bodies

Enterprise Architectures look to establish capabilities in the areas of:

- Financial Management
- Performance Management
- Service Management
- Risk Management
- Communications and Stakeholder Management
- Quality Management

- Supplier Management
- Configuration Management
- Environment Management

5.1.4 Architecture Integration

Integrating individual architectures provide the foundation for interoperability, migration, and conformance between those architectures.

Referred to as a meta-architecture framework, its purpose is to:

- Provide a basis for understanding how components fit into the overall framework
- Enable architectural models to be created that focus on enterprise-level capabilities
- Define the conformance standards to enable maximum leverage and re-use of architecture components

5.1.5 Interoperability

Interoperability is categorized often in the following classes:

- Operational or Business Interoperability—defines the sharing behaviors for business processes
- Information Interoperability—defines the sharing behaviors for information
- Technical Interoperability—defines the sharing behaviors for technical services

The Enterprise Application Integration (EAI) defines interoperability in terms of:

- Presentation Integration/Interoperability—provides a common look and feel approach
- Information Integration/Interoperability—corporate information is seamlessly shared between corporate applications to obtain a common set of client information
- Application Integration/Interoperability—corporate functionality is integrated and shared to prevent duplicate applications
- Technical Integration/Interoperability—common methods and shared services for the communication, storage, processing, and access to data in the application platform and communications infrastructure domain

5.2 Components of TOGAF

5.2.1 Architecture Development Method

The Architecture Development Method (ADM) is the core component of TOGAF, providing a tested and repeatable process for developing architectures.

The phases of the ADM include:

- Preliminary—prepares the organization
- Architecture Vision—sets the scope, constraints, and expectations
- Business Architecture—develops baseline and target architectures for Business Architecture
- Information Systems Architecture—develops baseline and target architectures for Information Systems Architecture
- Technology Architecture—develops baseline and target architectures for Technology Architecture
- Opportunities and Solutions—performs initial implementation planning
- Migration Planning—analyses costs, benefits, and risks
- Implementation Governance—provides architectural oversight to implementation
- Architecture Change Management—provides continual monitoring and a change management process
- Requirements Management—validates and enforces business requirements

5.2.2 Architecture Content Framework

The output of the ADM comes in many forms. To ensure consistency, the Architecture Content Framework defines the type of architectural work product found, such as:

- Deliverable—a formally agreed upon work product of the project output
- Artifact—an architectural work product describing the architecture from a specific viewpoint
- Building Block—a component of business, IT, or architecture capability combined with other building blocks to create architectures and solutions. Building blocks typically include:
    - Architecture Building Blocks (ABB)
    - Solution Building Blocks (SBB)

5.2.3 Enterprise Continuum

Architecture and solution artifacts are collected into an Architecture Repository. The Enterprise Continuum is a comprehensive view of this repository and is comprised of two concepts:

- Architecture Continuum
- Solutions Continuum

The Architecture Repository stores architecture output at different levels of abstraction created by the ADM. In conjunction with the Enterprise Continuum, stakeholders and providers have the means to understand and cooperate within the architecture.

5.2.4 Architecture Repository

The primary components of the Architecture Repository include:

- Architecture Metamodel—the application of an architecture framework for a specific enterprise
- Architecture Capability—the parameters, structures, and processes supporting the governance of the Architecture
- Architecture Landscape—the architecture view of building blocks currently in use within the enterprise
- Standards Information Base (SIB)—the standards requiring compliance for architectures
- Reference Library—provides the guidelines, templates, patterns, and reference materials to leverage during the creation of the enterprise
- Governance Log—a record of governance activity across the enterprise

5.2.5 Architecture Capability Framework

The Architecture Capability Framework is based on the Capability Maturity Models (CMM), which provide an effective method for enabling an organization to gain control and improve its IT-related development processes in a gradual manner.

Several models are available for use:

- Capability Maturity Model Integration (CMMI)

- Software Acquisition Capability Maturity Model (SA-CMM)
- Systems Engineering Capability Maturity Model (SE-CMM)
- People Capability Maturity Model (P-CMM)
- IDEAL Life Cycle Model for Improvement
- IT Architecture Capabilities Maturity Model (ACMM)

The ACMM is comprised of three sections:

- The IT architecture maturity model
- IT architecture characteristics of processes at different maturity levels
- The ACMM scorecard

Six levels of maturity are present for nine architecture characteristics:

- The Levels
    - 0 None
    - 1 Initial
    - 2 Under Development
    - 3 Defined
    - 4 Managed
    - 5 Measured
- The Characteristics
    - IT architecture process
    - IT architecture development
    - Business linkage
    - Senior management involvement
    - Operating unit participation
    - Architecture communication
    - IT security
    - Architecture governance
    - IT investment and acquisition strategy

5.3 The Enterprise Continuum

The Enterprise Continuum is used to communicate and understand an individual enterprise, as well as the enterprises of a customer or vendor. Architecture is context-specific and, therefore, will differ from one enterprise to the next. The Enterprise Continuum provides the language to allow enterprises to work together.

5.3.1 Basics of the Enterprise Continuum

The Enterprise Continuum is a combination of two concepts:

- The Architecture Continuum—provides a method of defining and understanding the rules, representations, and relationships present in an information system.
- The Solutions Continuum—supports the Architecture Continuum by providing a method to describe and understand the implementation of rules, representations, and relationships found in the Architecture Continuum.

The content of the Enterprise Continuum is all the architecture assets that exist within the enterprise and the IT industry, including:

- Models
- Patterns
- Architecture Descriptions

Assets are generally available for re-use and the Enterprise Continuum acts as a catalog for these assets.

The TOGAF Architecture Development Method is a process for moving from the TOGAF Foundation Architecture to an enterprise-specific architecture. The Enterprise Continuum is used to determine what assets already exist to make transition easier.

TOGAF provides two reference models that could be included in an organization's Enterprise Continuum:

- The TOGAF Foundation Architecture—a set of generic services and functions that provide a foundation for more specific architectures to be developed
- The Integrated Information Infrastructure Reference Model (III-RM)—based on the TOGAF Foundation Architecture to enable and support a Boundaryless Information Flow vision

5.3.2 Components of the Enterprise Continuum

The Architecture Continuum is a composition of architectures, Architecture Building Blocks (ABBs), and architectural models used to create an enterprise-specific architecture.

The Architecture Continuum is developed through four architectures, not phases, which address enterprise needs and business requirements in varying degrees of detail. The different architectures are:

- Foundation Architectures—building blocks and standards that support all common systems architectures
- Common Systems Architectures—provides guidance to the selection and integration of specific services used to create common solutions across multiple domains
- Industry Architectures—integrates common systems components with industry-specific components to create solutions for target customer problems
- Organization Architectures—represents the deployed solutions for a particular enterprise

The Solutions Continuum consists of the architectures at each level of the Architecture Continuum and, in short, is considered an inventory or library of solutions available to an organization, specifically:

- Products and Services—procurable hardware, software, or service components
- Systems Solutions—a set of certified or branded products and services used to fulfill common requirements and capabilities
- Industry Solutions—implementations of a specific Industry Architecture
- Organization, or Enterprise, Solutions—combined implementations of industry solutions, system solutions, and products and services to fulfill specific requirements for an enterprise.

5.3.3 Technical Reference Model (TRM)

The Technical Reference Model (TRM) is a component of the TOGAF Foundation Architecture, which provides a model and taxonomy of generic platform services. It is comprised of taxonomy and a graphic.

The taxonomy provides a list of terms and a coherent description of the components and conceptual structure of an information system. The TRM graphic is a visual representation of the taxonomy.

The TRM has two common architectural objectives: Application Portability and Interoperability.

The major entities of the TRM are:

- Application Software
- Application Platforms
- Communication Infrastructure

The entities are connected using the Application Platform Interface and the Communication Infrastructure Interface.

Application software is categorized under:

- Business Applications—used to implement business processes for a specific enterprise or vertical industry
- Infrastructure Applications—provides general purpose business functionality

The Application Platform is a single, generic entity of concept where a set of Application Software sits with the intentional objective of meeting an enterprise's business requirements.

The Application Platform Interface (API) is the connecting component between Application Software and the Application Platform. IT focuses on providing application portability, which requires the conformity of both applications and the platform to the interface.

High-level services for the Application Platform are defined as:

- Data Interchange Services
- Data Management Services
- Graphics and Imaging Services
- International Operation Services
- Location and Directory Services
- Network Services
- Operating System Services
- Software Engineering Services
- Transaction Processing Services
- User Interface Services
- Security Services
- System and Network Management Services

Services are provided in an object-oriented manner using an Object Request Broker (ORB) and Common Object services.

The Application Platform seeks to fulfill several qualities beneficial to the enterprise, including:

- Availability
- Assurance
- Usability
- Adaptability

The Communications Infrastructure provides the basic services required to interconnect systems and allow the transfer or data. The infrastructure itself is a combination of hardware and software that provide the networking and physical links used by systems.

The Communications Infrastructure Interface connects the Communication Infrastructure with the Application Platform to provide interoperability within the enterprise and with the global community.

5.3.4 Standards Information Base (SIB)

The Standards Information Base (SIB) is a database of industry standards used for:

- Architecture Development
- Acquisition and Procurement
- General Information

The content of the SIB is a collection of works from various sources, including IEEE, ISO, ISACA, WWW Consortium, or the Object Management Group. The content includes guidelines, technical processes, product standards, and other documentation relevant to widely accepted best practices. The SIB is managed by The Open Group.

To be considered for inclusion in the SIB, a specific standard must meet some criteria, including:

- Ability to be implemented in a non-discriminatory way
- Available of dependent products or services to interested parties
- Implementation of the standard is commercially available
- Organizations are free to develop a practical solution that supports or utilizes the standard
- Future versions of the standard remain available

- Developers using the standard are immune from liability for using the standard
- A market need is present for the standard
- Interfaces do not require additional proprietary interfaces to function
- Patents covering the interfaces are non-discriminatory
- Specifications and test suites are available

5.3.5 Integrated Information Infrastructure Reference Model (III-RM)

The Integrated Information Infrastructure Reference Model (III-RM) is a component and extension of the TOGAF Technical Reference Model, which addresses the ability of an enterprise to enable Boundaryless Information Flow. Like other components of the TOGAF, the IIS-RM is comprised of taxonomy and an associated graphic representing the taxonomy.

The concept of Boundaryless Information Flow has its roots in the modern enterprise's growing need for speed, flexibility, and responsiveness in the organization's ability to work together. The solution is the creation of an infrastructure that integrates the information requirements of the organization and provides integrated access to that information for all members of the organization.

The core components of an III-RM at a high-level are:

- Business Applications (BA)
- Infrastructure Applications (IA)
- Application Platform
- Interfaces
- Qualities

The applications are further broken down into:

- Brokering Applications—a business application designed to manage requests for clients to Information Provider Applications
- Information Provider Applications—a business application, which provides responses to client requests and basic access to data
- Information Consumer Applications—a business application designed to deliver content to users and request access to information on a specific system
- Development Tools—an infrastructure application, which provides the necessary modeling, design, and construction capabilities to develop and deploy applications
- Management Utilities—an infrastructure application providing the necessary utilities to understand, operate, tune, and manage the run-time system to meet business demand.

5.4 Architecture Governance

Architecture Governance aligns the framework with current best practices and ensures an appropriate level of visibility, guidance, and control to support the stakeholder's requirements and obligations.

A controlled environment should manage architectural artifacts, governance, and related processes. The major information areas related to architecture governance to be managed are:

- Reference Data—provides guidance and instruction during project implementation
- Process Status—manages the governance processes and information acquired by the process
- Audit Information—recorded process actions to support key decisions and responsible personnel and provide a reference for future process developments, guidance, and precedence.

5.4.1 Benefits of Architecture Governance

- Increases transparency of accountability
- Provides informed delegation of authority
- Provides controlled risk management
- Allows re-use of processes, concepts , and components
- Creates value through monitoring, measuring, evaluation, and feedback
- Increases visibility of decisions at all levels
- Increases shareholder value
- Integrates with existing solutions through control capabilities

5.4.2 Implementation of Architecture Governance

Architecture Governance is generally accepted as a distinct domain within a hierarchy of governance structures, including:

- Corporate governance
- Technology governance
- IT governance
- Architecture governance

Governance has specific characteristics that amplify their value and necessity in an enterprise:

- Discipline—commitment to adhere to procedures, processes, and authority structures
- Transparency—all activity and decision-making structures available to inspect
- Independence—processes, decision-making, and mechanisms are established to minimize and avoid potential conflicts of interest
- Accountability—groups are authorized and accountable for their actions
- Responsibility—contracted parties required to act responsibly
- Fairness—activities and solutions do not create an unfair advantage to a particular party

5.4.3 Architecture Governance Framework

Conceptually, the Architecture Governance is a set of processes, cultural orientation, set of owned responsibilities, and an approach for overseeing the integrity and effectiveness of the architecture.

The processes of Architecture Governance include:

- Policy Management—integrates architecture contracts with existing governance content to allow management and auditing
- Compliance—performs assessments against SLAs, OLAs, standards, and regulatory requirements
- Dispensation—used when compliance is not met by a subject area to provide the responsible party an opportunity to correct
- Monitoring and Reporting—basis of performance management
- Business Control—used to ensure compliance in business policies
- Environment Management—ensures an effective and efficient repository-based environment

The framework for Architecture Governance provides several levels of support within its organizational structure, including:

- Global governance board
- Local governance board
- Design authorities
- Working parties

5.4.4 Architecture Board

A successful architecture governance strategy incorporates an Architecture Board, which involves representation from across the organization. The Architecture Board can have global, regional, or business-line scope with articulated and identifiable responsibilities, decision-making capabilities, and authority limits.

5.4.5 Architecture Compliance

An essential aspect of architecture governance is the compliance of individual projects to the enterprise architecture. Compliance is derived by a solution's ability to:

- Support the stated strategy and future directions
- Adhere to stated standards
- Provide the stated functionality
- Adhere to stated principle

Conformity is supported by the Architecture function's ability to prepare a series of Project Impact Assessments and the IT Governance function's ability to define a formal review process.

Project Impact Assessments provides an opportunity to describe how the enterprise architecture affects the projects currently in place in the organization.

Architecture Compliance Reviews are used to verify the compliance of a specific project against the established architecture criteria, spirit, and business objectives.

The steps of the Architecture Compliance Review are:

- Request an architecture review
- Identify responsible parties and project principles
- Identify Lead Architect
- Determine the scope of the review
- Tailor checklists
- Schedule the Architecture Compliance Review meeting
- Interview project principals
- Analyze completed checklists
- Prepare report on the review
- Present findings in the report

- Obtain acceptance of findings
- Send the assessment report to the Architecture Review Coordinator

Several checklists might be used to guide any effort to determine conformance, including:

- Hardware and Operating System Checklists
- Software Services and Middleware Checklists
- Applications Checklists
- Information Management Checklists
- Security Checklists
- System Management Checklists
- System Engineering/Overall Architecture Checklists
- System Engineering/Methods and Tools Checklists

5.4.6 Architecture Contracts

Architecture contracts are agreements between development providers and sponsors. The agreements describe the deliverables, quality, and the fitness-for-purpose requirements for the desired development effort.

Managing contracts is a function of architecture governance as it ensures that responsibility for development is adequately delegated and accepted throughout the organization. Architecture Contracts are often used to drive architecture change. Different architecture contracts are required during different phases of the Architecture Development Method and include:

- Statement of Architecture Work
- Contract between Architecture Design and Development Partners
- Contract between Architecting Functions and Business Users

5.4.7 Architecture Content Framework

The Architecture Content Framework allows the TOGAF to be a stand-alone framework for architecture in an enterprise. It uses three categories to describe the type of architectural work product.

The core content metamodel concepts include:

- Core and extension content
- Formal and information modeling
- Core metamodel entities
- Catalog, matrix, and diagram concepts

The core and extension content is an introduction to how TOGAF employs a basic core metamodel and applies a number of extension modules to address specific issues in the architecture. It provides a minimum set of architectural content to support traceability across artifacts.

Core metamodel entities have some key relationship concepts:

- Processes should normally be used to describe flow
- Functions describe units of business capability
- Business services support organizational objectives and are defined at a level of granularity consistent with the level of governance needed
- Business services are deployed onto application components
- Application components are deployed onto technology components

Architectural information can be structured in an orderly way by the content metamodel. This allows the information to be processed to meet stakeholder needs effectively.

To present the metamodel clearly to the stakeholders, catalogs, matrices, and diagrams are used.

- Catalogs are lists of building blocks of a specific or related type for use as a reference or for governance. The metamodel can perform queries and analysis on the information.
- Matrices show relationships between two or more model entities. They are displayed in grid format.
- Diagrams render architectural content graphically to allow stakeholders to retrieve required information.

Each phase of the ADM contributes one or more artifacts to the core content metamodel:

- Preliminary
  - Principles Catalog
- Architecture Vision
  - Stakeholder Map Matrix
  - Value Chain Diagram
  - Solution Concept Diagram
- Business Architecture
  - Organization/Actor Catalog
  - Role Catalog
  - Business Service/Function Catalog
  - Business Interaction Matrix
  - Actor/Role Matrix
  - Business Footprint Diagram
  - Business Service/Information Diagram
  - Functional Decomposition Diagram
  - Product Lifecycle Diagram
- Information Systems (Data Architecture)
  - Data Entity/Data Component Catalog
  - Data Entity/Business Function Matrix
  - System/Data Matrix
  - Class Diagram
  - Data Dissemination Diagram
- Information Systems (Application Architecture)
  - Application Portfolio Catalog
  - Interface Catalog
  - System/Organization Matrix
  - Role/System Matrix
  - System/Function Matrix
  - Application Interaction Matrix
  - Application Communication Diagram
  - Application and User Location Diagram
  - System Use-case Diagram
- Technology Architecture
  - Technology Standards Catalog

    - Technology Portfolio Catalog
    - System/Technology Matrix
    - Environments and Locations Diagram
    - Platform Decomposition Diagram
- Opportunities and Solutions
    - Project Context Diagram
    - Benefits Diagram
- Requirements Management
    - Requirements Catalog

Extension modules are optional and selected during the Preliminary phase to meet the needs of the organization. The extension modules found in the TOGAF Content Metamodel are:

- Governance Extensions
- Services Extensions
- Process Modeling Extensions
- Data Extensions
- Infrastructure Consolidation Extensions
- Motivation Extensions

5.4.8 Stakeholder Management

Stakeholder management provides a discipline for gaining support between architecture practitioners and benefits the enterprise by:

- Identifying powerful stakeholders early for their input to shape the architecture
- Obtaining support from powerful stakeholders to enable more resources to be available during engagement of architectures
- Early and frequent communications with stakeholders allowing better understanding of the architecture process
- Reaction to architecture models and reports can be more effectively anticipated

Stakeholder analysis is used in the Architecture Vision phase to identify the key players in the engagement and updated with each subsequent phase of the ADM. The complexity of architecture can be difficult to manage and obtain agreement from large numbers of stakeholders. TOGAF addresses these issues throughout the ADM using the concepts of:

- Stakeholders
- Concerns
- Views
- Viewpoints

5.5 Architecture Views and Viewpoints

Architecture Views are formal representations of the overall architecture that hold some significance or meaning to one or more stakeholders. This allows a particular architecture to be communicated and understood by all stakeholders in order to facilitate that the system is addressing their concerns. The views chosen are usually at the discretion of the architect.

ANSI/IEEEE Standard 1471-2000, Recommended Practice for Architecture Description of Software-Intensive Systems, is an effort to promote a consistent method of creating views.

5.5.1 Terms Related to Views

There are several terms for concepts related to views:

- System—a collection of components intended to provide a specific function or set of functions
- Architecture—the system's fundamental organization of components, their relationships to each other, and the principles guiding design and growth
- Architecture description—a collection of artifacts that document architecture
- Stakeholders—people or groups who have key roles and concerns in the system
- Concerns—the key interests of the stakeholders, which determine the acceptability of the system in the environment
- View—a representation of the whole system from the perspective of a set of concerns
- Viewpoint—the perspective from which a view is constructed and used

5.5.2 Core Taxonomy of Views

The minimum set of stakeholders for a system in which views should be developed for are:

- Users
- System and Software Engineers
- Operators, Administrators, and Managers
- Customers

Each stakeholder group may have architecture views that fall into the following categories:

- Business
- Data
- Application
- Technology

5.5.3 Common Views and Viewpoints

Some of the most common views to be developed within architecture are:

- Business Architecture View —addresses the concerns of the users
- Enterprise Security View—addresses the security aspects of a system
- Software Engineering View—addresses the development of new software systems
- System Engineering View—addresses the assembling of hardware and software components for a working system
- Communication Engineering View—addresses the structuring of network and communication elements in order to simplify network design and planning
- Data Flow View—addresses the data requirements of processing, storage, retrieval, archiving and security
- Enterprise Manageability View—addresses the operations, administration, and management of a system
- Acquirer View—addresses the procurement of Commercial Off-the-Shelf (COTS) software and hardware

5.6 Building Blocks and the ADM

The following descriptions characterize building blocks:

- They are packages of functionality defined to meet a business need
- They are published interfaces to access functionality
- They interoperate with each other
- They are considerate of implementation and usage requirements and evolve to exploit technology and standards
- They can be assembled with other building blocks and may be a subassembly for other building blocks
- They are re-usable and replaceable
- They may have multiple implementations with different inter-dependent building blocks

5.6.1 Architecture Building Blocks

Architecture Building Blocks (ABB) are related to the Architecture Continuum and define which functionality will be implemented through the capture of business and technical requirements. An ABB is technology aware and is used to direct and guide the development of Solution Building Blocks (SBB).

The fundamental functionality and attributes of an ABB are semantic and unambiguous. Their interfaces are either chosen or supplied.

5.6.2 Solution Building Blocks

Solution Building Blocks (SBB) relate to the Solutions Continuum and are either procured or developed. An SBB defines which products and components are used to implement a specific functionality. They define the implementation with the intent to fulfill business requirements. The are product or vendor-aware.

The specifications of a SBB include, at minimum:

- Specific functionality and attributes
- An implemented set of interfaces
- Required SBBs identified

- Mapping of SBBs to the IT topology and operational policies
- Shared attributes, such as security, manageability, localization, scalability
- Performance and configurability defined
- Design drivers and constraints identified
- Relationships between SBBs and ABBs exploited

5.6.3 Building Blocks

Any given architecture is a set of building blocks shown through the architectural model. How the building blocks connect to each other to meet specific requirements make up the specifications of the architecture.

The building blocks of architecture represent the specific services required in the enterprise system. The process of creating building block definitions is a function of the Phases A, B, C, and D of the Architecture Development Method.

Building blocks are typically depicted in the form of models. The structure of a model consists of:

- Background to the Model
- The Business Process Level
- The Technical Functionality and Constraints Level
- The Architecture Model Level
- The Opportunity Identification Level
- The Building Block Re-use Level

6 *The Architecture Development Method*

6.1 The ADM Phases

6.1.1 Preliminary

The Preliminary Phase prepares the organization for development of the architecture, ensuring:

- Commitment to the process
- Principles and constraints are defined
- Scope and assumptions are defined
- Development team is established
- Framework and methodologies identified
- Criteria set

The Preliminary Phase defines many of the general aspects of the architecture by defining:

- The organizational context
- The key drivers and elements of the organization
- The requirements for architecture work
- The architecture principles
- The framework to be used
- The relationships between management frameworks
- The enterprise architecture maturity

Inputs to the Preliminary phase come from external and internal sources to the enterprise and consist of architectural and non-architecture products. The expected inputs include:

- TOGAF and other architecture framework(s)
- Strategies and business plans
- Business principles, goals, and drivers
- Major frameworks currently implemented in the business
- Governance and legal frameworks
- Project budget for scoping
- Partnership and contract agreements
- IT strategy
- Pre-existing Architecture Framework, Organizational Model, and Architecture Repository

The steps of the Preliminary phase include:

- Scoping the organizations impacted—identifying the enterprise units and communities directly affected (core), benefited (soft), and affected (extended) by the change as well as the governance involved
- Confirming the governance and support framework—the framework needs to exist and be adequate to establish the organizational change required to adopt a new enterprise architecture. This step ensures that framework is in place and the architecture touch-points and impact is understood and agreed upon by stakeholders.
- Defining and establishing enterprise architecture team and organization—including determining the existing enterprise and business capability and maturity and defining the changes required to existing business programs and projects. The work required to perform this work and to resolve any gaps involved will determine the resources required for future work.
- Identifying and establishing architecture principles—performed after establishing the organizational context
- Selecting and tailoring architecture framework—tailoring the framework focuses on making appropriate adjustments to terminology, processes, and architectural content
- Implementing architecture tools—dependent on the scale, sophistication, and culture of the architecture function

The outputs of the Preliminary phase are:

- Organizational Model for Enterprise Architecture
- Tailored Architecture Framework
- Initial Architecture Repository
- Restatement of business principles, goals, and drivers
- Request(s) for Architecture Work
- Governance Framework

6.1.2 A. Architecture Vision

The Architecture Vision Phase (Phase A) focuses on defining the scope of the project, creating and embracing the vision, and obtaining approvals to move forward. It develops the foundation by:

- Ensuring recognition and endorsement of the project
- Validating the business principles, goals and drivers
- Prioritizing the Baseline Architecture effort

- Defining the stakeholders and their concerns and objectives
- Defining the business requirements
- Understanding impact on any parallel efforts

Many of the elements of the Architecture Vision, such as enterprise mission, vision, strategy, and goals, may already be established elsewhere. The activities of the Architecture Vision phase are to clarify those elements and translate them into an architecture context. The vision provides the first attempt to provide a high-level description of the Baseline and Target Architectures.

The Architecture Vision is documented within the Statement of Architecture Work, which is signed by the sponsoring organization and provides the consensus required to move forward.

The inputs to the Architecture Vision phase include a Request for Architecture Work and the business principles, goals, and strategic drivers to be used to shape the Architecture Vision. Reference materials on architectures from external sources may be used as well. From the Preliminary phase, the Organizational Model for Enterprise Architecture and the Tailored Architecture Framework are utilized. Finally, the Architecture Repository provides a location to access all existing architectural documentation.

The scope and goals of the Request for Architecture Work will define the level of detail to address in the phase. The steps involved in creating an Architecture Vision include:

1. Establishing the architecture project—the project may be part of a larger effort within the enterprise or be standalone
2. Identifying stakeholders, concern, and business requirements—the purpose of engaging stakeholders is to identify stakeholder vision components and requirements, scope boundaries, concerns, issues, and cultural factors that may affect the effort
3. Confirming business goals, drivers, and constraints
4. Evaluation business capabilities—using a business capability assessment, this step is used to understand the realities of the organization to deliver on the target architecture and what is required to build up the organization's capabilities.
5. Assessing the business transformation readiness—in addition to the capabilities, the organization's ability to undergo a change in its architecture must be evaluated. The results of a readiness assessment can be used to scope the architecture project.
6. Defining scope—specifically focusing on the breadth of coverage, level of detail, partitioning characteristics, covered architecture domains, extent of the time, and the leveraged architecture assets.
7. Confirming architecture and business principles

8. Developing the Architecture Vision—the Architecture Vision is developed as well as business scenarios for articulating that vision.
9. Defining the value propositions and KPIs of the Target Architecture—develops the business case for the architecture, value propositions for each stakeholder grouping, assessing and defining the procurement requirements, defining the required performance metrics and measures, and assessing the business risk to the proposed Target Architecture
10. Identifying the risk of business transformation and any mitigation activities—identifying and classifying the initial and residual level of risk before and after mitigation
11. Developing the Statement of Architecture Work—ensures the proposed work products match the business performance requirements. Remaining activities seek acceptance of the Statement of Architecture Work by the sponsors and stakeholders.

The results of the Architecture Vision phase are:

- An Approved Statement of Architecture Work
- Refined Statements of Business Principles, Goals, and Strategic Drivers
- Architecture Principles
- Capability Assessment
- Tailored Architecture Framework
- Architecture Vision
- Communication Plan

The statement of Architecture Work is an important document in the Architecture Development Method as it lays the groundwork of consensus for the entire effort. The specific items addressed in the Statement of Architecture Work are:

- Scope and constraints
- Plan(s) for architecture work
- Roles and responsibilities
- Risks and mitigating activity
- Work product performance assessments
- Business case
- KPI metrics

6.1.3 B. Business Architecture

The Business Architecture Phase (Phase B) focuses on the development of the business aspects of the architecture, such as strategic business planning and business process re-engineering.

The objectives of the phase are:

- Establish a Baseline Business Architecture
- Develop a Target Business Architecture
- Analyze gaps between Baseline and Target
- Select relevant viewpoints of the architecture
- Select relevant tools and techniques

The business architecture is a prerequisite for work in any other architecture domain, and it is the first set of activities to be completed in developing the overall enterprise architecture. Business value and return on investment in architecture activity can be demonstrated to stakeholders because the business architecture is defined appropriately from the very start.

Architecture descriptions are used to develop the Baseline Description of the enterprise architecture. The development of the Baseline Description involves a bottom-up analysis of the current state of the environment. During the analysis, the intrinsic values of architecture components are determined. However, some of these components may not be used in developing the Baseline Description. Knowledge and understanding of these components is necessary, especially in determining any residual value that may exist in including or not including them.

Several modeling tools and techniques may be employed at this point, including:

- Activity Models—describes the functional aspects of the activities within the organization (also called Business Process Models)
- Use-Case Models—describes either business processes or system functions
- Class Models—describes information and the relationships and behaviors of that information

These model types are typically represented in the Unified Modeling Language (UML). Some industry sectors have specific modeling techniques used in their sector, such as:

- Node Connectivity Diagram
- Information Exchange Matrix

The expected inputs to the Business Architecture Phase include:

- Architecture reference from external sources
- Request for Architecture Work
- Business principles, goals and strategic drivers
- Capability Assessment
- Communications Plan
- Organizational Model for Enterprise Architecture
- Tailored Architecture Frameworks
- Approved Statement of Architecture Work
- Architecture and business principles
- Enterprise Continuum
- Architecture Repository
- Architecture Vision

One of the focuses of the Business Architecture phase is adequately defining business processes in the detail required to support the architecture. This is especially true for new business processes that are introduced.

The general steps of the phase include:

1. Selecting reference models, viewpoints, and tools—provides the basis for developing, demonstrating, and communicating the business architecture and includes identifying the overall modeling process; the requirement service granularity, boundaries, and contracts; and the catalogs of relevant business building blocks, matrices, and diagrams. The types of requirements to be collected are also determined.
2. Developing the Baseline Business Architecture Description—provides a current outlook on the existing business environment. Using the information discovered in the previous step can aid in developing the description.
3. Developing the Target Business Architecture Description—provides a future representation of the business architecture suitable to meet the new architecture requirements
4. Performing gap analysis—identifies the gaps between the baseline and target architecture. In the process, it will resolve conflicts using trade-off analysis; validate that models support the principles, objectives, and constraints; and test for completeness in the architecture models.
5. Defining roadmap components—aids in prioritizing activities in subsequent phases.
6. Resolving impact—aids in determining the impact of implementing the target business architecture in the current environment and the ongoing activities of

enterprise operations

7. Conducting formal reviews—ensures that target business architecture meets the requirements of the stakeholders
8. Finalizing the Business Architecture—selects the building blocks and the appropriate standards for those building blocks, as well as any supporting work products
9. Creating the Architecture Definition Document—is used to document the rationale for building block decisions and provide a description of several components of the business architecture

The outputs of the Business Architecture Phase include:

- Refinement of Architecture Vision phase deliverables
- Draft version of the Architecture Definition Document, including the baseline and target business architecture
- Draft Architecture Requirements Specification
- Business Architecture components

6.1.4 C. Information Systems Architectures

The Information Systems Architecture Phase (Phase C) handles the development of the data and/or application aspects of the architecture, specifically creating Target Architectures for business processes supported by IT implementations.

The approach used to develop information systems architectures utilizes tools and techniques for developing data and application architectures, including Enterprise Architecture Planning (ERP), Enterprise Resource Planning (ERP), and Customer Relationship Management (CRM). The focus of the architecture effort is on the implementation and integration of core applications for mission-critical business processes.

Implementation of architecture is commonly approached by designing a top-down and performing a bottoms-up implementation, though the steps for implementing can follow any order. Another approach is data driven: where applications systems that create data are first implemented, followed by applications that process data, and then by applications that archive data.

The general inputs to the Information Systems Architecture include:

- Request for Architecture Work
- Capability Assessment
- Communications Plan
- Organization Model for Enterprise Architecture
- Tailored Architecture Framework
- Application principles
- Data principles
- Statement of Architecture Work
- Architecture Vision
- Architecture Repository
- Draft Architecture Definition Document
- Baseline and Target Architectures for Business, Data, and Application
- Draft Architecture Requirements Specification
- Architecture Roadmap, specifically related to the business architecture

Specific steps are associated with both data and application architecture domains. In either case, the level of detail required is dependent on the scope and goals of the overall effort. Building blocks, whether new or existing, must be defined within this phase.

The specific steps related to developing the data architecture are:

1. Selecting reference models, viewpoints, and tools—provides the basis for developing, demonstrating, and communicating the data architecture and includes reviewing and validating data principles; selecting relevant resources and viewpoints; and tools and techniques for data capture, modeling and analysis. Identifying the overall modeling process for each viewpoint and the catalogs of relevant data building blocks, matrices, and diagrams are important steps at the very start, particularly:
    - Data Entity/Data Component catalog
    - Data Entity/Business Function matrix
    - Business Service/Information matrix
    - System/Data matrix
    - Class diagram
    - Data Dissemination diagram
    - Data Lifecycle diagram
    - Data Security diagram
    - Data Migration diagram
    - Class Hierarchy diagram

2. Developing the Baseline Data Architecture Description—provides a current outlook on the existing business environment. Using the information discovered in the Architecture Vision phase can aid in developing the description.
3. Developing the Target Data Architecture Description—provides a future representation of the data architecture suitable to meet the new architecture requirements
4. Performing gap analysis—identifies the gaps between the baseline and target architecture. In the process, resolves conflicts using trade-off analysis; validates that models support the principles, objectives, and constraints; and tests for completeness in the architecture models
5. Defining roadmap components—aids in prioritizing activities in subsequent phases
6. Resolving impact—aids in determining the impact of implementing the target data architecture in the current environment and the ongoing activities of enterprise operations
7. Conducting formal reviews—ensures that target data architecture meets the requirements of the stakeholders
8. Finalizing the Data Architecture—selects the building blocks and the appropriate standards for those building blocks, as well as any supporting work products.
9. Creating the Architecture Definition Document—used to document the rationale for building block decisions and provide a description of several components of the data architecture, including:
    - Business data model
    - Logical data model
    - Data management process model
    - Data Entity/Business Function matrix
    - Data Interoperability requirements

The specific steps related to developing the application architecture are:

1. Selecting reference models, viewpoints, and tools—provides the basis for developing, demonstrating, and communicating the application architecture and includes reviewing and validating application principles; selecting relevant resources and viewpoints; and tools and techniques for data capture, modeling and analysis. The types of requirements to be collected are determined.

2. Identifying the overall modeling process for each viewpoint and the catalogs of relevant data building blocks, matrices, and diagrams are important steps at the very start, particularly:
    - Application Portfolio catalog
    - Interface catalogs
    - System/Organization matrix
    - Role/System matrix
    - Application Interaction matrix
    - System/Function matrix
    - Application Communication diagram
    - Application and User Location diagram
    - Enterprise Manageability diagram
    - Process/System Realization diagram
    - Application Migration diagram
    - Software Distribution diagram
    - Software Engineering diagram
3. Developing the Baseline Application Architecture Description—provides a current outlook on the existing business environment. Using the information discovered in the Architecture Vision phase can aid in developing the description.
4. Developing the Target Application Architecture Description—provides a future representation of the data architecture suitable to meet the new architecture requirements.
5. Performing gap analysis—identifies the gaps between the baseline and target architecture. In the process, resolves conflicts using trade-off analysis, validates that models support the principles, objectives, and constraints, and tests for completeness in the architecture models.
6. Defining roadmap components—aids in prioritizing activities in subsequent phases
7. Resolving impact—aids in determining the impact of implementing the target application architecture in the current environment and the ongoing activities of enterprise operations.
8. Conducting formal reviews—ensures that target application architecture meets the requirements of the stakeholders.
9. Finalizing the Application Architecture—selects the building blocks and the appropriate standards for those building blocks, as well as any supporting work products.
10. Creating the Architecture Definition Document—used to document the rationale for building block decisions and provide a description of several components of the application architecture.

The primary outputs of the Information Systems Architecture are:

- Refining the Architecture Vision
- Drafting the Architecture Definition Document for Data and Application Architectures
- Drafting the Data and Application sections of the Architecture Requirements Specification
- Identifying the information system components of an Architecture Roadmap

6.1.5 D. Technology Architecture

The Technology Architecture Phase (Phase D) focuses on the technical aspect of the architecture, specifically those available within the Architecture Continuum.

The decisions made in previous phases of the Architecture Development Method may have implications on the technology components and platform, particularly those decisions around service granularity and service boundaries. The areas of impact within the Technology Architecture include:

- Performance—platform service requirements can contain services with several functionality units with varying non-functional requirements and more services than required by the requesting system
- Maintainability—if service granularity is too general, the introduction of change to the system may be too difficult and costly
- Location and Latency—inter-service communication may be impacted by the inappropriate setting of service boundaries and granularity
- Availability—when defining service composition and service granularity, high availability concerns may be a key determiner

The expected inputs to the Technology Architecture Phase include:

- Architecture reference materials from external sources
- Product information
- Request for Architecture Work
- Capability Assessment
- Communications Plan
- Organizational Model for Enterprise Architecture
- Tailored Architecture Frameworks
- Approved Statement of Architecture Work
- Technology principles

- Architecture Repository
- Draft Architecture Definition Document
- Draft Architecture Requirements Specifications
- Business, Data, and Application Architecture components of the Architecture Roadmap

One of the focuses of the Technology Architecture phase is adequately defining technology building blocks, existing and new, in the detail required to support the architecture. The general steps of the phase include:

1. Selecting reference models, viewpoints, and tools—provides the basis for developing, demonstrating, and communicating the technology architecture and identifying the overall modeling process, service portfolios, boundaries, contracts, and the catalogs of relevant business building blocks, matrices, and diagrams, particularly:
    - Technology standards catalog
    - Technology portfolio catalog
    - System/Technology matrix
    - Environments and Locations diagram
    - Platform Decomposition diagram
    - Processing diagram
    - Networked Computing/Hardware diagram
    - Communications Engineering diagram
2. Developing the Baseline Technology Architecture Description—provides a current outlook on the existing technical environment. Using the information discovered in the previous step can aid in developing the description.
3. Developing the Target Technology Architecture Description—provides a future representation of the technology architecture suitable to meet the new architecture requirements
4. Performing gap analysis—identifies the gaps between the baseline and target architecture. In the process, resolves conflicts using trade-off analysis, validates that models support the principles, objectives, and constraints, and tests for completeness in the architecture models.
5. Defining roadmap components—aids in prioritizing activities in subsequent phases
6. Resolving impact—aids in determining the impact of implementing the target technology architecture in the current environment and the ongoing activities of enterprise operations
7. Conducting formal reviews—ensures that target technology architecture meets the requirements of the stakeholders

8. Finalizing the Technology Architecture—selects the building blocks and the appropriate standards for those building blocks, as well as any supporting work products
9. Creating the Architecture Definition Document—used to document the rationale for building block decisions and provide a description of several components of the technology architecture, including:
    - Functionality and attributes
    - Dependent building blocks
    - Interfaces
    - Mapping to business and organizational entities and policies

The outputs of the Business Architecture Phase include:

- Refinement of Architecture Vision phase deliverables
- Draft version of the Architecture Definition Document, including the baseline and target technology architecture
- Draft Architecture Requirements Specification
- Technology Architecture components

6.1.6 E. Opportunities and Solutions

The Opportunities and Solutions phase (Phase E) is a checkpoint in the process to verify the suitability of the environment and architecture for implementation. The specific objectives include:

- Evaluating and selecting the appropriate implementation options
- Identifying the strategic parameters for change
- Assessing the dependencies, costs and benefits of projects
- Generating an implementation and migration strategy and plan

The Opportunities and Solutions phase is where the architecture team starts to be concerned with the actual implementation of the Target Architecture, looking into the best path for implementing the architecture, from both the corporate business and technical perspectives. IT activities are logically grouped into project work packages.

From an enterprise strategic change perspective, opportunities and solutions are identifying from top-down, based on the architecture work already performed. Because identify existing opportunities and solutions is a key function of this phase, the list of inputs is extensive and the information provided often has to be consolidated, integrated, and analyzed sufficiently to identify the best way to proceed.

An implementation and migration strategy is created to outline the critical path of the overall implementation approach. This strategy is supported by the results of dependency analysis where the requirements of specific work packages are identified and related to other work packages to isolate the critical path. These work packages are then organized into portfolios, projects, and initiatives by the architecture.

The size and complexity of the gap between the baseline and target architectures will decide the number of increments realistically possible to move the architecture from the baseline to the target. Each of these increments is considered a Transition Architecture and consists of sets of co-ordinated and defined building blocks grouped into work packages. Transition Architectures allow changes to architecture without too extensive of an impact on the organization in any single increment. It also allows simultaneous work on several architectures to be conducted on different levels of detail.

The inputs of the Opportunities and Solutions phase include:

- Architecture reference materials
- 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

The steps of the Opportunities and Solutions phase are:

1. Determining key corporate change attributes—ties in the organization's business culture to the best implementation approach for the enterprise architecture and includes the creation of an Implementation Factor Assessment and Deduction Matrix to store all architecture implementation and migration decisions
2. Determining business constraints—identifies the business drivers that may constrain the sequence of implementation activities and includes a review of the corporate and corporate live-of-business strategic plans and the Enterprise Architecture Maturity Assessment

3. Consolidating gap analysis results—consolidates and integrates the gap analysis results from the Business, Information Systems, and Technology Architectures and creates the Consolidated Gaps, Solutions, and Dependencies Matrix to easily find SBBs to address one or more gaps
4. Reviewing IT requirements—assessing the IT requirements, gaps, solutions, and factors with the intent to find the minimum set of functional requirements to implement the Target Architecture more effectively and efficiently
5. Consolidating interoperability requirements—uses the requirements found in the previous phases to consolidate and reconcile the interoperability requirements
6. Validating dependencies—identifies the business, information, workflow, IT, and Foundation dependencies as they relate to constraints on the Implementation and Migration Plans
7. Confirming readiness and risk for business transformation—assess the organization's readiness to handle the business transformation changes and adapt to the associated risks
8. Formulating Implementation and Migration Strategy—identifies the strategic approach to introduce the new architecture into the existing environment. Generally, there are three basic approaches:
    - Greenfield—starting from the beginning
    - Revolutionary—radical change to the environment
    - Evolutionary—phased approach to introduce capabilities

    Implementation planning attempts to identify quick wins, achievable targets, and value chain methods.
9. Grouping major work packages—major work packages are identified, analyzed, and classified as mainstream, contain, and replace systems.
10. Identifying Transition Architectures—when an incremental approach is required to realize the Target Architecture, Transition Architectures and Capabilities are identified
11. Creating portfolio and project charters—each incremental work effort must have appropriate project documentation in place to move forward to realize the Transition and Target Architectures

The expected outputs of the Opportunities and Solutions phase include:

- Refined versions of the Architecture Vision, Business, Information Systems, and Technology Architecture deliverables
- Consolidated Architecture Roadmap
- Capability Assessment
- Transition Architecture(s)
- Implementation and Migration Plan

6.1.7 F. Migration Planning

The primary focus of the Migration Planning approach is to create a viable Implementation and Migration Plan with the assigned portfolio and project managers. This includes assessing the dependencies, costs, and benefits of the transition architecture and migration projects.

The Implementation and Migration Plan is just one part of a series of plans issued by the enterprise management frameworks that must be co-ordinated with delivering business value and ensuring resources are available when required. The Migration Planning phase ensures that all concerned organizational agencies are fully aware of the scope and adopt the Implementation and Migration Plan appropriately with their current activities.

Additionally, the architecture evolution cycle is established to ensure relevancy of the architecture in the midst of business and technological advancement.

The inputs to the Migration Planning phase include:

- Architecture reference materials
- Requests for Architecture Work
- Capability Assessment
- 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
- Draft Architecture Requirements Specification
- Change Requests
- Consolidated Architecture Roadmap
- Transition Architectures
- Implementation and Migration Plan

The steps of the phase are:

1. Confirming management framework interactions—working through the Implementation and Migration Plan to co-ordinate and align activities with other frameworks, particularly Business Planning, Enterprise Architecture, Portfolio/Project Management, and Operations Management.
2. Assigning business value to each project—addresses various issues to ensure business value parameters are understood and utilized, including:
    - Performance Evaluation Criteria
    - Return on Investment Criteria
    - Business Value
    - Critical Success Factors
    - Measures of Effectiveness
    - Strategic Fit
3. Estimating requirements, timings, and vehicles—determine the resource requirements and times for executing each project or project increment and provide initial cost estimates for each project. This includes the availability and delivery of the resources for each project.
4. Prioritizing migration projects—using cost/benefit analysis and risk validation to identify the benefits of each project and determine the appropriate priority
5. Confirming Transition Architecture Increments—updates the Architecture Definition Document with updated information about the transition architecture(s)
6. Generating the Architecture Implementation Roadmap—establishes the sequencing of the Implementation and Migration Plan to ensure consistent adding of business value through the transition architecture projects being executed in a timely and effective basis
7. Establishing the Architecture Evolution Cycle—manages the Enterprise Architectures and Transition Architecture as configuration items that are maintained and evolved throughout the lifecycle of the varied solutions

The expected outputs of the Migration Planning phase consist of:

- Implementation and Migration Plan
- Finalized Architecture Definition Document
- Finalized Architecture Requirements Specification
- Finalized Architecture Roadmap
- Finalized Transition Architecture
- Re-usable Architecture Building Blocks
- Requests for Architecture Work
- Architecture Contracts

- Implementation Governance Model
- Change Requests

6.1.8 G. Implementation Governance

The Implementation Governance phase (Phase G) provides architectural oversight to the implementation of the architecture in the environment. It seeks to:

- Provide recommendations for each project
- Construct an Architecture Contract
- Perform governance functions
- Ensure conformance with the defined architecture

The approach used by the Implementation Governance phase is to establish an implementation program to enable the delivery of transition architectures agreed upon in the Migration Planning phase and a phased deployment schedule based on business priorities and guided by the Architecture Roadmap.

Using the Architecture Contract, the implementation and architecture organizations are connected.

The inputs to the Implementation Governance phase include:

- Architecture reference materials
- Request for Architecture Work
- Capacity 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
- Transition Architectures
- Implementation Governance Model
- Architecture Contract
- Implementation and Migration Plan

The steps of the Implementation Governance phase consist of:

1. Confirming scope and priorities for deployment—review the outputs of migration planning and produce recommendations. Identify priorities, issues, and building blocks and perform gap analysis related to Solution Building Blocks.
2. Identifying deployment resources and skills—identify the system development methods required to develop a solution and ensure the method allows feedback to be given to the architecture team on designs
3. Guiding development of solutions deployment—formulates recommendations on the project, documents the Architecture Contract and updates any documentation or repositories
4. Performing compliance reviews—review the current governance and compliance for each building block and conduct post-development reviews with the intention of closing the development portion of the deployment projects
5. Implementing business and IT operations—carry out each deployment project, ensuring that all new Baseline Architectures are published to the Architecture Repository and other impacted repositories are updated
6. Performing post implementation review—conduct all reviews after implementation, publishing those reviews and closing out projects as they complete.

The expected outputs of the Implementation Governance phase include:

- Architecture Contract
- Compliance Assessments
- Change Requests
- Architecture-compliant solutions

6.1.9 H. Architecture Change Management

Architecture Change Management (Phase H) provides established procedures for controlling change to the new architecture. The principle activities within this phase concentrate on monitoring developments in technology and changes in the business horizon that may affect the architecture-compliant system and determine a need to introduce Requests for Architecture Work.

Changes to the existing infrastructure can be integrated with the enterprise architecture in the following ways:

- Strategically form a top-down approach with directed changes to enhance or create new capabilities
- Bottom-up changes to correct or enhance capability from operations management

- From experiences with previously delivered projects that are in the care of operations management and delivered outside this function

An Architecture Board will typically assess and approve all Requests for Change (RFC) to the architecture. The reasons for changes requests generally come from technology or business reasons. Business reasons for change are a result of:

- Business-as-usual developments
- Business exceptions
- Business innovations
- Business technology innovations
- Strategic changes

The technological reasons include:

- New technology reports
- Asset management cost reductions
- Technology withdrawal
- Initiatives related to standards

The Change Management process determines how changes are managed and the techniques and methodologies used. Changes range from maintenance activities to architecture re-design.

Architectural changes are classified into three categories:

- Simplification change
- Incremental change
- Re-architecting change

Determining the category of a change requires that:

- All events impacting the architecture are registered
- Architecture tasks are properly resourced and managed
- Assessment of activity by responsible party managing resources
- Evaluation of impact to the architecture

The inputs to the Architecture Change Management phase include:

- Architecture reference materials
- Requests for Architecture Work

- Organizational Model for Enterprise Architecture
- Tailored Architecture Framework
- Statement of Architecture Work
- Architecture Vision
- Architecture Repository
- Architecture Definition Document
- Architecture Requirements Specification
- Architecture Roadmap
- Change Request for technology or business change
- Transition Architecture
- Implementation Governance Model
- Architecture Contract
- Compliance Assessments
- Implementation and Migration Plan

The steps related to the Architecture Change Management phase are:

1. Establishing value realization process—exploits value realization within business projects
2. Deploying monitoring tools—used to track a variety of influencing aspects, such as:
    - Technology changes
    - Business changes
    - Enterprise architecture capability maturity
    - Asset management
    - QoS performances
    - Business continuity requirements
3. Managing risk—manages the architecture risks and provides recommendations for IT strategy
4. Providing analysis—analyses performance, conducts performance reviews, assesses change requests, and performs gap analysis to ensure that changes conform to the enterprise architecture governance and framework
5. Developing change requirements—making recommendations on change requirements
6. Managing governance process—manages Architecture Board meetings
7. Activating the process to implement change—produces a new Request for Architecture Work and ensures work products of changes are captured in the Architecture Repository

The outputs of the Architecture Change Management phase are:

- Updates to the Architecture for maintenance reasons
- Changes to the architecture framework and principles
- New Request for Architecture Work
- Statement of Architecture Work
- Architecture Contract
- Compliance Assessments

6.1.10 Requirements Management

Requirements management is an activity that encompasses and oversees all phases within the ADM with the purpose of managing architecture requirements.

There is no mandated process or tool for requirements management by TOGAF, despite its importance to the overall development cycle. Some of the sources for requirements are:

- Business Scenarios
- Volere Requirements Specification Templates
- Requirements Tools

The inputs to the Requirements Management phase are:

- Updated Architecture Repository
- Organizational Model for Enterprise Architecture
- Tailored Architecture Framework
- Statement of Architecture Work
- Architecture Vision
- Architecture requirements
- Requirements Impact Assessment

The steps of the Requirements Management phase involve cooperation between requirement management and other ADM phases, and include:

1. Identifying document requirements—from various ADM phases using business scenarios or analogous techniques
2. Determining baseline requirements—includes determining priorities and confirming stakeholders. In addition, recording the requirements in the requirements repository.
3. Monitoring baseline requirements

4. Identifying changed requirements—remove and add priorities and or requirements through ADM phases
5. Identifying changed requirements—specific steps through the requirements management process to identify change requirements and create new priorities. Identify any conflicts and generate Requirements Impact Statement.
6. Assess impact on current and previous phases and create a Requirements Impact Statement
7. Implement requirements
8. Document or update requirements repository
9. Implement change in the current phase
10. Assess and revise gap analysis for past phases

The output of the requirements management process consists of:

- Requirements Impact Assessment
- Updated Architecture Requirements Specification
- Updated Requirements Repository

6.2 Adapting the ADM

The ADM process can be adapted in several types of usage scenarios and process styles.

6.2.1 Techniques for Architecture Development

The different techniques available support specific tasks within the ADM:

- Architecture Principles
- Stakeholder Management
- Architecture Patterns
- Business Scenarios
- Gap Analysis
- Migration Planning Techniques
- Interoperability Requirements
- Business Transformation Readiness Assessment
- Risk Management
- Capability-Based Planning

6.2.2 Architecture Partitioning

Partitioning of architecture is an effort to establish or show boundaries between individual architectures or groupings of related architectures for a variety of reasons, such as:

- The complexity involved with addressing all existing problems within a single architecture
- The conflict that exists between different architecture
- The ability for specific architects to own and develop specific segments of the overall architecture
- Enables modular re-use of architecture segments for more effective implementation and improvement of the architecture

For successful architecture partitioning, the characteristics of both solutions and architectures must be defined. Any number of approaches can be used to provide a definition.

The more common set of characteristics for a solution include:

- Subject Matter—describes the content, structure, and function of the solution
- Time—the expected period of time for a solution's existence
- Maturity/Volatility—the extent of change likely over time for the subject matter and environment

The more common set of characteristics for architecture include:

- Subject Matter—describes specific solutions and consequently inherits objective characteristics represented by the solution
- Viewpoint—a partial representation of the solution based on stakeholder needs built by architectural domains and specific artifacts
- Level of Detail—represents the uses of architecture
- Level of Abstraction—represents how abstracted a specific architecture is from the solution it represents
- Accuracy—how accurate an architecture is as a description of the solution

Once the characteristics have been defined to the solutions and architectures, the Enterprise Continuum can be partitioned and organized into a set of related solutions and architecture.

6.2.3 Architecture Patterns

A pattern is a reusable object that was useful in one practical situation and has the potential to be useful in other similar situations. Formalizing the process to capture patterns is beneficial for an organization as a way to acknowledge, build, and share best practices in support.

The content of a pattern contains:

- Name—unique heading reference for the pattern
- Problem—description of the situation where pattern is applied
- Context—the existing preconditions where the pattern is applicable
- Forces—description of the relevant forces and constraints
- Solution—description of pattern details
- Resulting Context—the post-conditions present after applying the pattern
- Examples—sample applications of the pattern
- Rationale—an explanation of the pattern
- Related Problems—a description of any relationships between this pattern and other patterns
- Known Uses—known applications of the pattern in the existing systems

6.2.4 Architecture Principles

Principles are general rules and guidelines intended to inform and support the organization's fulfillment of its mission.

Principles can be established on any or all levels of the organization:

- Enterprise—provides a basis for decision-making throughout the enterprise
- Information Technology—provides guidance on the use and development of all IT resources and assets
- Architecture—IT principles that relate to architecture work

Criteria have been identified to distinguish a good set of principles:

- Understandable
- Robust
- Complete
- Consistent
- Stable

Documentation format of a principle includes:

- Name
- Statement
- Rationale
- Implication

Below is an example list of principles from the US Government's Federal Enterprise Architecture Framework (FEAF):

- Business Principles
    - Primacy of Principles
    - Maximum Benefit to the Enterprise
    - Information Management is Everybody's Business
    - Business Continuity
    - Common Use Applications
    - Service Orientation
    - Compliance with Law
    - IT Responsibility
    - Protection of Intellectual Property

- Data Principles
    - Data is an Asset
    - Data is Shared
    - Data is Accessible
    - Data Trustee
    - Common Vocabulary and Data Definition
    - Data Security
- Application Principles
    - Technology Independence
    - Ease-of-Use
- Technology Principles
    - Requirements-Based Change
    - Responsive Change Management
    - Control Technical Diversity
    - Interoperability

6.2.5 Risk Assessments

Measuring the effect and frequency of risks has no set rules. Best practices of risk management provide the following criteria to be used in assessments.

For Effect:

- Catastrophic—critical financial loss that has the possibility of bankruptcy
- Critical—serious financial loss in more than one line of business with a loss in productivity
- Marginal—financial loss in a single line of business and a reduced return on IT investment
- Negligible—minimal impact on a single line of business affecting their ability to deliver services or products

For Frequency:

- Frequent—likely to occur often or continuously
- Likely—occurs several times during a transformation cycle
- Occasional—occurs sporadically
- Seldom—remotely possible to occur
- Unlikely—will not occur

Combining the criteria, corporate impact can be determined for risk:

- Extremely High Risk—most likely will fail with severe consequences
- High Risk—significant failure impacting in certain goals not being met
- Moderate Risk—noticeable failure threatening the success of certain goals
- Low Risk—certain goals will not be successful

6.2.6 Gap Analysis

To validate a developing architecture, gap analysis is used throughout the Architecture Development Method.

The potential sources of gaps include:

- Business Domain
    - o People
    - o Process
    - o Tools
    - o Information
    - o Measurement
    - o Financial
    - o Facilities
- Data Domain
    - o Insufficient currency
    - o Missing data
    - o Wrong data
    - o Data availability
    - o Data not created
    - o Data not used
    - o Data relationships
- Application domain
    - o Impacted applications
    - o Eliminated applications
    - o Created applications
- Technology domain
    - o Impacted technologies
    - o Eliminated technologies
    - o Created technologies

6.2.7 Service Oriented Architectures

Business environments are becoming significantly more sophisticated. Service Oriented Architecture (SOA), as a concept, provides an architectural style, which intends to simplify the business and its interoperability. When applied to software development, SOA structures applications in order to facilitate system flexibility and agility.

Service Oriented Architecture is becoming more present as a business opportunity to allow organizations to be structured to provide open, agile and flexible solutions. A business-led SOA approach has several fundamental aspects:

- Rich domain knowledge of horizontal and vertical concerns
- A structured, quantitative understanding of business value, costs, differentiations, and quality measures
- Broad understanding of current capability
- Broad understanding of the feasibility and viability of SOA technology-driven solutions

6.2.8 Applying Iteration

The Architecture Development Method is a process that can be used with other development or project management methods or as a stand-alone process. To support this flexibility, the ADM can be used iteratively. The factors that influence to what extent the method is iterative are:

- Formality and nature of established process checkpoints
- Level of stakeholder information
- Number of teams involved
- Maturity of the deployed solutions
- Attitude to risk

Iteration is characterized within ADM as:

- Allowing project teams to cycle through the entire ADM because of Architecture Change Management
- Allowing project teams to cycle between ADM phases in planned cycles covering multiple phases
- Allowing project teams to operate ADM cycles concurrently with relationships between different teams

Iteration cycles span multiple phases of activity and allow formal review when each iteration cycle is complete. The suggested iteration cycles are:

- Architecture Context Iteration—initial architecture activity that establishes approach, principles, scope, and vision
- Architecture Definition Iteration—creates the architecture content through the Business, Information system, and Technology Architecture phases
- Transition Planning Iteration—creates formal change roadmaps for the defined architectures
- Architecture Governance Iterations—manages change activity while reaching for a defined Target Architecture

An important first step is defining the architecture. Two process styles to do this exist:

- Baseline First—baseline assessments assist in identifying problem areas and improvement opportunities and are useful when target solutions are not understood and agreed upon
- Target First—the target solution is defined further and mapped back to the baseline description to identify the required change activity

6.2.9 Business Scenarios

Business Scenarios are used at various stages of the enterprise architecture to assist in identifying and understanding business needs and linking business requirements to the enterprise architecture.

A business scenario will describe:

- Business processes, applications , or set of applications enabled by the architecture
- Business and technology environment
- People and computing components executing the scenario
- Desired outcomes from proper execution

Used to represent a significant business need or problem and enabling vendors to understand the value of the architectural solution; business scenarios are 'SMART':

- Specific—defining what needs to be done
- Measurable—providing clear measures of success
- Actionable—determining the elements and plans for the solution
- Realistic—solving the problem within the physical reality, time, and cost constraints
- Time-bound—clearly stating the expiration of the solution opportunity

6.2.10 Security Architectures

Development of security architecture typically has a dual perception of remaining separate from the rest of the enterprise architecture development and needing to be integrated with that enterprise architecture. The security architect is tasked with the enforcement of security policies, including within the new developments of the enterprise architecture.

Security architectures have the following characteristics:

- They have their own methods
- They have their own discrete views and viewpoints
- They address non-normative flows
- They introduce their own normative flows
- They introduce unique, single purpose components
- They require a unique set of skill requirements in the IT architect

The concerns of the security architect include:

- Authentication
- Authorization
- Audit
- Assurance
- Availability
- Asset Protection
- Administration
- Risk Management

The enterprise requirements management process should include the security policy and standards. The security policy is an executive creation and is generally a long-term entity in the enterprise. Standards, however, change more frequently and are often tied to specific technologies.

New security requirements generally arise from:

- New statutory or regulatory mandates
- New threats
- New IT architecture initiatives with new stakeholders or requirements

6.2.11 Architecture Skills Framework

Skill frameworks provide a perspective on competency levels required for roles and define:

- The roles within a work area
- The skills required for each role
- The knowledge required to successfully fulfill a role

Skills are identified by the category they fall into:

- Generic Skills
- Business Skills and Methods
- Enterprise Architecture Skills
- Program or Project Management Skills
- IT General Knowledge Skills
- Technical IT Skills
- Legal Environment

Skills a further categorized by applying four levels of knowledge or proficiency, which are:

- Background—no required skill but can be managed and defined
- Assurance—understands the background and advises client accordingly
- Knowledge—detailed knowledge of subject area
- Expert—extensive and substantial practical experience

7 Architecture Reference Materials

7.1 Common Principles

From the US Government's Federal Enterprise Architecture Framework, the following principles demonstrate their application across the business, data, application, and technology domains.

Business Principles:

Principle 1:	Primacy of Principles
Statement:	Applies to all organizations with the enterprise
Rationale:	Adherence to principles provides a consistent and measurable level of quality information to decision-makers.
Implication:	Information management initiatives will begin after being examined for compliance with the principles.

Principle 2:	Maximize Benefit to the Enterprise
Statement:	Information management decisions provide maximum benefit to the enterprise.
Rationale:	Decisions from an enterprise perspective have more long-term value than from any organizational perspective.
Implication:	Some organizations will have to concede their own preferences for the greater benefit of the enterprise.

Principle 3:	Information Management in Everybody's Business
Statement:	All organizations must be involved in information management decisions required to accomplish business objectives.
Rationale:	Information users, as key stakeholders or customer, must be involved in any application of technology to address a business need.
Implication:	Every stakeholder or customer must take responsibility for developing the information environment.

Principle 4:	Business Continuity
Statement:	Enterprise operations must be maintained despite system failures.
Rationale:	Hardware failure, natural disasters, and data corruption must not disrupt

enterprise activities.

Implication: Recoverability, redundancy, and maintainability are issues to be addressed during design of systems.

Principle 5: Common Use Applications

Statement: Applications should be developed for use across the enterprise; this is preferable over applications developed for use by a particular organization.

Rationale: Duplicate capability is expensive and encourages conflicting data.

Implication: Organizations will not be allowed to develop capabilities for their own use, which is similar to enterprise-wide capabilities.

Principle 6: Service Orientation

Statement: Services within architecture are designed to mirror real-world business activities.

Rationale: Service orientation delivers enterprise agility and Boundaryless Information Flow.

Implication: Business descriptions provide context for services while service orientation places unique requirements on the infrastructure.

Principle 7: Compliance with Law

Statement: Enterprise information management processes comply with all relevant laws, policies, and regulations.

Rationale: Abiding by laws, policies, and regulations must be part of Enterprise policy.

Implication: The enterprise must have access to the rules, as well as education on compliance requirements.

Principle 8: IT Responsibility

Statement: The IT organization is responsible for owning and implementing IT processes and information, which meet user-defined requirements for functionality, service levels, cost, and delivery timing.

Rationale: Solutions that are efficient and effective also have reasonable costs and clear benefits.

Implication: IT functions must define processes to manage business unit expectations.

Principle 9: Protection of Intellectual Property

Statement: The protection of the enterprise's Intellectual Property must be reflected in the IT architecture, implementation and governance processes.

Rationale: An enterprise's Intellectual Property is hosted in the IT domain.

Implication: A security policy, which governs human and IT actors, is required to substantially improve protection of IP.

Data Principles:

Principle 10: Data is an Asset

Statement: Data, as an asset, has value to the enterprise and must be managed accordingly.

Rationale: Data aids decision-making, making it a valuable corporate resource that must be appropriately managed.

Implication: Data stewards must have the authority and means to manage data in order to prevent obsolete, incorrect, or inconsistent data from being proliferated in the enterprise.

Principle 11: Data is shared

Statement: Users must have access to shared data necessary to perform their duties.

Rationale: It is less expensive to maintain accurate data in a single application and share it, instead of maintaining duplicate data in multiple applications.

Implication: Enabling data sharing requires that policies, procedures, and standards governing data management and access must be developed and used. Data sharing will require a massive change in culture.

Principle 12: Data is Accessible

Statement: Data must be accessible to users to enable their performance of duties.

Rationale: Efficiency and effectiveness in decision-making is enabled by the wide access to data from the enterprise.

Implication: The ease that users can obtain information is a function of accessibility.

Principle 13: Data Trustee

Statement: Data elements must have a trustee accountable for data quality.

Rationale: Trustees must have sole responsibility for data entry to eliminate redundant human effort and data storage resources.

Implication: Data trustees will be responsible for meeting quality requirements on the data they are accountable.

Principle 14: Common Vocabulary and Data Definitions

Statement: Definitions that are understandable and available to all users are consistently given to data.

Rationale:	A common vocabulary facilitates communications and enables effective dialog throughout the enterprise.
Implication:	Initial common vocabulary must be established in the enterprise. Definition will be used uniformly and new data definitions must be defined in cooperation and reconcile with other definitions.

Principle 15:	Data Security
Statement:	Data is protected from unauthorized use and disclosure.
Rationale:	A balance must be made between security and privacy of data and free and open access.
Implication:	To provide access to open information while maintaining a secure environment, security must be a concern at the data level, not the application.

Application Principles:

Principle 16:	Technology Independence
Statement:	Applications can operate on multiple technology patterns when independent of specific technology choices.
Rationale:	Independence of applications from the technology allows applications to be developed, upgraded, and operated cost-effectively and timely.
Implication:	Standards supporting portability must be in place.

Principle 17:	Ease-of-Use
Statement:	Applications must be easy to use and the technology transparent to users.
Rationale:	Ease-of-use encourages users to work inside an integrated information environment.
Implication:	Applications will be required to have a common look and feel.

Technology Principles:

Principle 18:	Requirements-Based Change
Statement:	Change to applications and technology are made in response to business needs.
Rationale:	Unintended effects on business due to IT changes will are minimized.
Implication:	Change management processes to support these principles must be developed and implemented.

Principle 19:	Responsive Change Management
Statement:	Changes to the enterprise are implemented in a timely manner.
Rationale:	The information environment must be responsive to the users needs.
Implication:	Processes for managing and implementing change must be developed to prevent delays in execution.

Principle 20:	Control Technical Diversity
Statement:	Control of technology diversity minimizes the non-trivial cost of maintaining expertise of multiple processing environments.
Rationale:	Limiting the number of supported technological components will simplify maintainability and reduce costs.
Implication:	Policies, standards, and procedures that govern acquisition of technology must control the diversity of that technology.

7.2 Architecture Artifacts

7.2.1 Architecture Contract

Joint agreements between development partners and sponsors on the deliverables, quality, and fitness-for-purpose of architecture.

Contents of an Architecture Design and Development Contract:

- Architecture and strategic principles and requirements
- Conformance requirements
- Architecture development and management process and roles
- Target Architecture measures
- Defined phases of deliverables
- Prioritized joint workplan
- Time window(s)
- Architecture delivery and business metrics

Contents of a Business Users' Architecture Contract:

- Introduction and background
- The nature of the agreement
- Scope of the architecture
- Strategic requirements
- Conformance requirements
- Architecture adopters
- Time Window(s)
- Architecture business metrics
- Service architecture and SLAs

7.2.2 Architecture Definition Document

A deliverable container for the core architectural artifacts created during a project. The Architecture Definition Document is a companion document to the Architecture Requirements Specification.

The contents of the Architecture Definition document are:

- Scope
- Goals, objectives, and constraints
- Architecture principles
- Baseline Architecture
- Architecture models
- Rationale and justification for approach
- Mapping to Architecture Repository
- Gap analysis
- Impact Assessment

7.2.3 Architecture Principles

General rules and guidelines to inform and support how an organization fulfills its mission.

7.2.4 Architecture Repository

A storage area for all architecture-related projects within the enterprise.

The content of the Architecture Repository include:

- Architecture Frameworks
- Standards Information Base
- Architecture Landscape
- Reference Architectures
- Governance Log

7.2.5 Architecture Requirements Specification

A set of quantitative statements, which outline what actions an implementation project must take to comply with the architecture.

The contents of the Architecture Requirements Specification include:

- Success measures
- Architecture requirements
- Business service contracts
- Application service contracts
- Implementation guidelines
- Implementation specifications
- Implementation standards
- Implementation requirements
- Constraints
- Assumptions

7.2.6 Architecture Roadmap

The Architecture Roadmap is a listing of individual increments of change and shows the progression from Baseline Architecture to the Target Architecture.

The contents of the Architecture Roadmap include:

- Project list
- Time-oriented Migration Plan
- Implementation recommendations

7.2.7 Architecture Vision

The Architecture Vision is a high-level view of the final architecture product.

The content of the Architecture Vision includes:

- Problem description
- Detailed objectives
- Environment and process models
- Actors and their roles and responsibilities
- Resulting architecture model

7.2.8 Capability Assessment

The Capability Assessment provides an understanding of the baseline and target capability level of the enterprise.

The contents of the Capability Assessment are:

- Business Capability Assessment
- IT Capability Assessment
- Architecture Maturity Assessment
- Business Transformation Readiness Assessment

7.2.9 Change Request

The Change Request is a formalized attempt to request a change to the architecture.

The content of a Change Request includes:

- Description of the proposed change
- Rationale for the proposed change
- Impact assessment of the proposed change
- Repository reference number

7.2.10 Communications Plan

The Communications Plan provides a basis for communicating within a planned and managed process to stakeholders.

The contents of a Communication Plan include:

- Identification of stakeholders and grouping by communication requirements
- Identification of communication needs
- Identification of communication mechanisms
- Identification of a communications timetable

7.2.11 Compliance Assessment

The Compliance Assessment provides a basis for determining and documenting compliance to the architecture.

The contents of the Compliance Assessment are:

- Overview of project progress and status
- Overview of project architecture and design
- Completed architecture checklists

7.2.12 Implementation and Migration Plan

A schedule for implementation of the Transition Architecture solution:

- Implementation and Migration Strategy
- Interactions with other management frameworks
- Project charters
- Implementation Plan

7.2.13 Implementation Governance Model

The Implementation Governance Model enables Transition Architectures to be governed while being implemented into the enterprise.

The contents of the Implementation Governance Model include:

- Governance processes
- Governance organization structure
- Governance roles and responsibilities
- Governance checkpoints and criteria for success

7.2.14 Organizational Model for Enterprise Architecture

The Organizational Model for Enterprise Architecture demonstrates the organization, roles and responsibility within the enterprise.

The content of the Organizational Model for Enterprise Architecture consists of:

- Scope of organizations impacted
- Maturity assessment, gaps, and resolution approach
- Roles and responsibilities for architecture team(s)
- Constraints on architecture work
- Budget requirements
- Governance and support strategy

7.2.15 Request for Architecture Work

The Request for Architecture Work is sent from sponsoring organizations to the architecture organization to trigger the start of an architecture development cycle.

The contents of a Request for Architecture Work consist of:

- Organization sponsors
- Organization's mission statement
- Business goals (and changes)
- Strategic plans of the business

- Time limits
- Changes in the business environment
- Organizational constraints
- Budget information and financial constraints
- External constraints and business constraints
- Current business system description
- Current architecture and IT system description
- Description of developing organization
- Description of resources available to developing organization

7.2.16 Requirements Impact Assessment

The Requirements Impact Assessment assesses the current architecture requirements and specifications to identify changes to be made and the implications of those changes.

The contents of the Requirements Impact Assessment consist of:

- Reference to specific requirements
- Stakeholder priority of the requirements to date
- Phases to be revisited
- Phase to lead on requirements prioritization
- Results of phase investigations and revised priorities
- Recommendations on management of requirements
- Repository reference number

7.2.17 Statement of Architecture Work

The Statement of Architecture Work defines the scope and approach used to complete an architecture project.

The contents of a Statement of Architecture Work are:

- Statement of Architecture Work title
- Project request and background
- Project description and scope
- Overview of Architecture Vision

- Managerial approach
- Change of scope procedures
- Roles, responsibilities, and deliverables
- Acceptance criteria and procedures
- Project plan and schedule
- Support of the Enterprise Continuum
- Signature approvals

7.2.18 Tailored Architecture Framework

The Tailored Architure Framework adopts the industry standard TOGAF for integration into the enterprise.

The content of the Tailored Architecture Framework includes:

- Tailored architecture method
- Tailored architecture content
- Configured and deployed tools
- Interfaces with governance models and other frameworks

7.2.19 Transition Architecture

Transition Architecture demonstrates the enterprise at incremental states reflecting periods of transition between the Baseline and Transition Architectures.

The contents of the Transition Architecture are:

- Opportunity portfolio
- Work package portfolio
- Milestones
- Implementation Factor Assessment and Deduction Matrix
- Consolidated Gaps, Solutions, and Dependencies Matrix

7.3 Glossary

Abstraction—a technique of describing detailed and complex content in a generalized fashion

Activity—A task or collection of tasks supporting organizational functions

Actor—a person, organization, or system, which initiates or interacts with activities

Application—an operational IT system supporting business functions and services

Application Architecture—a description of logical groupings of capabilities used to manage the data objects required to support the business

Application Platform—a collection of technology components of hardware and software used to support applications

Application Platform Interface (API)—an interface or set of functions, between the application software and application platform

Architectural Style—distinctive features showing how architectures perform

Architecture—1) a formal description of a system or detailed plan of a system at the component level to aid implementation, 2) the structure of components, relationships, principles, and guidelines, which govern design and growth over time

Architecture Building Block (ABB)—a form of the architecture model

Architecture Continuum—a part of the Enterprise Continuum comprising of a repository of architectural elements

Architecture Development Method (ADM)—a formal approach to develop and use enterprise architecture

Architecture Domain—a specific area of the architecture where development focus can reside. Four domains exist within TOGAF: business, data, application, and technology.

Architecture Framework—a structure or set of structures used to develop different architectures

Architecture Governance—the practice and orientation for managing and controlling architectures at an enterprise level

Architecture Principles—a statement of intent used to identify requirements for the architecture

Architecture View—a defined perspective of the architecture

Architecture Vision—1) a high-level view of the Target Architecture, 2) a phase in the ADM defining the Architecture Vision, 3) a specific deliverable of the Architecture Vision phase

Artifact—an architectural work product describing the architecture from a specific viewpoint

Baseline—A formally reviewed and agreed upon specification, which serves as the basis for development or change

Boundaryless Information Flow—1) the Open Group trademark, 2) a representation of

the desired state of the information infrastructure to support the business needs of the organization through combining multiple sources of information and delivering secured information across the enterprise

Building Block—represents a component of business, IT, or architectural capability, which is combined with other building blocks to deliver architectures and solutions

Business Architecture—a combination and interaction of business strategy, governance, organization, and key business processes

Business Domain—a grouping of coherent business functions and activities

Business Function—an identifiable component, which delivers business capabilities, aligned to the needs of an organization

Business Governance—ensures the business processes and policies adhere to relevant regulatory standards and delivers expected business outcomes

Business Service—an explicitly defined interface supporting business capabilities and governed by the organization

Capability—the ability possessed by an organization, person, or system, which are defined in general terms

Capability Architecture—a detailed description of the architectural approach to realize a particular solution or aspect of a solution

Capability Increment—the output of a business change initiative delivering an increase in performance

Communications and Stakeholder Management—the process and discipline of managing the needs of the stakeholders of the enterprise architecture and the execution of communication required

Concerns—the key interests of the stakeholder in a system, which determine the acceptance of the system in the enterprise

Constraints—any external factor, which prevents an organization from utilizing a specific approach to meet its goals

Data Architecture—the structure of the logical and physical data assets and data management resources within an organization

Deliverable—an architectural work product, which is specified contractually and represents the output of projects

Enterprise—the description of an organization at the highest level covering all missions and functions

Enterprise Continuum—a mechanism used to classify architecture and solution artifacts

Environment Management—the processes and discipline to manage the environment required to support the operations of the enterprise architecture practice

Financial Management—the processes and discipline to manage the financial aspects of the enterprise architecture practice

Foundation Architecture—a set of generic services and functions used to build specific

architectures and architectural components

Framework—a structure for content or process used to provide consistency and completeness to a solution

Gap – the statement of the difference between a baseline and target state of a focused area

Governance—the discipline of monitoring, managing, and steering business activities to achieve desired business outcomes

Information—a representation of facts, data, or opinions gathered for the purpose of sharing

Information Technology (IT)—1) the lifecycle management of information and related technology within an organization, 2) a term used to represent the subject areas related to a computer environment, 3) a term assigned to a department tasked with providing services and support to a computer environment

Interoperability—the ability to share information and services between departments, systems, or functions

Knowledge—the awareness and understanding of information gained in the form of experience or learning

Logical—a definition of the architecture, which is independent of any implementation and typically involves the grouping-related physical entities based on their purpose and structure

Metadata—data about data, which describes the characteristics of an entity

Metamodel—a structured method describing architecture

Method—a defined, repeatable approach to address a specific problem type

Methodology—a defined, repeatable series of steps to address a particular problem type centering on a specific process

Model—a representation of a subject of interest on a smaller scale, more simplified, and/or abstractual

Modeling—a technique though the construction of models enabling a subject to be represented

Objective—a time-bound milestone demonstrating progress towards a goal

Organization—a self-contained unit of resources with defined responsibility, goals, objectives, and measures

Patterns—a technique for combining building blocks into a useful context

Performance Management—the monitoring, control, and reporting of the performance of enterprise architecture

Physical—a description of a real-world entity

Platform—a combination of technology products and components used to host application software

Platform Services—the technical capability required to provide the necessary infrastructure for supporting applications

Principles—general rules and guidelines intended to inform and support the organization's

fulfillment of its mission

Reference Model—an abstract framework for understanding significant relationships between entities of an environment and to develop consistent standards or specifications supporting that environment

Repository—a system for managing the data of an enterprise

Requirement—a statement of business need that must be met by a particular architecture or work package

Resource Management—the acquisition, development, and management of human resources within the enterprise architecture

Roadmap—an abstracted plan for business or technology change

Role—1) the usual or expected function of an actor 2) The part an individual plays in an organization and the contribution made through skills, knowledge, experience, and abilities

Segment Management—the process and discipline of the execution and performance of enterprise architecture services

Service Orientation—a perspective formed by service terms and service-based development and the outcomes of services

Service Oriented Architecture (SOA)—an architectural style based on the design of services, representing those services through the context provided by business descriptions, placing unique requirements on the infrastructure, and providing environment-specific implementations. SOA requires strong governance of service definition, representation, and implementation.

Skill—the ability to perform a job-specific activity

Solution Architecture—a description of discrete and focused business operations, activities, and the IT supporting that operation

Solution Building Blocks—a physical solution for an Architecture Building Block

Solutions Continuum—a part of the Enterprise Continuum representing a repository of re-usable solutions for future implementations

Stakeholder—an individual, team, or organization with particular interests or concerns for the outcome of architecture

Standards Information Base (SIB)—a database of standards used to define the particular services and components of an organization-specific architecture

Strategic Architecture—a formal description of the enterprise, providing an organized framework for operational and change activity and direction setting

Target Architecture—the description of a future state of the architecture being developed for an organization

Taxonomy or Architecture Views—the organized collection of all views pertinent to an architecture

Technical Reference Model (TRM)—a structure for describing the components of an information system in a consistent manner

Technology Architecture—the logical software and hardware capabilities required to support deployment of business, data, and application services

Transition Architecture—a formal description of the enterprise architecture showing periods of transition and development for sections of the enterprise

View—a representation of a related set of concerns

Viewpoint—a definition of the perspective using a specific view

Work Package—a set of actions used to achieve one or more business objectives

8 Practice Exam

8.1 Refresher "Warm up Questions"

The following multiple-choice questions are a refresher from the Foundation level as a prelude.

Question 1

Which of the following is not considered a benefit or function of The Open Group Architecture Framework?

A) Enables the right balance of IT efficiency and business innovation to be achieved
B) Lowers costs of software development, support, and maintenance
C) Ensures that IT components can be procured cheaply
D) Reduces complexity in the IT infrastructure

Question 2

You are currently working on a project to define the architectural elements of the organization for the purpose of understanding any areas of weakness in the IT infrastructure or redundancies that are not actively benefiting the organization. The team is identifying the set of architectural and business constraints that affect how the current architect is formed. What phase of the Architecture Development Framework is the project currently working in?

A) Business Architecture
B) Opportunities and Solutions
C) Requirements Management
D) Preliminary

Question 3

Which tool allows an enterprise to validate its current architecture against the design standards established?

A) Business Impact Analysis
B) Gap Analysis
C) Standards Verification
D) Design Testing

Question 4

Direct implementation of the architecture begins in what phase of the ADM?

A) Opportunities and Solutions
B) Technology Architecture
C) Implementation Governance
D) Migration Planning

Question 5

Which of the following inputs to the ADM is expected to contain the strategic plans and business goals of the enterprise?

A) Architecture Principles
B) Request for Architecture Work
C) Architecture Building Blocks
D) Business Analysis

Question 6

Descriptions of the actual implementation of architecture within an enterprise are found within what body of knowledge?

A) Architecture Continuum
B) Solution Continuum
C) Statement of Architecture Work
D) Organization Solutions

Question 7

Which of the following is not a service category found within the Application Platform of the TRM?

A) Network Services
B) Business Process Services
C) Data Interchange Services
D) User Interface Services

Question 8

What type of business application manages requests from clients and submits those requests to a variety of service providers to be fulfilled?

A) Management Utility
B) Information Provider Applications
C) Brokerage Applications
D) Information Consumer Applications

Question 9

What is the IDEAL Life Cycle Model for Improvement?

A) Reference Model
B) Architecture Type
C) Development Model
D) Capability Maturity Model

Question 10

What is the best definition of the design pattern?

A) A detailed procedure for implementing components of a system
B) A scheme for refining components of a software system
C) The structural organization for a software system
D) A method for combining design elements to produce a useful model for implementation

Question 11

Which of the following characteristics is not a distinction of a good architecture principle?

A) Meaningful
B) Consistent
C) Understandable
D) Stable

Question 12

Which Architecture Governance process is used when a Compliance Assessment is rejected to ensure service and operational levels in the environment are met?

A) Dispensation
B) Environment Management
C) Monitoring and Reporting
D) Compliance

Question 13

The ability of a standard to be applied to any company equally is a function of which criteria for inclusion to the SIB?

A) Freedom to Develop
B) Non-discriminatory Patents
C) Non-discriminatory Implementation
D) Availability of Implementations

Question 14

Enterprise Architectures are the most relevant to the IT customer for what reason?

A) Enterprise Architectures provide the guidelines for creating a complete, robust computing environment
B) Enterprise Architectures provide the technology standards for implementing the architecture into the environment
C) Enterprise Architectures provide industry-specific data and process models to be incorporated into the enterprise
D) Enterprise Architectures reflect the requirements and define the building blocks to a specific enterprise

Question 15

Several departments within the enterprise have come together to discuss the architecture needs of the organization. Which TOGAF element will have the greatest impact in the discussion by providing a consistent and common language?

A) Architecture Capability Framework
B) Enterprise Continuum
C) Architecture Development Framework
D) Statement of Architecture Work

Question 16

Running the entire architecture through the architecture development cycle is a form of what type of change?

A) Simplification change
B) Development change
C) Incremental change
D) Re-architecture change

Question 17

Which phase of the ADM is used to define the logical groups of capabilities that manage data objects as necessary to support the business?

A) Phase C—Information Systems Architecture
B) Phase B—Business Architectures
C) Phase A—Architecture Vision
D) Requirements Management

Question 18

Business Models are used to represent how an organization works and can take on several forms. Which type of business model describes the static information used within an organization as well as how that information affects the operation of the business?

A) Activity Models
B) Class Models
C) Use-case Models
D) Business Process Models

Question 19

What are the four dimensions for defining the scope of architecture activity?

A) Focus, Need, Detail, and Strategy
B) Business, Data, Application, and Technology
C) Enterprise, Architecture, Vertical, and Time
D) Vision, Requirements, Strategy, and Architecture

Question 20

Which architectures does TOGAF handle?

A) Business, Data, Application, Technology
B) Physical, Logical, Data, and Procedural
C) Process, Knowledge, Application, Technology
D) Strategic, Tactical, Operational, and Improvement

Question 21

Which of the following is not an output of the Preliminary Phase of the ADM?

A) Architecture principles
B) Definition of the Architecture Framework
C) Restatement of business drivers
D) IT governance strategy

Question 22

A skills matrix is a component of what document?

A) Business Architecture Report
B) Gap Analysis
C) Application Architecture Report
D) Statement of Architecture Work

Question 23

When determining the disposition of current systems in the enterprise, which of the following classifications would identify systems that are expected to be replaced or modified in the next three years?

A) Mainstream systems
B) Replace systems
C) Contain systems
D) Emerging Systems

Question 24

Which of the following project deliverables are expected to have signature approvals?

A) Architecture Vision
B) Requirements Impact Statement
C) Architecture Contract
D) Statement of Architecture Work

Question 25

Which solution type of the Solution Continuum contains the implementation description of a Common Systems Architecture?

A) Products and Services
B) Industry Solutions
C) Systems Solutions
D) Organization Solutions

Question 26

Which component of the Technical Reference Model emphasizes the architecture objective of interoperability?

A) Application Platform Interface
B) Communication Infrastructure Interface
C) Application Interface
D) Communication Infrastructure

Question 27

What are the general service qualities of the TRM taxonomy?

A) Availability, Assurance, Usability, and Adaptability
B) Confidentiality, Integrity, Availability, and Adaptability
C) Security, Usability, Performance, and Capability
D) Availability, Recovery, Performance, and Confidentiality

Question 28

The current implementation of the architecture has some common features with the architecture specification and they conform to those specifications the best they can, with some of the features of the architecture specification not being implemented yet. An audit of the enterprise is scheduled for next week. What level of Architecture Compliance is the best that the enterprise should hope for at this time?

A) Compliant
B) Conformant
C) Non-Conformant
D) Consistent

Question 29

A method of combining architecture components together for practical use is called _____.

A) a pattern
B) a building block
C) a model
D) a solution

Question 30

Managing business change is typically encompassed by which category of skill in the Architecture Skill Framework of TOGAF?

A) Project Management
B) Business Skills
C) IT General Knowledge
D) General Skills

Question 31

The enterprise's IT goals and methods have been identified and a TRM and standards have been fully developed. What level of capability maturity is the enterprise at?

A) Level 2: Under Development
B) Level 3: Defined
C) Level 4: Managed
D) Level 5: Optimizing

Question 32

Which of the following is not a characteristic of Architecture Governance?

A) Authority
B) Accountability
C) Transparency
D) Independence

Question 33

Which of the following is not considered a use of the Standards Information Base?

A) Developing Architectures
B) Providing General Information
C) Acquisition Decision-Making
D) Establishing Standards

Question 34

The conceptual structure of an information system, as well as the terminology and component descriptions used, are referred to as a _____.

A) Architecture
B) Taxonomy
C) Graphic
D) Reference Model

Question 35

Which of the following architecture types provides the most general descriptions of building blocks and standards for a complete computing environment?

A) Foundation Architectures
B) Industry Architectures
C) Common systems Architectures
D) Organization Architectures

Question 36

When enabling and supporting seamless information flow across the entire organization, which component of the Enterprise Continuum should be included?

A) Solutions Continuum
B) Architecture Continuum
C) Foundation Architecture
D) III-RM

Question 37

Architecture Contracts are an output of which phase of the ADM?

A) Migration Planning
B) Requirements Management
C) Implementation Governance
D) Technology Architecture

Question 38

Which of the following is not found within the Data Architecture Report?

A) Logical Data Model
B) Data Architecture Principles
C) Data Management Process Model
D) Data Interoperability Requirements

Question 39

Documented in the Statement of Work, what is the critical component used to created consensus for the architecture?

A) Architecture Vision
B) Architecture Principles
C) Reference Models
D) Business Goals

Question 40

Which of the following points are true about the Architecture Development Method?

A) The ADM is intended to be used by enterprises in managing a specific geography of a vertical sector.
B) Decision-making is easier using the ADM subjectively.
C) No other framework or architectural method can be used when implementing the ADM.
D) The ADM is iterative across the entire process, between and within each phase of the process.

9 Answer Guide

9.1 Answers to Questions

Question 1

Answer: C

Reasoning: There are many benefits for adopting The Open Group Architecture Framework. Of the ones here, being able to procure IT components cheaply is not a benefit. Making smarter, more effective decisions in the procurement process that result in obtaining IT components that have a greater return on investment is the best that TOGAF can offer.

Question 2

Answer: D

Reasoning: The team is attempting to define the architecture principles of the enterprise, which is normally a function of the preliminary phase of the ADM. Principles apply constraints on the architecture options available.

Question 3

Answer: B

Reasoning: Gap Analysis will evaluate an implementation against specific criteria to identify what is present or missing.

Question 4

Answer: A

Reasoning: The first real phase to deal with the implementation

Question 5

Answer: B

Reasoning: Requests for Architecture Work should contain all information necessary to justify the request for any architecture work performed. This information includes any strategic plans or business goals supporting the request.

Question 6

Answer: B

Reasoning: The Solution Continuum within the Enterprise Continuum contains the implementations of architectures that correspond to the descriptions contained in the Architecture Continuum. Organization Solutions is just one aspect of the Solutions Continuum.

Question 7

Answer: B

Reasoning: Business Process Services is generally not a service within the Application Platform since the product or operation of the service is the development or management of application software.

Question 8

Answer: C

Reasoning: Brokerage Applications of the III-RM are setup to manage requests between clients and service providers.

Question 9

Answer: D

Reasoning: The IDEAL Life Cycle Model is a form of Capability Model.

Question 10

Answer: B

Reasoning: Design patterns at a high-level address issues of the architecture, design, or programming implementation and at a lower level are a scheme for refining a software system.

Question 11

Answer: A

Reasoning: A good set of principles are distinguishable by the criteria of being understandable, robust, complete, consistent, and stable. Meaningful is not a criteria.

Question 12

Answer: A

Reasoning: Dispensation provides a period where service and operational levels can be met after a Compliance Assessment has been rejected.

Question 13

Answer: C

Reasoning: Non-discriminatory Implementation speaks to the ability to implement a specific specification to any company within any prejudice or discrimination.

Question 14

Answer: D

Reasoning: The relevancy to an IT customer is derived when it applies to the specific enterprise of the customer. Though the customer may require compliance to industry or technology standards, it is how the architecture will meet those requirements that are their greatest concerns. They are interested in practical implementation, not theoretical guidelines.

Question 15

Answer: B

Reasoning: The Enterprise Continuum is considered an aid to communication and understanding the possible architectures within an enterprise by providing a snapshot of all architecture assets.

Question 16

Answer: D

Reasoning: When the entire architecture is put through a change, it is being re-architected.

Question 17

Answer: A

Reasoning: Applications are defined as logical groups of capabilities in TOGAF. Application architecture is a function of Phase C: Information System Architecture.

Question 18

Answer: B

Reasoning: Class models are similar to logical data models, focusing on business information and its characteristics within the enterprise.

Question 19

Answer: C

Reasoning: Scope of architecture activity is generally defined by the extent, or focus, of the enterprise endeavored, the specific architecture domains concentrated on, the level of detail allowed in the vertical scope, and the amount of time provided to complete the work.

Question 20

Answer: A

Reasoning: The Open Group Architecture Framework incorporates several architectures: Business, Data, Application, and Technology.

Question 21

Answer: D

Reasoning: The IT governance strategy is an input of the preliminary phase if it exists, but it is typically not an output.

Question 22

Answer: A

Reasoning: The Business Architecture Report can consist of a business and management footprint, a description of the business functions and information needs, any relevant standards or guidelines, and a skills matrix.

Question 23

Answer: C

Reasoning: Contain systems is the classification for systems expected to be replaced or modified in the next three years. The closest other classification is replace systems, which have been identified as systems that must be replaced immediately.

Question 24

Answer: D

Reasoning: Signature approvals are part of any Statement of Architecture Work to ensure that all stakeholders have seen and see value in the work to be performed.

Question 25

Answer: C

Reasoning: The Solution Continuum corresponds directly with the Architecture Continuum. Keeping this in mind, Systems Solutions are the implementation of any Common Systems Architectures found in the Architecture Continuum.

Question 26

Answer: B

Reasoning: The Communication Infrastructure Interface identifies the set of services from the Communication Infrastructure to be advantageous on any specific platform. Using the same services on multiple Application Platforms encourages interoperability and is one of the fundamental objectives of the Communication Infrastructure Interface.

Question 27

Answer: A

Reasoning: All service qualities fall within the categories of Availability, Assurance, Usability, and Adaptability.

Question 28

Answer: D

Reasoning: A conformance level of Consistent identifies an environment where some of the features of the architecture are implemented and the ones that are do not all conform in accordance to the specifications. If all the implemented features did conform to the specifications accordingly, the level would be Conformant.

Question 29

Answer: A

Reasoning: The best answer to complete this statement is 'a pattern', which combines building blocks within a practical context and used within the enterprise.

Question 30

Answer: A

Reasoning: Program or Project Management Skills include the ability to manage changes in the business environment.

Question 31

Answer: B

Reasoning: The Capability Maturity level of the enterprise with a fully developed TRM, standards, IT goals and methods is a condition for Level 3: defined in the ACMM.

Question 32

Answer: A

Reasoning: Authority is not a characteristic of governance since governance is not about control, but conformance. Though persons of authority may be involved, a governing body promotes the authority structure while remaining outside of that structure.

Question 33

Answer: D

Reasoning: A Standards Information Database provides information for a number of reasons. Though it may house information on standards, it is not intended to establish standards for an organization.

Question 34

Answer: B

Reasoning: Many aspects of TOGAF have taxonomies to provide the basic definitions that make up a component.

Question 35

Answer: A

Reasoning: All Architectures within the Architect Continuum are built on the fundamental constructs found in the Foundation Architecture. For this to be possible, these constructs are the most general in concept and description.

Question 36

Answer: D

Reasoning: The Integrated Information Infrastructure Reference Model (III0RM) enables and supports the Boundaryless Information Flow.

Question 37

Answer: C

Reasoning: Architecture Contracts are used to form an agreement between the sponsor and any development providers.

Question 38

Answer: B

Reasoning: Data Architecture Principles may be used to define and guide those different aspects of the Data Architecture Report but are not themselves an expected deliverable of the report.

Question 39

Answer: A

Reasoning: An Architecture Vision is critical to obtaining consensus for any work within TOGAF after Phase A.

Question 40

Answer: D

Reasoning: The truest answer about ADM is that it is iterative. The ADM can be used across geographies and through several vertical sectors. ADM aids decision-making in providing a method to acquiring and providing information required to make the decision effectively. Finally, ADM complements and utilizes any other frameworks that may already be employed within the organization.

10 References

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